



*"ICO, The place where the World of optics meets"*

# TOWARDS ICO-21 *EN ROUTE VERS CIO-21*

JUNE 2008



Edited by the ICO Secretary  
Maria L. Calvo  
Madrid, Spain



*"ICO, the place where the World of Optics meets"*

# **TOWARDS ICO-21**

## ***EN ROUTE VERS CIO-21***

### **JUNE 2008**

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## **PART I: ICO TRIENNIAL REPORT**

# TRIENNIAL REPORT OF THE ICO TO IUPAP FOR 2005-2008

## Introduction

It was in 1997 that the International Commission for Optics (ICO) celebrated its 50th anniversary. The backbone of the ICO are the Territorial Committees that represent the members (countries or territories, as they are called) of the ICO and provide direct links to the scientific optics communities in all parts of the globe. The ICO has fulfilled, and continues to fulfil, its mission to contribute, on an international basis, to the progress of the science of optics and its applications through a variety of programs and activities in collaboration with the territorial optics communities. But the field of optics has changed dramatically over the recent years, and so has the world we live in. With the remarkable progress and developments, optics and photonics are now more exciting and promising than ever, not only as a field of science and technology but also as a stimulus for growth in economy and wellbeing. In accordance with its charter the ICO strives to ensure that not just the technologically advanced nations but also the developing regions of the world will be able to share in the profits.



*ICO President (term 2005-2008), Ari T. Friberg, professor at the Royal Institute of Technology (KTH), Stockholm, Sweden*

Therefore, to be able to address the global challenges, the ICO has revised its structure and operations during the last three triennial periods, starting in 1999. First, the introduction of International Society members (IS) has put the ICO in direct contact with the optical sciences and engineering organizations worldwide. Currently the ICO has six IS members: the four original ones from 1999, i.e., OSA, SPIE, IEEE/LEOS, EOS, and two newer ones from 2002, viz., OWLS – Optics Within Life Sciences, and LAM – the African Laser, Atomic, Molecular, and Optical Physics Network. The OWLS society serves as an important link between the ICO and the rapidly expanding fields of biomedical engineering and life sciences. The LAM Network, on the other hand, with several nodes caters to all African scientists and also provides an extra seat in the ICO Bureau for the African optics community. Other topical or geographically based IS members could be envisioned and encouraged as well, e.g., those representing South and Central America or Far-East and South-East Asia.

In 2005 came the next big change in the ICO structure. Optics has its roots deeply in physics and since its foundation in 1947 the ICO has been an Affiliated Commission (specifically, AC. 1) of IUPAP, the International Union of Pure and Applied Physics. The collaboration between the ICO and IUPAP and its various Commissions has always worked very well and continues to be successful. However, optics is developing and acquires features that are not closely related to fundamental physics. In other words, optics is increasingly turning into a scientific discipline of its own. For this reason the ICO applied and was in October 2005 admitted as an International Scientific Associate into ICSU, the International Council for Science. This is an important step

for optics and the ICO and I will say more about it later. Suffice it merely to point out now that being an ICSU member puts optics and the ICO directly in contact with the other disciplines and international bodies within science and technology that constitute ICSU. The ICO will naturally keep its status as an Affiliated Commission of IUPAP as well.

Before addressing the ICO triennial activities and the recent advancements within optics, I will briefly mention another important development in Europe. Prompted by the US National Research Council's study "Harnessing Light: Optical Science and Engineering for the 21st Century", which has led to similar evaluations and programs in other countries, a European Technology Platform Photonics<sup>21</sup> was established in Brussels in December 2005. The strategic research agenda "Towards a Bright Future for Europe" was then completed early 2006, helping to place optics and photonics firmly into the European research framework programs. While these events concern mainly Europe, several ICO officials were involved in the process. These developments are yet another indication of the significance and impact of optics and photonics to our modern society, acknowledged even on the highest political level.

### **ICO activities, 2005-2008**

The triennial period 2005-2008 was commenced with a banner year, the World Year of Physics 2005. The ICO participated actively in the celebrations, e.g., by introducing a special logo and announcing all ICO conferences that year as WYP events. These actions brought added global visibility to physics and highlighted the fundamental link of optics to physics. And as if icing on the cake, the 2005 Nobel Prize in physics was awarded to Roy J. Glauber, John L. Hall, and Theodor W. Hänsch for their pioneering and outstanding work in quantum optics and laser-based precision spectroscopy.

And, as I mentioned above, the year 2005 finished off with a bang. In their meeting in Suzhou, China the General Assembly of ICSU (formerly known as the International Council of Scientific Unions, from which the acronym stems) towards the end October 2005 admitted the ICO as an International Scientific Associate member in ICSU. ICSU is an independent international organization, working closely with the United Nations Educational, Scientific, and Cultural Organization (UNESCO) and the Third World Academy of Sciences (TWAS). It represents all disciplines in science and promotes their interaction in interdisciplinary actions. ICSU has four types of members: International Unions (IUPAP being one of them), National Members, International Scientific Associates, and National Associates. The admittance of the ICO in ICSU will greatly enhance the overall visibility and recognition of optics as an own scientific discipline and, consequently, it will have a positive impact on optics education, on the funding of optical research, and on industrial applications of optics and photonics. The ICO will be able to interact with other international scientific bodies and actively take part in the global initiatives of ICSU, such as those on climate change and energy. The direct contacts between the ICO and IUPAP will continue as before. The new ICSU membership of the ICO was celebrated in February 2006 at the Abdus Salam International Centre for Theoretical Physics (ICTP) in Trieste, Italy, in connection with the ICO/ICTP Winter College on Optics, an occasion in which all the International Society members of the ICO were represented.

During the triennium 2005-2008 the ICO has worked, through its Territorial and International Society Members, to promote optics and photonics in the different regions of the world on the basis of a variety of programs and activities. Perhaps the most visible events are the triennial Congresses of the ICO that consist of a scientific conference and the General Assembly of the members. The ICO-20 Congress in Changchun, China in August 2005 was the largest ever, with more than a thousand participants. Greece and Moldova were admitted as new Members, while Ecuador became an Associate Member, making the total ICO membership count 47 Territorial Members and 3 Associate Members. The ICO has been looking for additional members, especially from developing regions, and it is likely that new members will be formally admitted in the next Congress (ICO-21) in July 2008 in Sydney, Australia.

In the years between the Congresses the main ICO conferences are the Topical Meetings, normally also containing the annual ICO Bureau meeting. The ICO Topical Meeting on Optoinformatics was held in September 2006 in Saint Petersburg, making it the first ever major ICO conference in Russia. The ICO has long promoted optics and laser science in Africa and in line with these initiatives, the ICO Topical Meeting “OptoLaserMed 2007” was organized in Cape Coast, Ghana in November 2007. The acronym stands for “International Conference on Optics and Laser Applications in Medicine and Environmental Monitoring for Sustainable Development”. The conference, which was sponsored by IUPAP, combined also an OWLS meeting and a Workshop of the LAM Network, making it a highly successful and truly major African conference on optics, lasers, and biophotonics.

Besides the Topical Meetings, also the Regional Meetings are ICO major events. In October 2007, the 6th Ibero-American Conference on Optics (RIAO) and the 9th Latin-American Meeting on Optics, Lasers and Applications (OPTILAS) were arranged as an ICO Regional Meeting in Campinas, Brazil. The RIAO/OPTILAS conferences, held every three years, have a long association with the ICO and they represent the main showcase and forum for exchange of optics research and results in South and Central America.

The ICO is also actively involved in two topical conference series. One on them is the Information Photonics (IP; formerly Optics in Computing, OiC) series, a meeting of which was co-located in 2006 with the Optoinformatics conference in Saint Petersburg. The other one is Education and Training in Optics and Photonics (ETOP), the only truly international conference series that focuses entirely on optics education and training at all levels. Since IEEE-LEOS joined in as a new permanent sponsor (the original ones are ICO, SPIE, and OSA), a revised Memorandum of Understanding for the ETOP series was signed late in 2005. Two successful ETOP conferences, eighth and ninth in order, were organized in Marseille, France in October 2005 and in Ottawa, Canada in June 2007, respectively. An exceptional and most useful feature of the ETOP conferences is that all papers (of all meetings) are freely available to everyone on the net.

Between the triennial Congresses in 2005 and 2008 the ICO was involved in a total of 25 conferences, many of them in developing countries (a complete list is in the ICO Green Book). The participation of the ICO in these conferences may assume different levels (e.g., co-sponsorship or endorsement), but in all cases the meetings represent the highest international standard.



Every year, in February, the Winter College on Optics was organized at Abdus Salam ICTP in Trieste, Italy, with the subjects including classical and quantum information optics (2006), fibre optics and fibre lasers (2007), and nano-photonics for life sciences (2008). Through ICTP contact networks, the Winter Colleges reach efficiently students and researchers in developing regions. Preparatory schools were also organized prior to the actual Colleges. The so-called TSOSA (Trieste System of Optical Sciences and Applications) group, which combines local and international optics organizations and bodies, had every year an advisory meeting during the Winter College. The goal is to increase the ICTP in-house activities in optics, while maintaining the valuable initiatives (such as the sandwich doctoral programs) that benefit education and research of optics in developing regions. A related activity is the hands-on global ALOP (Active Learning in Optics and Photonics) program, spearheaded by Minella Alarcon of UNESCO and aimed at high school and university physics teachers. Since 2007 the ICO also formally participates in this novel activity.

In addition to conferences and schools, the ICO has continued its policy of recognizing excellence in optical research. In particular, the ICO has awarded every year three prizes, namely: (i) the ICO Prize, which is the main award given out by the ICO, for outstanding work published before age 40; (ii) the Galileo Galilei Award, for significant contributions under comparatively unfavourable conditions; and (iii) the ICO/ICTP Award, for an outstanding young scientist from a developing country. This latter award, given each year at the Winter College, was in 2008 re-named the ICO/ICTP Gallieno Denardo Award, in recognition of the contributions of late Professor Denardo. A new IUPAP Young Scientist's Prize in optics is under consideration by the ICO Bureau.

During the triennial period 2005-2008 the ICO has continued its Proceedings Donation Program. The ICO has also awarded six Travelling Lecturer awards, for recognized experts in optics and photonics to lecture typically in two or three universities or research institutes in one or two developing countries. The ICO Long-Term Planning Committee has met twice, at the beginning of the Bureau meetings in Saint Petersburg (2006) and in Accra, Ghana (2007). The Regional Development Committee, which works in close collaboration with ICTP, LAM, and networks in South America, has separate sections for the ICO focus regions of Latin America, Africa, and South-East Asia. The Education Committee has been active e.g. on developing optics and photonics curricula at various levels and promoting optics kits and optics training and education in developing countries. Joint activities with ICSU have been explored and cooperation with IUPAP has been continued; besides ICO Bureau contacts in Commissions C13 (physics development), C15 (atomic, molecular, and optical physics), and C17 (quantum electronics), the ICO now also is represented in the IUPAP Workgroup on Nanoscience. The ICO Standards Committee was terminated at the ICO-20 Congress in Changchun in 2005, since the subject was deemed to be out of the present scope of the ICO. Although the ICO statutes call for at least two members of the Bureau to be from industry, direct interaction between the ICO and industry is conspicuously missing from the ICO agenda. I feel that this should not really be so, especially now when optics and photonics enterprises of all types and levels abound throughout the world. One of the challenges for future trienniums may be activating entrepreneurship and arousing the interest of optics industries in the ICO programs. Guidance could be taken from the workshops

on entrepreneurship for physicists and engineers from developing countries, which IUPAP has in recent years organized in collaboration with ICTP.

It has been a tradition with the ICO to produce every three years a book that highlights international trends in optics. Volume 6 in this series, titled “Advances in Information Optics and Photonics” and published by SPIE Press, is due to come out in time for the ICO-21 Congress in Sydney in July 2008. The volume contains 32 authoritative chapters from leading scientists or research groups. The editors are Ari T. Friberg and René Dändliker.

The ICO web site at [www.ico-optics.org](http://www.ico-optics.org) has additional information on the activities. It also contains the ICO Green Book “Towards ICO-21” and the quarterly published ICO Newsletters.

### **About optics in 2008, and beyond**

The field of optics covers such a wide area and progresses so rapidly that any comprehensive survey of the state-of-the-art seems impossible. Only certain important sub-fields of optics and remarkable recent developments can be outlined. The grouping of subjects and choice of results are, of course, somewhat arbitrary and subjective. To the extent applicable I follow here delineations based on the workgroups of Photonics 21 and also address future research topics as identified by WG7 ([www.photonics21.org](http://www.photonics21.org)).

#### Information and photonic communications

The progress in photonics systems, both optical core networks and access systems, has been steady, focusing on high-speed data transmission, all-optical switching, and interconnect applications.<sup>(\*)</sup> Cost reduction of optical components is an important issue to ensure wide-band communication (> 10 Gb/s) everywhere. Emerging applications such as high-definition video transmission necessitate advances in mass storage. Secure communications is another interesting area, in which pre-commercial trials with quantum cryptography already are underway. Also quantum teleportation with entangled photons (and atoms) has recently been demonstrated. The phenomenon of slow light, likewise demonstrated, can be envisioned as a means for localized storage of photons in structures such as Bragg gratings, photonic crystals, and micro-cavities, providing chip-scale memories. Plasmonic technologies and engineered nano-structures (for example, wires, pillars, and dots) show great promise for light manipulation. First experiments on electromagnetically induced transparency (EIT) in quantum dots have been performed.

(\*) It is of interest to mention that Emmanuel Desurvire, Randy Giles, and David Payne are candidates for the 2008 Millennium Technology Prize, a major bi-annual prize devoted to breakthroughs in technology, for their invention and development of erbium-doped fibre amplifier (EDFA) which enabled the high-capacity global optical fibre network.

#### Industrial manufacturing and quality

Laser processing systems, for example for cutting and welding of materials, are the main workhorse of industrial laser applications. Advances have taken place in process control, sensing methods, and beam delivery systems. Recent innovations in fibre-optical components for solid-state lasers, in particular for high-power fibre lasers, have led to have led to significantly increased power levels and beam quality. Shorter high-average power wavelengths in the ultraviolet regime for nano-, pico-, and femtosecond pulsed laser formats, as well as compact

low-cost diode laser systems, are currently objects of interest in industrial production. On the opposite front, free electron lasers that are widely tuneable and radiate even at ultraviolet and soft X-ray wavelengths, are actively planned for use in high-resolution materials characterization and processing, such as optical lithography.

### Life sciences and health

Optical and other imaging techniques have had a major impact on medical diagnostics and care. Laser treatments based on absorption and controlled plasmonic resonances have advanced. Vision science has seen many breakthroughs. Stimulated emission depletion (STED) microscopy, which has demonstrated beating the Abbe diffraction barrier, is on the verge of commercialization for imaging cellular objects and mechanisms such as nerve communication. Optical tweezers are now used for molecular processes in biomaterials. Functional imaging combining metrology and analytical spectroscopy is implemented in “Lab-on-chip” devices. In the future, developments of hybrid photonic approaches are expected that allow gapless observation and manipulation, in living tissue, of structures and processes ranging from macro- and micro-levels down to nanoscopic and molecular scales.

### Lighting and displays

Shuji Nakamura received the 2006 Millennium Technology Prize for his contributions towards the development of bright-blue, green, and white light emitting diodes (LEDs) and the blue diode laser. These light sources have been used for a range of applications. Intelligent light engines based on white LEDs are being developed for general lighting, both indoors and outdoors. Another major field of research and developments for displays are high efficiency, large area light sources based on organic light emitting diodes (OLEDs). As regards laser light, red-green-blue (RGB) and multi-primary laser sources and laser engines are being developed for laser engines for projection and lighting systems. Intelligent light management systems will lead to human well-being and considerable energy savings.

### Imaging, detectors, and sources

Quantum imaging and quantum detection form a fundamental research field in photonics. For instance, on the molecular level single-photon counting imaging and statistics are often required. Entangled-state quantum (bi-photon) imaging and classical intensity correlation imaging have resulted in understanding of the non-locality of quantum systems. Three-dimensional imaging is related to human perception and can be applied in robot vision. Functional imaging and visualization methods (e.g., for real-time flow) appear highly potential for medical applications. Another major research field is near-field imaging; a variety of techniques lead to micro- and nanoscopy beyond the diffraction limit. Using metamaterials (a so-called hyperlens), sub-diffraction-limited objects can be imaged even in the far field. Tip-enhanced (plasmonic) nonlinear techniques have been used for high-resolution imaging and Raman spectroscopy, e.g., in carbon nanotubes. Polarimetric imaging and a general description of polarization and coherence in (3D) random electromagnetic fields are likewise objects of active research.

Notions of expanding from single photon detectors into single photon counting detector arrays, both in electronic and quantum imaging, are on the horizon. Efforts are also directed towards the development of functional (or smart) pixels and detector arrays in CMOS compatible technology. These are mainly in the visible and near infrared (IR) parts of the spectrum, but extensions to other spectral ranges (using different technologies) are explored. Specific

wavelength detectors for X-ray and far IR range, and up to the THz domain, are needed. Photonic detectors and arrays are employed in a variety of conditions, ranging from everyday applications such as digital imagery to innovative concepts in advanced optical instrumentation and astronomy. Closely related to detectors are the photovoltaic elements used in solar energy conversion.

An approach complementary to free electron lasers and synchrotron radiation to obtain (compact) short wavelength light sources is based on nonlinear frequency conversion starting from high-power infrared lasers. Laser induced plasma sources have shown the generation of both coherent and incoherent soft and hard X-rays. Optical parametric amplifiers and quantum cascade lasers (QCL) produce broadly tunable radiation in the mid IR region. The features such as high power, room temperature operation, broad spectral coverage, and small size make QCLs suitable sources for chemical sensing applications. Silicon photonics is an emerging field to combine standard CMOS manufacturing to produce photonic devices, such as the recently demonstrated silicon Raman laser. Organic light emitters (OLEDs) have great potential in many photonic devices. Terahertz sources allow new applications for 3D imaging in diffuse media and can also be used for security identification purposes. Super-continuum generation in photonic crystal fibers leads to high-intensity sources for white-light spectroscopy. Other directions of research are the generation of ultra-low noise (sub-Poissonian) quantum sources and the production of exotic quantum states (such as Fock states, and squeezed and entangled states of light) efficiently, on demand and at high rate.

### Optical materials

Perhaps the most explosive area of research in optics in the recent years has been artificial (manmade, hybrid) materials, namely plasmonic structures, metamaterials, and photonic crystals. Plasmons allow ultra-short wavelengths (few nm) at optical frequencies, thus offering a method for delivering light to nanoscale structures. The significant losses are a major drawback. Photonic metamaterials consist of densely packed nanoscopic building blocks. Such artificial materials lead to unusual behaviour, such as a negative refractive index, giant optical dichroism, enhanced nonlinearities, and magnetism at optical frequencies. Negative refraction in semiconductor metamaterials was recently observed. Applications of metamaterials include the superlensing effect and generation of invisibility cloaks. The tendency in research is towards experimental demonstrations at optical (visible) frequencies. Photonic crystals are complex dielectric structures with wavelength-scale building blocks. Photonic crystals admit tailoring the dispersion relation, polarization properties, spontaneous emission, etc. The main challenges include design and fabrication of high-quality 3D photonic crystals. Time-dependent materials allow exploiting novel functionalities, such as light storage and dynamic slow light structures. Other current research in optical materials deals, for instance, with ceramic gain materials, silicon photonics, and polymer and molecular materials.

### Manipulation of light and matter

The coherent control of the interaction between light and matter has come a long way. These include a wide range of resonant atomic systems, chemical processes, and even atom optics in guiding structures. The studies of new methods for manipulating both light and matter, individually and together, are at the heart of modern optical science and technology. The connection between a photon, a polariton, and an electron offers new ways of information transfer between light and matter. Control of light by matter involves, e.g., the manipulation and

detection of the information (whether quantum or classical) coded in the light. This, in turn, necessitates new materials, perhaps reconfigurable and capable of quantum-enhanced precision measurements. Inversely, imprinting information on light should take place with minimal energy and maximal information content per photon. In the control of matter by light, external or internal features of individual molecules (atoms, composite systems) are manipulated by tailored opto-mechanical forces, such as tweezers or optical lattices, and optical cooling techniques. Further, controlling individual bonds in matter would lead to entirely new ways of materials processing, with applications in designer assembly of optical nanostructures and bioengineered molecular complexes. Manipulation of light and matter constitutes a research theme of fundamental physics that will impact photonics triennial periods to come.

*Ari T. Friberg*

*President, ICO*

*Celebrating 60 years of international optics*

## ICO ADMITTED AS ICSU INTERNATIONAL SCIENTIFIC ASSOCIATE

### Summary

*ICO, the International Commission for Optics, has been accepted as an International Scientific Associate of ICSU, the International Council for Science.*

*ICO is the global umbrella organization of optics – "the place where the world of Optics meets" – representing about 50 Territorial Committees and all major internationally active Optical Societies. The election of ICO as an ICSU International Scientific Associate is one further step towards the recognition of Optics as a scientific discipline of its own. However, ICO will keep its status as an Affiliated Commission of IUPAP, the International Union of Pure and Applied Physics. Optics still has its roots deeply in Physics and this will remain so – let it be enough to mention the 2005 Nobel Prize in Physics, awarded to Roy J. Glauber, John L. Hall, and Theodore W. Hänsch for their outstanding work in Optics.*



*Prof. Pierre Chavel*

At age 58, ICO is moving ahead to better and more visibly fulfil its mission as "the place where the world of Optics meets": it was just elected an International Scientific Associate at the ICSU General Assembly in October 2005. The whole field of optics is thereby improving its recognition as a discipline, in many ways connected to all other disciplines within science and technology. Let us explain why and how this is so, at the same time reviewing what ICSU is, and exactly what move ICO just made in the ICSU family.

ICSU, currently known as the International Council for Science, has retained the acronym of its original name, the International Council of Scientific Unions. An independent international organization, it represents all disciplines, promotes their interaction in interdisciplinary actions, and fosters scientific research through its links with other international bodies, in particular in relation with global challenges that mankind is facing such as sustainable development, earth observation, energy, and food security. ICSU has four categories of members: International Unions, National Members, International Scientific Associates, and National Associates.

The concept of national membership in ICSU extends to many members of the ICSU family: this is really why, since it was first created in 1947, ICO's membership is primarily based on national membership, the Territorial Committee Members in the current ICO terminology. In addition, ICSU has members that represent scientific disciplines at an international level. These are the ICSU International Union Members. One of the 25 or so Union Members is the International Union of Pure and Applied Physics, IUPAP. In the ICSU construct, IUPAP itself has national members and 'Commissions' representing the various branches of Physics.

Among the commissions, a few enjoy the status of an independent organization and have their own membership and budget: these are the IUPAP 'Affiliated Commission', a status that ICO has shared since its creation.

An important step in the recent history of ICO, though, is the creation, in 1999, of a new category of membership, the 'International Society Members', to recognize the fact that most international scientific conferences nowadays, as opposed to the situation in 1947, are organized by large societies that have individual members and that are explicitly active internationally. As of today, ICO has fifty Territorial Committee Members and six International Society Members. With this structure, ICO has a fair claim at representing the whole field of Optics on an international scale.

By moving to the status of an ICSU 'International Scientific Associate', the desire of ICO is to make it clear that with the continuous development of science and technology in research and industry, the relation between Optics and Physics has become more complex. Optics still has its roots deeply in Physics and this will remain so – let it be enough to mention at this point the 2005 Nobel Prize in Physics, which was awarded to Roy J. Glauber, John L. Hall, and Theodor W. Hänsch for outstanding upstream work in optics, with practical implications. Indeed, in parallel to being raised to the status of an ICSU International Scientific Associate, ICO will keep its status as an IUPAP Affiliated Commission. Yet, large branches of Optics developed where scientists and engineers do not consider them selves physicists and are not considered as such by physicists. This applies, for example, to most work in optical systems and in optical telecommunications. Optics courses and research activities at many universities are more and more being promoted to full fledged departments. The recognition of optics professions and degrees by accredited institutions is a significant issue in various countries. This all boils down to one conclusion: Optics is more and more perceived as a scientific discipline of its own. Its recognition as an ICSU International Scientific Associate is one further step in that direction.

In this new position within the ICSU constellation, ICO will be acting at par with the other twenty five or so International Scientific Associates, along with Water Resources, Geometry, Oceanic Resources, to name a few. It will participate in the appropriate ICSU activities and will be able to liaise between the Optics community and ICSU by bringing up and promoting opportunities for actions involving optics that bear a global dimension both geographically and topically. This includes, directly in line with a clear ICO priority item, actions for the support of science and technology in regions of the world that deserve special measures, such as its long standing collaboration with the Abdus Salam International Centre for Theoretical Physics at Trieste.

Optics is relevant to most ICSU priorities on the global role of science and technology. The admission of ICO as an ICSU International Scientific Associate recognizes ICO as a global organization, the primary international group that, through its members even much more than all by itself, coordinates the dissemination and advancement of scientific and technical knowledge in the broad fields of optics: make contacts, provide expertise, offer a neutral international character, etc. More importantly, it is one step forward for the recognition of the importance of Optics for Science and for Society in the 21st century. ICO will strive to make best use of this opportunity and calls to its members and the many parts of the Optics community that they represent to join it and contribute new initiatives.

More information: <http://www.ico-optics.org>

*Pierre Chavel, ICO-ICSU Relations responsible*

## IN MEMORIAM OF ART H. GUENTHER

### The unique contribution of a key figure in ICO



*Arthur H. Guenther (1931-2007)*

It is always a sad and hard task to write an obituary. It is even harder when the obituary refers to a friend and colleague who was a key person working for ICO during the past decade.

Arthur H. Guenther, Art to all his friends and colleagues, died on April 21 at his home in Albuquerque, New Mexico.

Arthur Guenther was a research professor at the University of New Mexico (UNM), Centre for High Technology Materials (USA).

He arrived to UNM after a career as chief scientist with the U.S. Air Force, chief scientist for advanced defence technology at the Los

Alamos National Laboratory, and science advisor for laboratory development and manager of alliances with Sandia National Laboratories.

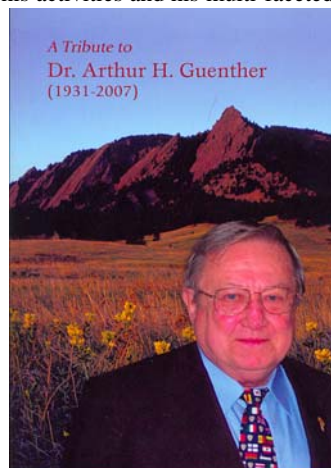
While at UNM, he helped the creation of the New Mexico Optics Industry Association in 1998. He also promoted optics education programs constructing a career ladder for optical technicians and theorists at West Mesa High School, Central New Mexico Community College and UNM.

Remembering Art is the compendium of many aspects of his activities and his multi-faceted personality. He was brilliant, very talented and very much involved in the development and expansion of optics and photonics.

Art was always developing very positive attitudes to offer the kind of activities that do have a sense to the optics community and benefited many of us. His wide spectrum of activities was focused both in developing centres and institutions. Moreover it represented a very general and generous offer to many colleagues from all over the world.

I had the great chance to work with Art during his various periods as member of ICO Bureau. Indeed Art was elected ICO Vice-President for the term 1996-1999, then ICO President during the period 1999-2002 and later ICO Past-President 2002-2005.

Art was very much interested in expanding activities for education and training of young researchers, professionals and photonics technicians by coordinating many training programs. He was deeply involved in Education and Training in Optics and Photonics (ETOP) series of meetings, an international forum in collaboration with



*Book published by SPIE "A Tribute to Dr. Arthur H. Guenther (1931-2007)", SPIE 2007.*



OSA, SPIE and very recently IEEE/LEOS. He was strongly working for the development of African centres and for the involvement of the LAM network. He was one of the organizers of the first ICO Topical meeting in Senegal in 2000.

It is difficult not to be impressed by the high coherence in Art's points of view regarding the development of science as a unique chance to improve local education programs and technological projects. As an example, he was one of the artificers of the book "Harnessing Light", as well as many other texts as the volume V of the "International Trends in Applied Optics". As another example, he pushed the free offer of educational texts to centres from developing countries.

In June 2006 Art Guenther was appointed as a member-at-large of the U.S. Advisory Committee for the International Commission for Optics, which represents the interests of the U.S. optics community internationally.

All this is certainly a very short review for such an enormous task and dedication. Art was the factor of the lemma: "ICO the place where the World of Optics meets", as it now appears as a welcome window in ICO website and is written in many languages. This is a lemma that could and should be assumed by many of us to keep in maintaining our common cooperation and activities for optics and photonics.

ICO expresses here its condolences to all optics community, SPIE, OSA, the USAC-ICO Committee and all the colleagues who are now mourning this sad absence.

Finally, we would like to express all our sympathies for his wife Joan, his great companion and all his family.

***Maria L. Calvo, ICO Secretary General.***



## IN MEMORIAM OF GALLIENO DENARDO



*G. Denardo*

We are living difficult times and unfortunately the optics community had recently a great loss. Gallieno Denardo, who was for more than two decades responsible of the optics and photonics programs at the "Abdus Salam" International Center for Theoretical Physics (ICTP) passed away on July 23, 2007, after a heart attack; it was just a sudden and unexpected loss. ICO have lost a great friend and a key person for the international projection of optics and photonics in the world. I had the enormous chance to work with Gallieno for the last six years and I was always impressed by his tenacity, dedication, generosity and great sense on how to orient the

optics activities. It is very little more to be added to our sadness and it is may be time to continue with our common work. This issue of ICO Newsletter is entirely dedicated to his memory. These pages contain at least important aspects of the remembrance of his unique work in favour of development of programs for optics and

reflecting the projection of his international prestige. It is also time to thank to ICTP for its necessary support to assure the continuation of the Gallieno Denardo's legacy.

**Maria L. Calvo**, ICO Secretary



## IN MEMORIAM OF ANDRE MARECHAL



*Prof. André Maréchal*

André Maréchal, who served as ICO President for the term 1962-66 and as Director general of the French Institut d'Optique during 1967-1983, died on October 14, 2007 a few weeks short of his 91st birthday.

After graduating from Ecole normale supérieure with an Agrégation de Physique in 1941, Maréchal joined Institut d'Optique, then located 3, boulevard Pasteur in Paris, where he first completed his training with the Optical Engineer degree from Ecole supérieure d'Optique. He had been attracted to Institut d'Optique by Pierre Fleury, who had recently succeeded Charles Fabry as Director general of Institut d'Optique. He moved on to prepare a Doctor ès Sciences thesis on the combined effects of diffraction and aberrations, then a hot topic as the diffraction limit was reached or close to being reached in a number of optical designs but modelling its

combination with even a modest level of aberration was a formidable task with the numerical tools at hand. At the time indeed, it had become obvious that numerical tables were inappropriate for handling the computational burden involved with incorporating diffraction into optical system design. While Bernard Nijboer, at the University of Groningen, had approached the problem through analytic methods and developed expressions applicable to small aberrations, the problem was intractable for wavefront departures on the order of one or a few wavelengths. With the help of engineer Pierre Bayle, Maréchal developed an analogue electro-mechanical integrator that could handle up to a few wavelengths. He added experimental evidence to confirm the validity of the results and defended his thesis on June 13, 1947. It was published in *Revue d'Optique*, vol 26, p 257, 1947 and vol 27, p 73 and p 271, 1948.

As a physicist interested in simple arguments which add insight into equations and integrals, Maréchal included in his thesis a simple derivation of the condition for the maximal intensity to deviate from the absolute maximum obtained at the centre of an Airy spot by less than 20%. As he aptly pointed out, the appropriate quantity in this case is the average squared normal departure between the wavefront and the nearest sphere integrated over the pupil, and the criterion, which is now commonly known as the Maréchal criterion, states that that squared average should not exceed  $\lambda^2/180$ , where  $\lambda$  is the wavelength. While the Rayleigh criterion, which sets a limit of  $\lambda/4$  for the maximal departure between the wavefront and the reference sphere to obtain the same 20% drop, applies to defocus and to third order spherical aberration, the Maréchal criterion is valid for an arbitrary aberration. In his work, Maréchal quotes related earlier work by Wang Daheng, Nijboer and Vaisala.

Appointed a Maître de Conférences, then a full Professor at the Paris Faculté des Sciences in 1950 and 1955 respectively, André Maréchal lectured in the Engineer cursus at Institut d'Optique throughout his academic career. His many former students vividly remember his teaching skills. His first textbook, "Imagerie géométrique, aberrations" was published by Editions de la Revue d'Optique in 1950.

André Maréchal was aware of the pioneering work of Pierre-Michel Duffieux on spatial frequency filtering: Duffieux had analytically expressed the image illumination (and complex amplitude as appropriate) in the presence of diffraction, both in coherent and in incoherent illumination, in terms of Fourier analysis. In his effort to analyse and compensate aberrations, Maréchal suggested applying coherent spatial filtering to compensate for aberrations and various defects in images through appropriate Fourier plane masks. The first case, contrast enhancement, was first published by Maréchal and Croce in Comptes Rendus Acad. Sc. Paris, vol 237, p 607, 1953, and then in Paul Croce's thesis in 1956. Several other cases followed and the method, duly presented at meetings and conferences, attracted a worldwide audience. It played a large role in the initial development of optical analogue processing, a branch of Optics that was to develop in many ways during the next several decades. "Diffraction, structure des images, influence des aberrations" by André Maréchal and Maurice Françon, (Editions de la Revue d'Optique, 1959, et Masson, 1970) is probably the first textbook on Fourier Optics that covers aberrations.



*Optics meeting in Germany, A. Maréchal is seated between Dr Sauer and Dr Torge, both of Carl Zeiss*



*CIO General Meeting, London 1950. Left to right: C. Bergeron, Missel, Desvignes, R. Kingslake standing in front of unidentified woman, A. Maréchal*

In parallel, Maréchal investigated new algorithmic approaches to optical design, a track of research that led to the creation of the company CERCO, where he served as a scientific advisor.

While he was asked to assume various academic and managerial responsibilities, André Maréchal remained active in research as thesis advisor to several scientists who pioneered important subjects. These include the calculation of incoherent Optical Transfer Functions (W.H. Steel), partial coherence (R. Slansky), and even electromagnetic optics. Indeed, in the late 1950s, the possibility was identified of numerically solving the full Maxwell's equations to analyse anomalies in grating diffraction and in general to predict their diffraction efficiency versus wavelength and polarisation. The first

case was the perfectly metallic grating. Doctoral theses by G.W. Stroke, R. Petit, and A. Wirgin ensued. Indeed, electromagnetic optics is nowadays a flourishing branch of optics, with a good representation of the French community. A later contribution by Maréchal, as the advisor of G. Fortunato, was to interferometric spectroscopy for the detection of pollutants.

From 1960 through 1967, Maréchal served as “délégué général à la recherche scientifique et technique”, at that time the highest scientific position in the French Ministry in charge of Research. He was instrumental in promoting new science campuses and supported the expansion of the Science campus at Orsay, where a new building for Institut d’Optique was inaugurated in 1967. Maréchal succeeded Fleury as the third Director General of Institut d’Optique in 1968, a position that he held until 1983. During that period, the transfer of Institut d’Optique from Paris to Institut d’Optique was completed. The building was able to host, in addition to research activities, classes of 30 for the Optical Engineer cursus.

A member of the French Academy of Sciences since 1981 and an Honorary Member of the Optical Society of America since 1986, Maréchal was awarded the Gold Medal of SPIE in 1989. He devoted constant efforts to promoting the international aspects of scientific life, supporting among others the federation of optical communities in Europe and working at various early attempts to what has now become the European Optical Society. He was presented honorary degrees from several Universities. He will be remembered by his many friends in the Optics community worldwide as a simple and modest personality and a productive scientist who eminently contributed to the field.

**Pierre Chavel, ICO Senior Adviser**



## MEMBER CONTRIBUTIONS

### ICO welcomes new members

For the term 2002-2005, previous to the 2005 General Assembly, three Territorial Committees, Ecuador, Greece and Moldova have applied as ICO Members. Among them, Greece and Moldova were accepted unanimously as members by the ICO General Assembly in Changchun. The presidents of the Greece and Moldova territorial committees are respectively Prof. Nikos Vainos, from Engineered Photonic Media Laboratory, the National Hellenic Research Foundation, Athens and Prof. Andrei Andries from the Centre of Optoelectronics, Institute of Applied Physics, Academy of Sciences of Moldova, Chisinau.

Moreover, Ecuador, Tunisia and Morocco have been accepted as "Associate Members". Recently, a new application for associate membership has been received from South Africa, through Prof. Philemon Mjwara from National Laser Centre of South Africa, Pretoria. The Bureau was authorized by the General Assembly to transform associate membership into full membership during the triennium 2005-2008 as soon as all required conditions are fulfilled. To this concern, Tunisia has been accepted in 2006 as full member. The decision will be ratified at the forthcoming General Assembly in Sydney, 7 July 2008.

Moreover, each international Society member designates its representative to the ICO Bureau. The LAM Network appointed Prof. Ahmadou Wagué of University Cheikh Anta Diop (Dakar, Senegal) and OWLS appointed Prof. Min Gu of Centre for Microphotonics, Faculty of

Engineering and Industrial Sciences, Swinburne University of Technology (Australia), as its respective ICO Vice-President.



### **The ICO Territorial Committees and the World Year of Physics 2005: A resume of activities**

*The year 2005 declared by the United Nations as the World Year of Physics (WYP), as a celebration of the so-called “Annus Mirabilis”, has come to its end. It is now time to look forward to the close past and to analyse to what extent the world of optics and, in particular, the activities organized inside the ICO were having a certain impact, not only in our community but also as a spreading of knowledge and projection in our society. We are mentioning here a brief resume of those activities that were reported by the ICO Territorial Committees and that were organized by their local initiatives. It is understood that as giving this resume we do not pretend to present an exhaustive list of activities.*

#### **Cuba:**

*TECNOLASER 2005* took place in the Almendares Hall of the Hotel Kohly, City of La Havana, on July 21<sup>st</sup> - 22<sup>nd</sup> of 2005. The inauguration was open by the presidential board: J.G. Darias, President of the Organizing Committee of *TECNOLASER 2005* and Director of the Center of Technological Applications and Nuclear Development (CEADEN), Tomás López, advisory of the Chancellor of the University of Computer Sciences and collaborator of *TECNOLASER*, V.L. Fajer Ávila, President of the Cuban Society of Physics (SCF) and O. Morales, Vice-president of the Organizing Committee of *TECNOLASER 2005* and Vice-director of CEADEN. The event was sponsored by the CEADEN and co-sponsored by ICO and the SCF. As conclusion, keeping in mind the quantity and quality of the presentations the organizers agreed to maintain the frequency of *TECNOLASER* every two years, the next one will be carried out in May, 17-19, 2007.

#### **India:**

The *International Conference on Optics and Optoelectronics (ICOL) – 2005 & XXXI Symposium of the Optical Society of India (OSI)* was organised by the Instruments Research and Development Establishment (IRDE), in Dehradun, during December 12 – 15, 2005 and with J.A.R. Krishna Moorthy (Chairman), A.K. Gupta (Co-Chairman) and Ashok Kaul (Convenor). ICOL 2005 aimed to provide a wide forum for interaction and



*A general view of the IRDE, Dheradun, were the ICOL 2005 took place*

exchange of ideas among scientists, engineers and researchers actively engaged in the area of optics and optoelectronics. The conference featured technical sessions including plenary talks, invited lectures, oral and poster presentations, exhibition, and opportunities for networking and social events. The focal theme for the conference was “Optics and Optoelectronics for Strategic Applications”. ICOL 2005 was sponsored by the Defence Research and Development Organization (DRDO), India, and co-sponsored by ICO, OSA and in cooperation with SPIE.

### **Italy:**



*Participants to the 1st International Workshop on Photoluminescence in Rare Earths: Photonic Materials and Devices, Trento, Italy, May 2005*

The 1st International Workshop on *Photoluminescence in Rare Earths: Photonic Materials and Devices*, was held in Trento on May 2-3, 2005, under the initiative of G.C. Righini and sponsored by the Italian Society of Optics and Photonics (SIOF). The Workshop was aiming to provide a forum for material scientists, chemists and physicists where to debate about the state of the art and the perspectives of the photonic materials based on rare earth ions. More than 60 experts attended the Workshop from 8 Countries, who presented original contributions on both fundamental photoluminescence properties and application-oriented materials investigations. A special session was devoted to the mechanism of optical losses in low-phonon-energy glasses for IR fibres. All the participants were appreciating very much the informal atmosphere, the warm hospitality, and the excellent scientific level. According to these feelings, it is very likely that the Workshop will be organized again in 2007. In the frame of the WYP the Workshop also celebrated the publication by Einstein in 1917 of the basis of the theory of spontaneous and stimulated emission.

### **Japan:**

Many projects were planned in Japan for the WYP2005. The later were adjusted by the Japanese Committee for the WYP, constituted by many Japanese academic societies related to physics. The projects were classified into 8 categories such as Physics Dialogue Projects, Physics Content Projects, Physics Instrument Projects, Physics Booklet Projects, Physics Friends Projects, International Relation Projects, and Publicity and Coordination. In relation with optics the Optical Society of Japan organized a “*Special Talk for WYP2005*” at the Optics Japan 2005, and was held in Tokio, 23-25 November.

### **New Zealand:**

It was hosting the *2005 Australasian Conference on Optics Lasers and Spectroscopy (ACOLS 2005)*, 5 - 9 December 2005 in Rotorua. ACOLS 2005 is the region's showcase of research and development in all aspects of optics, lasers and spectroscopy. ACOLS 2005 was the 7<sup>th</sup> conference in the ACOLS series. It incorporated the 18th Australian Optical Society

Conference, the 10th Australian Laser Conference and the 20th Australian Spectroscopy Conference. Associated with this meeting there was a satellite meeting entitled *The New Zealand and Australian Quantum-Atom Optics Workshop*, that took place November 29th to December 1st in Queenstown. A technical exhibition was planned in conjunction with the conference. The aim of the organizers is to feature leading Australasian suppliers of equipment in the field of optics, lasers and spectroscopy.

### **Switzerland:**

The Swiss Society of Optics and Microscopy (SSOM) through the Workgroup on Biomedical Photonics, organized the 11<sup>th</sup> *Engelberg Lectures on Optics*. The Chairs were G. Delacrétaz, M. Frenz, R.P. Salathé and M. Wolf. The Engelberg Lectures are addressed to an interdisciplinary audience of physicists, engineers, computer scientists, physicians and biologists, and key actors from industry coming from all parts of Switzerland and neighbouring countries. The program included speakers from scientific, technical and medical backgrounds. There was besides an ample time for personal interaction with the speakers, a unique feature of the lecture series providing an opportunity for the exchange of ideas and the creation of contacts and collaborations. The talks consisted on a tutorial component, but high lightening new developments as well. On the last day discussions on new technical developments, opening future opportunities took place with special attention to those technical developments showing a particular promise.

### **Tunisia:**

The Tunisian Optical Society (STO) planned the WYP2005 with activities dedicated to diffusion of information through out workshops, schools, and seminars at the national, 'regional' (Africa) and international level. Thus: A school on "*Active learning in optics and photonics*", March 26-April 2 in Monastir with 40 participants (from countries: Algeria (2), Cameroon (2), Morocco (6), Ethiopia (1), South Africa (1), Tunisia (28)). A resume of that activity was presented as a communication at ETOP 2005 Marseille (France) last October 2005. A conference on: *Photography* by M. Pelletier on the 15<sup>th</sup> April. A seminar with High school teachers took place in OMRANE School, the 20<sup>th</sup> April, with 50 participants, on *Physics education at secondary school- How to interest the class? Is optics a way to introduce education in physics?* Various conferences were delivered by Z. Ben Lakhdar (recent L'Oreal-UNESCO Prize 2005) in different regions and on various subjects with the objective to enhance the interest of physics for the future and to encourage young people to join the physics community.



*L'Oreal-UNESCO Prize 2005, Prof. Z. Ben Lakhdar (President of the Tunisian ICO Territorial Committee, left)*

## Ukraine:



The 7<sup>th</sup> International Conference on Correlation Optics was held in September 6-9, 2005, in Chernivtsi. This conference, chaired by O. Anyelsky is a bi-annual one, being started in 1993. Participants from 17 states took part in this meeting and presented the reports on the hot topics of modern optics, such as: Informative content of statistical optical fields, including optical chaos and singular optics, optical correlation devices based on diffractive optical elements, including optical and digital holography, fractal optics and optical sensors, optical correlation diagnostics, interferometry and microscopy of rough surfaces and random media and new applications of correlation optics in biology and medicine. The conference program included 28 Invited lectures, 28 oral presentations and 77 poster presentations. The share of the contributions from abroad was at the level 31.5%. The conference was organized by: ICO, OSA, SPIE, SPIE Ukraine, SPIE Russia, Ukrainian Optical Society, Chernivtsi National University, Institute of Semiconductor Physics, National Academy of Sciences of Ukraine, Ukrtelecom and Bukovinian State Medical University. Another activity was the VI International Young Scientists Conference, held in Kyiv National University, SPO 2005 on *Optics and High Technology Material Science* and under the initiative of SPIE Ukraine Chapter. The event was supported by ICO. The organizers prepared the edition of the abstracts communications.



## **CANADA: In memoriam: Roger Lessard, President of the ICO Canadian Territorial Committee**



*Roger A. Lessard  
(1944-2007)*

Roger A. Lessard died on February 26, in Quebec City, Canada, after a battle with cancer.

Roger A. Lessard obtained a bachelor's degree in science from the Université of Moncton, Nouveau-Brunswick (Canada) and in physics from Université Laval. In 1973, he graduated with a D.Sc. in physics and optics from Université Laval where he spent most of his career as a researcher and professor.

Dr. Lessard was Director of the Department of Physics, Engineering Physics and Optics at Université Laval. A tireless builder, he founded in 1989 the Centre for Optics, Photonics and Lasers. He was also co-founder of Holospectra (which became Lasiris and now StockerYale) and Laser InSpeck (now InSpeck). He sat on the Board of Directors of Gentec Electro-Optics and the Société du Centre des Congrès de Québec. He was a member of the scientific committee of Molex, a company located in Chicago and acted as a consultant to numerous start-up and established businesses in the province of Quebec and in the rest of Canada. He was an active member of scientific organizations such as SPIE-The International Society for Optical Engineering, the Institute of Electrical and Electronic Engineers (IEEE), the Optical Society of America (OSA) and of the International



Commission for Optics (ICO) in which he was the President of the Canadian Territorial Committee for the last five years.

Roger Lessard was involved in many international activities toward the enhancing of programs in optics and photonics and in particular in developing countries. In 2000 he was participating as a lecturer at the ICO Topical Meeting on Optical Science and Applications for Sustainable Development, held in Dakar, Senegal, in 2000.

Dr. Lessard was a fellow of SPIE-The International Society for Optical Engineering, of the Optical Society of India and of the Optical Society of America (OSA). He was a senior member of the Institute of Electrical and Electronic Engineers (IEEE). He was named Ambassador of the Year for Quebec City in 1996 having organized several international scientific conferences. In 1998, the Quebec Tourism Board also named him Ambassador of the Year. He received an honorary doctoral degree from the Université Blaise-Pascal in France for his contributions to holography and to the development of optical materials. The Quebec Association for Industrial Research gave him a Lifetime Achievement Award for his contributions to the field of optics in the greater Quebec region. In May 2002, he was named Knights of the National Order of Quebec for his dedication to the development of optics in Quebec and internationally.

Among his activities, Lessard was interim Editor of the SPIE Optical Engineering journal in 2000. Lessard served a one-year term while Editor Donald C. O'Shea served as SPIE President that year. He served as a member of the Editorial Board of Optical Engineering for several years, with his areas of expertise in photophysics, spectroscopy, and optical data storage. He was also a member of the SPIE Board of Directors from 1998 through 2000.

A special session: "A Tribute to Roger Lessard and Art Guenther" was organized at the last ETOP meeting, held in Ottawa, June 2007. The session addressed the many contributions of both important figures and gave the opportunity to all the attendees to honour them and their work in the optics community. Some details will appear at the ETOP 2007 report, ICO Newsletter, October 2007 issue. Moreover, another special session will be devoted to honour Art Guenther and Roger Lessard at the forthcoming ICO Topical Meeting to be held in Cape Coast, Ghana, November 2007.

**Henri H. Arseneault, former ICO Vice-President (Terms 1999-2002)**



#### **SINGAPORE COMMITTEE: Alexander von Humboldt Research Award 2005 to Professor Colin Sheppard**

Colin Sheppard, National University of Singapore, was presented with an Alexander von Humboldt Research Award (Forschung-spreis) in Physics at the 33<sup>rd</sup> Humboldt Foundation Symposium for Research Awardees, Ziegelbau, Bamberg, 18 March 2005. The Humboldt Research Award for internationally recognised scientists, the highest award of the Alexander von Humboldt Foundation, honours the academic achievements of the award winner's lifetime. Furthermore, award winners are invited to carry out research projects of their own choice in Germany in cooperation with colleagues for periods between six months and one year.

The Award was the first presented to a researcher based in Singapore. At the Symposium, Prof. Sheppard delivered the opening Scientific Lecture on Three-dimensional Microscopic Imaging, in which he compared various different optical microscopy techniques. The Laudation for Prof. Dr. Colin J.R. Sheppard was: "Professor Sheppard is an optical scientist whose work is

internationally recognized for its unusual broadness and depth. He invented two-photon microscopy and published pioneering papers on high resolution confocal microscopy. Especially important in his work is the modelling of light propagation including the vectorial properties of the field and ultrashort pulses. During his stay in Germany Professor Sheppard is going to study polarisation effects in nanooptics.” Prof. Sheppard was ICO Vice-President during the term 1999-2002 and has participated in the ICO Travelling Lecturer Program.



*Presentation of the Humboldt Research Award by Prof. Dr. W. Frühwald (left), President of the Alexander von Humboldt Foundation*



### **GERMAN COMMITTEE: Adolph Lohmann celebrates his 80<sup>th</sup> year**



*Adolph Lohmann delivering the closing lecture of his 80th anniversary celebration*

Adolph Lohmann, professor of physics at the Institute of Optics, Information and Photonics, University of Erlangen-Nuremberg (Germany), former holder Chair of Applied Optics and former ICO President (term 1978 - 1981) has celebrated his 80<sup>th</sup> birthday. To this unique occasion his colleagues of the University of Erlangen organized a two days international birthday symposium under the lemma: “50 Years of Information Optics”. The celebration was held 7-8 April, the first day at the University of Erlangen and the second day, in the charming region of the Frankonian Swiss, located in Southern Bavaria near the Erlangen area.

There was a moving celebration in which all the attendees, coming from all over the world, could enjoy the talks, anecdotes, and moreover the scientific insights of their respective work always inspired by the constant influence and support of Prof. Adolph Lohmann. Gerd Häusler addressed the welcome and introduction. He expressed his thanks to all the attendees, and in particular to the Chancellor of the University of Erlangen for all the facilities accorded. He mentioned the great motivation from all the former students and friends to be together to honour the fruitful years of academic and research activities of Prof. Lohmann. Gerd Häusler presented the speakers of the sessions: Gotthard Jasper, former Chancellor of the University of Erlangen, Joseph Goodman from Stanford University, Asher Friesem from the Weizmann Institute of Tel-Aviv, Jürgen Jahns, from the Open University of Hagen. G. Jasper resumed all the important work done for the last 30 years to build-up a highly reputed international and prestigious group in optics. To a brief resume, Adolph Lohmann studied physics in Hamburg and came later to Erlangen.

Immediately, as an Associate Professor he initiated an important work on foundations and apodization techniques for his diploma. He then spent various years at the San Diego University and introduced quite new and interdisciplinary work and became a leader of the optics group in Erlangen. Among his many international recognition he is recipient of the OSA Max Born Award, and member of the Academy of Sciences of Germany. It has been always remarkable the highly devoted activities of Prof. Lohmann toward his students. G. Häusler resumed the starting of the optics group in Erlangen with initially a small laboratory in 1973. In only 10 years the number of researchers multiplied by a factor of 10. One of the amazing lemmas of Prof. Lohmann was “teaching how to invent - is it possible?” and this question arisen as a persistent motivation. In 1980, Adolph Lohmann started the work on computer holography although with some scepticism from a part of the scientific community. However, today this turns out to be one of the most appealing technologies with large applications in metrology, bio-optics and producing many industrial patents.

Joseph Goodman presented his talk on “New applications of speckles- or how Adolph Lohmann influenced my career”. He mentioned all the work done on computer generated holograms, speckle masking, super resolution (1964), theta modulation (1965) giving a tour on the most important results based on earlier publication of A. Lohmann: single side-band holograms (1956), detour-phase holograms (1966), triple correlation, bispectra (1983) for improving telescopes resolution and resolving double-stars images. He developed pioneering work on Wigner distribution, fractional Fourier transform, with adding never published results. Prof. Lohmann is a devoted teacher, Joseph Goodman was quoting some of his comments: “*I believe teaching optics is easy because it corresponds to a visual process*”. Adolph Lohmann is always a reference of kindness, encouragement and internationally.

Asher Friesem dedicated his talk to “Lohmann in holy land”, while remembering all the very fruitful visits that Adolph Lohmann was dedicating to various centres in Israel, delivering many lectures, seminars and visits to laboratories, and then creating unique occasions not only for the scientific level accorded but also for friendship, an important part of our lives that sometimes is missing or misconsidered in the world of science.

Jürgen Jahns referred on his presentation: “Optics in space and time with Adolph Lohmann” to the work done in Erlangen under his leadership, including the performance of annual reports for more than 30 years, referring topics as: speckle, optical feedback, incoherent and coherent self-imaging, optical computing and photonic crystals to a brief description. Referencing the work done in collaboration with Joseph Goodman on fan-in, fan-out optical interconnections,

fractional temporal Talbot effect, grating spectroscopy with new designs for temporal signal delay, compression and decompression. Jürgen Jahns mentioned the new recent publication of Adolph Lohmann's Notes Book, as a present from all his colleagues with the financial support of the University of Erlangen.

The presentations were accompanied by some musical pauses, showing the amazing sounds created by Bavarian orchestras giving a point of colourfulness and luthiers investigation.

The next day the meeting continued in the unique atmosphere of a Bavarian village. The whole day was dedicated to short presentations from many of the Adolph Lohmann friends and colleagues coming from all over the world: France, Germany, Israel, Italy, Japan, Netherlands, Switzerland, Taiwan and USA, including both scientific and miscellaneous aspects of their experiences as Adolph Lohmann collaborators. He himself, was thanking all the attendees, and was delivering a closing presentation with the amazing and suggestive title: "Will optics remain schizophrenics forever?". Still after 60 years of carrier he was proposing the same question that has been constantly present on: What is light? With this proposal he showed that his interests are beyond pure mathematics or physics transcending to philosophical questions in a promenade from Ptolomeus to Bohr, not forgetting Copernicus and Kirchoff. To a remarkable end he suggested that after all light is mainly Wigner stuff, it can behave as a fluid, although we do not need to know Wigner but, it is aesthetically pleasant.

With this modest but motivated present article, ICO would like to participate and to join this unique anniversary celebration.

*Mit unserem ganz herzlichen Glückwunsch zum Geburtstag!*

*María L. Calvo, ICO Secretary General*



### **TUNISIAN COMMITTEE: ICO welcome Tunisia as a new Territorial Committee**



*Prof. Z. Ben Lakhdar*

On September 2 and 3, 2006, the ICO Bureau had its Annual Bureau Meeting. This year was held in Saint Petersburg, Russia, coinciding with the ICO Topical Meeting on Optoinformatics / Information Photonics 2006.

At this occasion the ICO Bureau had the great pleasure to receive the application of Tunisia for full ICO membership. Tunisia has been an Associate member since 2003. The application was unanimously approved by the ICO Bureau.

The President of the Tunisian Optical Society and President of the Territorial Committee is Prof. Zohra Ben Lakhdar. She is currently professor of physics at Tunis El Manar University in Tunisia and director of the Department of Physics Laboratory of Atomic-Molecular Spectroscopy and Applications. Prof. Ben Lakhdar is a member of the Islamic Academy of Sciences and since 2001 has been an associate member of the Abdus Salam International Centre for Theoretical Physics (ICTP) in Trieste, Italy. In 2005 she was honoured by being named a winner of the L'OREAL-UNESCO Award for Women In Science.

The Board of the Tunisian Committee for Optics (TCO) consists of: Zohar Ben Lakhdar (President), Souad Lahmar (Vice-President), Hassen Ghalila (Secretary), Subside Dhaouadi (Treasure).

Among the forthcoming future activities of the TCO is the support and participation at the “International Days on Ibn\_Al\_Haythem”, organized by the Tunisian Association of “Youngs in Science”, 26 – 28 December 2006, Tunisia. The event is supported by the Tunisian Optical Society, the University of Gabès and UNESCO.



## INTERNATIONAL SOCIETY MEMBERS

### African Laser, Atomic and Molecular Physics Network (LAM)

#### Gallieno Denardo, a friend of Africa is gone



*Gallieno Denardo at the 1995 Biannual Conference of Science AFRISTECH, Dakar, Senegal. To the left Amadhou Wagué and at the very right Dr. Barry. Gallieno Denardo was awarded with the highest distinction, “Knight of the Lion National Order” accorded by he President of the Republic of Senegal*

All started with an article which I wanted to submit like reprint to ICTP (International Center for Theoretical Physics) in August 1986. Then it had been said to me to contact first Prof. Gallieno Denardo. I can say that from this day, I had come to have the chance to meet a formidable man. Especially, his burst friendly laughter already had just struck me. Since this period, each year, when I returned to Trieste for various activities at ICTP and particularly for Winter Colleges organized by Prof. Denardo, I was always very happy to meet and to work with him for the organization of the LAMP seminars (Lasers Atomic and Molecular Physics). It was very particular and comforting to work with him. I remember we used to meet very early in the morning in his office, because he was always an early bird at ICTP. And after these meetings I always set out of his office with at least one positive answer to the innumerable particular problems involved in the development of sciences in Africa. During both decades, when I had the privilege to work with him, Prof. Denardo helped the African scientific community working with ICTP to make qualitative steps in the development of optical sciences in Africa. One owes him, with the support of Prof. Abdus Salam himself, Nobel price and founding Director of ICTP, the creation together with few African scientists of the LAM Network (African Laser Atomic, Molecular and Optical sciences Network). Prof. Denardo also

initiated the creation of all the ICTP affiliated centres in Africa. In addition he helped and supported the organisation in the Continent of several scientific meetings in physics or in mathematics in numerous African countries (Ivory Coast, Benin, Senegal, Ghana, Sudan, Cameroon, Morocco, Tunisia, Egypt, South Africa, Zimbabwe, Namibia, Botswana, Ethiopia, Gambia, Mozambique, Zambia etc). Thanks to him many African researchers at the beginning very isolated became associated members at ICTP and many other have benefited of STEP (Sandwich, Training and Education Program) fellowship program initiated by him with the International Atomic Energy Agency. Many others African scientists benefited also of the fellowship program that he has initiated with ICS (International Centre for Science and High Technology). In addition during the last three years Prof. Denardo still fought to make operational the TSOSA (Trieste System for Optical Sciences and Applications), with the tentative creation of the mentorship program and that of a permanent group in Optics at ICTP. In fine one can say that Prof. Denardo was the good fairy of Africa at ICTP. He established useful and fertile interactions between the African scientists and the international scientific community. Thus with its support, the LAM could organize several International conferences, workshop and schools on lasers and optical sciences through over all Africa. Thanks to these activities the LAM became an international Society member of ICO. Thanks to his continuous intermediation, several African countries became member or observers at IUPAP (International Union for Pure and Applied physics). Moreover he helped to create bonds between the African scientists and several International Societies in Optics like ICO, OSA, SPIE, OWLS, etc. In the same way, he was at the origin of the fertile scientific cooperation which exists between the LAM and the University of Lund in Sweden, the LAM and the International Program in Physical Sciences at the University of Uppsala in Sweden with the financial support of SIDA (Swedish International Development Agency). With Prof. Abdus Salam, Prof. Denardo supported the creation of bonds of scientific co-operation between the African Diaspora in America and the African scientific community of Physicists and Mathematicians by the creation of Edouard Bouchet Abdus Salam Institute (EBASI).

Prof. Denardo was an untiring combatant, and that to the last breathe, for the development of optical sciences in Africa, and he was a friend always present to cause opportunities for scientific cooperation. Each visitor at ICTP, whether it is an African, an Asian, a European or an American, believed that he was the best friend of Prof. Denardo. That shows how much he was opened with all, and in truth one must say that Prof. Denardo was a real internationalist. In fact at ICTP, one can say that he incarnated truly the ideal of Prof. Abdus Salam to make universal the sharing of Science.

Prof. Denardo, you left us suddenly, this Monday July 23 of the year 2007, but to paraphrase the Senegalese poet Birago Diop, in Africa, we believe that deaths are not died, that they are in the running water, that they are in the blowing wind, that they are in the newborn child. But you Prof. Denardo, moreover, you are in the laser light of our laboratories that we have created together, you are in the pages of the books, in the memories and on the screens of the computers that we are using at the ICTP Affiliated Centres, you are in the doctoral theses and in the articles written by our students. You will be always with us during the activities of the LAM and ICO. In the corridors, the offices, seminar rooms and lecture halls of ICTP, we will always listen your bursts of laughter so sincere and so friendly.

On May 31, 2007 in Trieste, at the “Africa Day” ceremony, dedicated to Africa by ICTP, like a premonition, unanimously African scientists paid vibrating homage to your person, Urbi and Orbi.

Today, Prof. Denardo, Africa with endless acknowledgement from the depths of savannas, deserts, and forests, beyond the frontiers of space and time, wants to say: thank you Prof. Denardo. Lie in peace, dear Gallieno.

**Amadhou Wagué, LAM Coordinator**

### **International Society for Optical Engineering (SPIE)**

#### **Gallieno Denardo: 2005 SPIE Educator Award**

Prof. Gallieno Denardo did an enormous work in the organization of the activities in the field of Optics and Lasers at the ICTP. Colleges and Schools in Optics have been organized every year from 1985 to now for training Ph.D. students, postdoc researchers and young professors mainly from developing countries. Also some students and young researchers from developed countries participated in the Schools seminars. The collaboration of professors and students from different countries has been proved very fruitful.



*At the Winter College in 2006, SPIE CEO Dr. Eugene Arthurs presents the SPIE Educator Award to Gallieno Denardo.*

The Colleges have typically about eighty participants; recently the number is close to one hundred. 75% of attendees are from developing countries and almost all of them are entirely financially supported by ICTP. Prof. Denardo organized the Colleges and was taken care of the financial support of the students until July 2007 when he died suddenly.

The faculty, i.e. lecturers and directors, includes a much smaller percentage of scientists from developing countries. Prof. Denardo tried always to have some lecturers and, if possible, a director from those countries. The academic level of the Schools is indeed very high. The average scientific level of the participants is at a PhD degree. The selection of participants is based not only on the merit but also on a balanced geographical

distribution. Mainly young scientists are invited. These go over for more than one year (i.e. they are often invited to attend Colleges in more than one year) so as to create a link between their Institutions and the ICTP and also among them from different developing countries. The College offers opportunities to meet people working in the same field, sometimes from the same country or region. Much collaboration among scientists in developing countries stemmed from their meeting at ICTP on the occasion of the Colleges.

Moreover, the Colleges are the occasion to meet with the coordinators of the ICTP for the External Activities which take place in developing countries with the support of the ICTP. In this way, the ICTP is the place where the contact among coordinators of different projects on Optics is created so as to stimulate a networking of the Optics activities in the different regions.

Prof. Denardo was also very active in the Trieste System Optical Science Advisory Group. SPIE, ICO, OSA, EOS, OWLS and SIOF are participating in this TSOSA Group. As SPIE representative in the TSOSA Board since 2004, I know the work developed by Prof. Denardo. I was deeply impressed by his enthusiasm and organization capabilities as well as by the influence of his initiatives in training hundreds of scientists and keeping fruitful scientific links between ICTP and academic and research groups in developing countries.

In 2005 the SPIE Educator Award Committee and the SPIE Board of Directors recognized Prof. Denardo for his outstanding contribution in training in Optics hundreds of post doctorate students and professors mainly from developing countries by the organization of International Schools and Colleges in ICTP for twenty years. One of the photographs accompanying this text shows the moment when Prof. Denardo received the Award at the Winter College in 2006. In an article appeared in *oemagazine* (June/July 2005) Prof. Denardo wanted to shear the award with ICTP and he said: "I feel that the ICTP, together with me, deserves this honour", and he cited the important support of the ICTP Director, Prof. Katepalli Sreenivasan. "Without the ICTP I couldn't have done anything." Both Prof. Gallieno Denardo and the ICTP activities in Optics and Lasers deserved the Award.

All of us will miss Prof. Gallieno Denardo and will always remember him. I am sure that ICTP will continue having the enthusiastic collaboration with International Societies to continue the legacy of Gallieno.

**Maria J. Yzuel**, 2005 SPIE Vice President.

### **Optical Society of America (OSA):**

#### **Anthony M. Johnson contribution: Memories of Gallieno**

*Photo taken at the 2004 Winter College on Optics and Photonics where Gallieno and A. Johnson were discussing ideas for the next Winter College and TSOSA Advisory Group meeting. These discussions with Gallieno were always cordial and quite contemplative, and it must be added usually punctuated with one of his famously infectious laughs.*



I am stunned and saddened by the sudden loss of my friend and colleague of nearly 20 years, Prof. Gallieno Denardo of the ICTP, in Trieste, Italy. The significance of his loss is difficult to express in words, but my fond memories of this distinguished humanitarian are easy to articulate.

I met Gallieno for the first time in 1988, when Professor Abdus Salam, the late Nobel Laureate and Founding Director of ICTP, created the Edward Bouchet Abdus Salam Institute (EBASI). Gallieno was the primary facilitator for Prof. Salam and three of the primary objectives of EBASI, which were [1] to provide a mechanism for synergistic scientific and technical collaborations between African and African-American scientists; [2] to increase the technical manpower pool working in Africa today; and [3] to facilitate the training of PhD students from African universities. As one of the founding members of the American Council of EBASI, I started working with Gallieno at ICTP, and found him to be one of the most gifted, visionary, and compassionate of individuals, totally dedicated to disseminating excellent science to developing countries not only in Africa, but also in Asia and Latin America as well. What



seemed to many like an insurmountable task was made agreeable and enjoyable, due mostly to Gallieno's congenial, affable nature; I found that his remarkable energy galvanized me, and countless others, to this noble cause.

Already an internationally recognized centre for theoretical physics, ICTP became a mecca for scientists from developing countries to learn the latest advances in theoretical physics from the top scientists in the world. Gallieno, with his background in elementary particle physics, recognized early on that optics and photonics was an exceptional vehicle to expand the scientific breadth of ICTP to a wider audience in the developing world. As the Organizer of ICTP activities in Lasers and Optics since 1985, he simultaneously served as Head of the ICTP Office of External Activities from 1989 through 1997. With the passing of Prof. Salam in 1996, Gallieno became the principal spearhead to implement Prof. Salam's mandate that ICTP "... foster advanced studies and research, especially in developing countries." Even mandatory retirement did not sway his enthusiasm and commitment, evinced by Gallieno's activities as a Consultant to the ICTP Office of External Activities since 1998.

During his tenure with ICTP, Gallieno organized over 50 scientific meetings and training courses in the field of lasers, atomic and molecular physics since 1985. I remember when Gallieno organized his first conference on optics and photonics in 1985, which was entitled "Winter College on Lasers, Atomic and Molecular Physics," 21 January – 22 March. The Directors of this college were, G. Amat, T. Arecchi, R. Bonifacio, A. Dymanus, F. P. Schäfer and O. Svelto – all internationally recognized members of the optics community. These were extremely well organized workshops with 60-80 students at or near the PhD from universities in developing countries from around the world. The lectures were quite comprehensive, covering the basics to the latest advances in optics and photonics. I recall Gallieno had "rock star" status among the students, who revered him for his scientific prowess as well as his charismatic personality. His attention to detail and concern for scientific excellence was nothing short of extraordinary. For nearly two decades now, I've admired Gallieno because I have seen how he impacted so many promising students and practicing scientists all over the world. It was a pleasure to lecture in two of his early workshops, and subsequently to discuss strategies for the centre's future.



## MINUTES OF THE ICO BUREAU MEETING

held in Changchun, China, on Sunday, August 21, 2005, from 9:00 AM to 6:00 PM

### **Present:**

ICO Bureau Members: H.H. Arsenault, M.L. Calvo, P. Chavel, R. Dändliker, A.T. Friberg, A.A. Friesem, N.G. Gaggioli, G. Jin, B. Y. Kim, M. Kujawinska, Y. Petroff, G.C. Righini, A. Sawchuk, G.T. Sincerbox, T. Tshudi, G. Von Bally, A. Wagué, I. Yamaguchi.

Assistant: R. de Cecilio

Apologies for absence have been received from: A. Guenther, L.L. Wang, A.W. Weiner

Attendance on afternoon meeting: J. Love, Australian Territorial Committee representative for ICO-21, M. Yzuel, OiC Steering Committee ICO representative.

### **1.- Call to order, introduction, matters arising, approval of minutes Porlamar 2004**

René Dändliker, President, opened the session. He informed that prior to the present meeting the Executive Committee had a meeting to prepare the Points of the Agenda (see Appendix I). Unfortunately, this time with the absence of A. H. Guenther, ICO Past-President who was not able to be present in Changchun. The Bureau was accepting to designate G. Sincerbox, Treasurer, to be in charge of the elections preparation and Chair of the same at the forthcoming General Assembly. Some remarks regarding the Agenda are considered. Various Points will be redirected to the Second Bureau meeting for operational reasons.

The approval for the minutes of the previous ICO Bureau Meeting held in Porlamar, October 2004 is proposed.

Proposal: "To approve the minutes of the ICO Bureau Meeting held in Porlamar, Venezuela, 8-9- October 2004". (Motion: G.C. Righini, second M. Kujawinska, unanimously approved).

R. Dändliker proceeds to review the list of actions issued at the last ICO Bureau Meeting held in Porlamar, October 2004.

- Action 04/1 Friesem, Righini. The contacts with the J. Goodman's foundation have yet not been entirely accomplished. G.C. Righini will report further on this action at the forthcoming General Assembly in relation with the activities of the Committee for Regional Development.
- Action 04/2 Dändliker. A letter to OSA Foundation responsible, Dr. Bjorklund, was sent dated February 12, 2005, explaining the position of ICO in relation to the current activities of OSA Foundation in favour of developing regions and congratulating OSA for the establishment of OSA Foundation and expecting for a prosperous cooperation with ICO, having as a natural link the ICO Vice-President designated by OSA at the ICO Bureau and other relevant past members of the ICO Bureau who have responsibilities at the OSA Board.
- Action 04/3, Calvo. The publicity of both the ICO Prize and the ICO Galileo Galilei Award was provided under both electronic and hard copies versions. Two different types of posters were designed and published by the IoPP. Copies of these two types of posters were sent to all Territorial Committees. Electronic version of the same is available at the ICO website.

Moreover, these posters were distributed in major ICO meetings and events as in the last Winter College, at the ICTP, Trieste, Italy. It has to be remarked that this action was producing a substantial improvement on the dissemination of publicity of these two ICO awards and that it is advisable to continue with this activity in forthcoming calls.

- Action 04/4, Jin, Sincerbox. B. Eggleton, recipient of the ICO Prize 2003 was contacted by the organizers of the ICO-20 Congress. He was indeed delivering a quite sounded invited lecturer at the ICO-20 along with the award ceremony and with a high attendance.
- Action 04/5, Gaggioli, Righini. The preparation of a recommendation from ICO Bureau to be addressed to all TCs concerning their internal functioning is still open. Further contacts are needed and the mechanism has to be improved as it was demonstrated in the last months for requesting responses from responsible of the TC's. Only a low percentage of contacts were obtained. This issue will be informed as well on the General Assembly.
- Action 04/6, Calvo. ICO Secretary was contacting the responsible person for publishing at the IoPP in order to obtain a bid for publication of ICO Newsletter for the year 2004. The official contract issued by ICO/IoPP agreement was sent to all ICO Bureau members, and it was approved by a majority of ICO Bureau members. The decision was taken by December 31, 2004. In overall, the agreement has been positive and there by producing an improvement in the design, color reproduction (that was absent in previous publications), style as well as availability of electronic file at the ICO website. The agreement has to be revised not later than November 2005 to be approved by the ICO Bureau for the year 2006 publications (Action 05/1 Calvo).
- Action 04/7, Arsenault, Sawchuk, Weiner. The three US IS with representation in the ICO Bureau were requested to provide one report with data on the interaction with ICSU and current situation in relation with optical professional societies facing difficulties for visa and other ethical issues. This action will be reviewed in Point 8b of the Agenda.
- Action 04/8, All Vice-Presidents. The Vice-Presidents in charge of the corresponding TC liaisons had the responsibility to contact them for resolving the current situation on arrears and to remind that those TC's not paying for the last six years are out of ICO according to rules. This action has to be discussed in the report of the ICO Treasurer, Point 3 of the Agenda.
- Action 04/9, Sawchuk. All ICO Bureau members were requested to work under the coordination of A. Sawchuk, to provide feedbacks for the distribution of educational kits including about the translation issue. These aspects will be discussed in the Point 4c of the Agenda.
- Action 04/10, Dändliker. A systematic announcement of national and local optics activities as being a part of WYP2005 was prepared. A special ICO logo was created for that year, and inserted in all official ICO documents and on the ICO website. Special instructions for the use of the ICO logo was prepared and distributed to all TC's. The effect for increasing publicity was very positive.
- Action 04/11, Friberg. As a consequence of the previous action A.T. Friberg provided an updated ICO logo for the ICO meetings publicity to all organizers of conferences with ICO participation in the WYP2005. Similarly as in the previous action this action was proving an improvement for ICO visibility in the WYP2005.
- Action 04/12, Guenther. All ICO Bureau members needed to contact A. H. Guenther, ICO Past-President, for giving him suggestions for the duties of a future Council of Past-

Presidents Committee (maximum of five Past-Presidents in chronological order). The proposal needed to be discussed for approval at the General Assembly in Changchun. However, due to unexpected problems no further reaction was observed and the proposal was not included on the agenda for the General Assembly. This action needs to be revised by the future ICO Bureau. (Action 05/2 Friberg Calvo).

- Action 04/13, Guenther. The Nominating Committee was working during the past months to assure the internal and external circulation of information for: i) The first round of nominations for ICO Bureau elections, that was concluded by December 31, 2004, ii) the second round that was conclude on July 1, 2005, iii) the late nominations to be accepted up until August 24h before the vote at the ICO General Assembly (Changchun, China). As reported previously by ICO President, G. Sincerbox has been in charge of the late items ii) and iii) as it will appear in the minutes of the General Assembly 2005.
- Action 04/14, Von Bally, Gaggioli. The Galileo Galilei Award and Regional Development Committees have been working in collaboration to develop rules of practice to provide support on the activities of local optical professional societies. These rules have not been yet distributed and publicized. In particular, providing direct supports to individuals appears to be a determinant issue to assure the effectiveness of this action.
- Action 04/15, Righini, Wagué. The Committee for Regional Development needed to take actions towards the development of the program for donation of equipments. This action will be reviewed in Point 4c of the Agenda.
- Action 04/16, Wang, Kim, Yamaguchi. A report was prepared prior to the General Meeting 2005 and approved by the ICO Bureau, to explain the future of the Standards Committee. This Committee arrived to the conclusion that under the present procedures for internal organization and effectiveness this Committee has to be dissolved. This proposal will be voted at the forthcoming General Assembly. However, links with industry need to be maintained and assured inside the existing Committees. This aspect has to be discussed at the Second Bureau, join with old and new Bureau members. (Action 05/3 Friberg Kim Yamaguchi)
- Action 04/17, Sawchuk. Contacts between OSA and SPIE in relation to the current MOU for OiC series and regarding a possible new agreement and a new meeting contents needed to be implemented. However, no available information has arrived to the Bureau up to the present date. Further discussions will take place at the Point 8c of the Agenda.
- Action 04/18, Gaggioli. The cooperation between ICTP and the Latin-American scientific community needed to be studied. A possible action was related to the organization of a meeting at ICTP, Trieste, to take place with the presence of Latin-American scientists. Additional discussions will take place in Point 8a of the Agenda.
- Action 04/19, Friesem, Von Bally. The Chairs of ICO/ICTP Prize and Galileo Galilei Award Committees have been working in cooperation for sharing common information on possible nominees of the two awards. The resolutions for the last year 2004 were edited into the “Green Book” Toward ICO-20. It is noticeable that this has been a very positive action that has to continue in future bureau activities. (Action 05/4 Von Bally).
- Action 04/20, Friberg. M. Kujawinska was acting as ICO representative at the Correlation Optics meeting 2005 (endorsed). A. Sawchuk and M.J. Yzuel, were proposed as ICO representatives to IP 2005 (endorsed). A. Wagué was acting as ICO representative for the Winter College 2005, dealing with Nanoscience and Nanotechnology. R. Dändliker was

acting as ICO representative for ICSSUR'05 (endorsed). The OFS-17 application of ICO participation was turned down due to high conference registration fees, which do not comply with the ICSU and IUPAP rules.

- Action 04/21, Friberg. The ICO-21 Congress is tentatively planned for 6-10 July 2008 in Sydney. A representative of the Australian Optical Society, J. Love, has been invited to make an updated presentation to the Bureau and the General Assembly at ICO-20. The Bureau is encouraging the Latin-American optics community to present bids for ICO-22 in 2011.
- Action 04/22, Friberg, Calvo. The first ICO Bureau meeting 2005 was organized to take place prior to the General Assembly. Similarly, the second Bureau meeting 2005 was organized to take place after the ending of the General Assembly. Facilities were confirmed with the local organizers and with the support of the ICO Administrative Secretary.
- Action 04/23, Dändliker. The proposition of ICO, duly claiming that it is able to represent the whole field of optics in a fair way, was sent to J. Lubchenko, ICSU President. The final document was prepared in accordance with the former one presented by P. Chavel to the ICO Bureau during the months previous to July 2005. Detailed information will be provided in Point 7b of the Agenda.
- Action 04/24, Calvo, Sincerbox. All Bureau members have been requested to work for the ICO Green Book "Towards ICO-20" that was edited by ICO Secretary by June 2005. The same was mailed to the TC's prior to the General Assembly by June 2005. Copies of the last Green Book were sent to the Bureau members as requested. ICO Bureau approved the budget appearing in the Green Book previously. This procedure was done by electronic mail by January 2005.
- Action 04/25, Arsenault H. Arsenault collected some documents related to current business on ethical issues. The same were sent it by e-mail to ICO Bureau members. No further discussions arisen related to this action.

## **2.- President's report**

R. Dändliker, ICO President, reported. He expresses his thanks to all the members of the ICO Bureau for the support accorded during the now ending term. Important actions have been developed.

The application for ICSU membership was prepared by P. Chavel according to the calendar and approved by the ICO Bureau. The documents are available together with the other documents prepared by ICO Secretariat for the current meeting. Currently, the application is being handled by ICSU to be proposed for approval at the forthcoming ICSU General Assembly in October 2005. He is addressing special thanks to IUPAP that has supported the application.

In relation to the activities for the WYP2005 a special logo was created with results for dissemination not yet fully obtained. It is to remark that the sponsors of events did not always used the logo as it was suggested. One of the primarily reasons could be the lag of coordination with various TC's. The responses obtained were from Cuba, Italy, Finland, Poland, Russia, Ukraine, Switzerland and Tunisia. Also, OWLS conference in Melbourne was publicized including ICO logo. These facts are an example on the necessity for improving communication between ICO Bureau and TC's and internal interaction has to be pursued. He stressed that TC's are the basis of ICO. To this concern discussions arisen in the sense to notice that ICO activities have to be defined in future (M. Kujawska). G.C. Righini added that there are difficulties to

interact with committees from official institutions and that specific rules have to be proposed for definition of tasks.

The President informed that the Triennial report of ICO to IUPAP has been prepared and sent on due time. To this point, P. Chavel is thanking as well for the application of ICSU membership. The President informed that a new regime for co-sponsorship and endorsement of meetings with two specific deadlines, it is now in progress. As further activities of the President, he has participated in conferences with some restrictions for financial reasons. The meetings were: IC Squeezed States, held in Besançon (France), participating in the closing session and presenting a resume of ICO activities. It is expected that there will come new positive activities for new members if they will be accepted by the General Assembly.

To that point he mentioned three applications for full membership coming from Greece, Ecuador and Moldova. The ICO Newsletter is now permanently linked on the ICO website but discussions need to start on whether the current procedure for distribution is the most efficient or can be improved. In relation to the activities between ICO and ICTP he wanted to officially congratulate Gallieno Denardo, artifice of the optics activities inside ICTP, who was recipient of the SPIE Education Award. A special article on this new will appear soon at the ICO Newsletter.

Regarding ethical issues, he mentioned the USA sanctions toward members from some countries, as it has been the case of Cuba and Iran. A. Friberg added to this information that scientists and scientific institutions of USA have initiated some actions to sensitize the scientific community but the situation is not yet solved. These discussions are postponed for Point 8 of the Agenda. In addition, Y. Petroff informed that IUPAP is considering not organizing international conferences in USA if the problem is not solved. M. Kujawska informed that various Academy of Sciences are now initiating some actions as well as other US scientific organizations. As an example, SPIE has tried to improve the situation. But still there are open problems that are appearing in the press as well. To resume, one needs to state that the problem cannot be solely focused on the actions of a single country.

New information is provided for the election procedure to be applied at the General Assembly. ICO Bureau has given a mandate to G. Sincerbox, ICO Treasurer, to act on behalf of A.H. Guenther who was sending his apologizes for absence. There is currently, and prior to the General Assembly an important action for preparing the elections and to look for convenient candidates. He addressed at that time special thanks to M. L. Calvo who has accepted to run for the position of Secretary. He thanked as well to A. Friberg who accepted to run for the position of President, to G. Von Bally for running for Associate Secretary, and to A. Sawchuk who accepted the nomination for Treasurer. At that time he wanted to give special thanks to G. Sincerbox for his remarkable work during the past six years as ICO Treasurer. Also, special thanks are addressed to A. Friberg for his important work in the Associate Secretariat. It is to remark that the presentation of new nominations was opened up to twenty-four hours prior to the General Assembly.

### **3.- Financial matters**

G. Sincerbox, ICO Treasurer reported. As a first statement he mentioned that the reducing of resources was not very high during the ending term. He presented all the information related to the financial resources and management for the term 2002-2005 providing as well copies of the same to all ICO Bureau members. The items presented were:

- Budget October 1 2002- September 30, 2005 (amended and approved at the ICO-19). Total income: 101,350 US\$. Total expenses: 119,900 US\$.
- Balance sheet as of August 1, 2005. Total assets: 177,382. Total liability: 15,393 US\$. Total equity: 161,989 US\$.
- Income and expenses from October 1, 2002 to August 1, 2005. Total income: 96,270 US\$. Total expenses: 111,360 US\$.
- Cost of doing business. Total cost: 2,183 US\$.
- Income/Expenditures to Current Budget as of August 1, 2005. Actual to date August 1, 2005: Total income: 96,225 US\$. Total expenses: 111,360 US\$. Estimated remaining income/expenditure until September 30, 2005: Total income: 13,178 US\$. Total expenses: 25,592 US\$. Expected 3-year total: Total income: 109,403 US\$. Total expenses: 136,952 US\$.
- Newsletter costs: Printing: 8,556 US\$. Mailing: 16,753 US\$. Total: 25,309 US\$.
- Status of dues. An analysis is presented for dues in arrears: 12,900 US\$ (corresponding to 12 TC). For the year 2005: 9,750 US\$. Not collectable amount could be: 10,000 US\$. There are four TC's with arrears for six years that according to Rules and Code of Practice will be discontinued on it membership. This TC's are: Belgium, Brazil, Hungary and Indonesia. ICO Treasurer presents a proposed schedule for payment of arrears, giving the facilities for ending with pending dues the year 2010. This proposal was sent to all mentioned TC's and to Iran and Belarus (five years in arrears). By August 1, 2005 no response was obtained. The new ICO Treasurer will take care on checking the current status of these dues. (Action 05/5 Sawchuk, Sincerbox).
- Meeting summaries: Up to October 1, 2005, a total of 31 meetings have been either co-sponsored or endorsed by ICO, including the General Meeting, Topical, Regional, satellite and schools. With a total amount of: 39,000 US\$ (term 2002-2005).
- ICO Prizes and awards: The current prizes and awards remain as it has been done in the precedent term, say ICO Prize US\$2000 and travel support US\$1000, Galileo Galilei Award US\$1000 and travel support US\$1000, ICO/ICTP Award, adding invitation to participate at the current Winter College in ICTP and travelling and living expenses covered as well by ICTP.
- It was agreed by the Bureau and approved that the ICTP support will be increased to US\$ 2,000 starting from year 2006.

The proposed budget has to be approved by the General Assembly. Discussions arisen regarding the cost for ICO Newsletter distribution having an increase of US\$3000, so that checking the efficiency of mailing will be required as well as reviewing the number of sending copies to reduce costs. Another action will be to distributed ICO NL in ICO meeting and ask the local societies to help ICO for distributing of copies (Action05/6, Calvo). This action needs to be addressed as well to the General Assembly. There is a motion regarding the bid for publication: "The bid for ICO NL publication must be revised every three years, then the current contract is considered up to ICO-21" (Motion: G. Sincerbox, second M. Kujawinska). Motion unanimously approved. The new ICO President will send letters to TC informing them on the problems of those in arrears (Action 05/7, Friberg). Motion for approval of the budget: "to approve the budget as present by ICO Treasurer and following the recommendations" (Motion: G. C. Righini, Y. Kim, second). Unanimously approved. One question arisen as mentioned by

A. Sawchuk regarding the possibility for receiving funds from other institutions, and that this should be done through the French account since France is the official country for ICO legal status. (Action 05/8, Sawchuk).

#### **4.- Committees reports, except prizes and awards**

##### **4a) Nominating Committee**

In the absence of A. Guenther, Chair of the Committee, G. Sincerbox reported. The Nominating Committee consists of: A. Guenther, Chair, T. Asakura, C. Velzel, M. Yzuel and G. Sincerbox. The Committee has been working electronically in order to coordinate the current nominations. A first status was published in the Green Book "Toward ICO-20". The number of candidates is at the moment of presenting the report of a total of twelve, from various countries and geographical regions. Also, there are nominations of candidates from industry. Later nominations can be always presented to G. Sincerbox (24 h. before the General Assembly). The question regarding the operational procedure for statements and short CV's was clarified. The information will be distributed at the First part of the General Assembly. There has been received various requirements of voting by proxy from Slovak Republic, Turkey and Venezuela. It was enhanced by P. Chavel that the international organization members needed to send their representatives as well to forming and completing the new ICO Bureau.

##### **4b) Long Range Planning Committee**

R. Dändliker, ICO President and Chair of the Committee reported. Up to the present date there has been no additional meeting of the Committee after the one held in Porlamar (Venezuela), October 2004, at the occasion of the ICO Bureau meeting. The main reason was an operational one and difficulties in organizing and fixing the convenient places. There has been an informal meeting with R. Dändliker and A. T. Friberg regarding the planned ICO Book inside the series ICO Trends in Optics with possible new edition. Also, discussions took place regarding the reorganization of activities of the Committee for Regional Development to become more efficient on the distribution of tasks and contacts with TC's.

##### **4c) Committee for the Regional Development of Optics (CREDO)**

G. C. Righini, Chair of the Committee reported. A resume of the activities of CREDO has been published in the recently edited ICO Green Book "Toward ICO-20" (see page 72). In addition he was mentioning the following progress: Most of CREDO activities have been focused during the present term on two priority areas: developing nations, and education and training in optics.

The long-standing collaboration with the ICTP, the Abdus Salam International Center for Theoretical Physics in Trieste, was continued and even intensified by participation in the newly founded TSOSA Advisory Group, (TSOSA stands for "Trieste System for Optical Sciences and Applications"). The possibility of increasing the cooperation between ICTP and Latin American countries is being explored.

A standing problem concerns the actions to promote and coordinate a program specifically dedicated to the donation of equipment. However, different problems (even on the legal side) exist in different countries then avoiding an efficient procedure. The current goal is to define the



new procedure in the next months, so to transfer a ready “roadmap” to the new Bureau. It was decided to collect information on the organization and activities of optics in all of the TC’s affiliated to ICO, in order to allow all ICO Bureau to have a better understanding of the regional status of optics and to help to have clearer ideas of strengths, weaknesses, opportunities and threats of optical activities in the different Territories. This analysis may help to take decisions on the best ways to support activities and organizations in the less favoured countries. To this concern the percentage of responses received from TC’s was not totally satisfactory.

There is a clear need of collaboration with the ICO Education Committee to strength a better support to regional educational programs. Discussions arisen regarding the needs for defining a special program for Africa (A. Wagué). M. Kujawska indicated that there is a need to strength the possibilities of ICO toward programs for Education and Training for young researchers. (Action 05/9, Kujawska).

#### **4d) Travelling Lecturer Committee**

G. Sincerbox, Chair of the Committee reported. He mentioned that currently there is a main impression that the awards are not very competitive. The main problem with Travelling Lecture Program is that it is having only few applications. The main reason could be that there is a lag of familiarity with the program, even if ICO Secretariat improved the advertisements with the edition of posters.

A main question arisen on whether increasing the award will help to increase visibility (A. Sawchuk). One may consider that there are currently various programs at the present time offered from international societies. The student’s chapters organize usually their own activities, so that contacts with student chapters to inform them on the program are necessary. For example, there are currently discussions in EOS for cooperation within a travelling program. Clearly, a too small program is difficult to be handle with a minimum of efficiency and interest. There is a proposal for designating two provisional responsible persons to contact with Student’s Chapters. (Action 05/10, Kujawska, Sawchuk).

There is another proposal for reviewing the budget of the Travelling Lecturer Program for the term 2005-2008 (Action 05/11, Sawchuk). To this concern suggestions arose. G. Jin suggested that the invited lecturer proposal should be reviewed by the host country (or the related local Optical Society) as they know what field is required and which university or institute is more suitable for inviting appropriate experts.

It is to notice that there is an ICO policy for not awarding lecturers that have been awarded previously by other organizations.

#### **4e) Education Committee**

A. Sawchuk, Chair of the Committee reports. There are currently several activities in progress. One of them is the maintaining of the section of Education in Optics at the ICO website. In relation to the available information there is a searching for obtaining interesting links and to work on the computer format. This activity has been done in cooperation with OSA and SPIE.

The maintenance of the website is a difficult job, and it is needed a comprehensive content. For the effectiveness a lot of resources are required, as human and financial ones. To assure a correct work we may consider that duties overpass those consistent for a committee.

The program for kits distribution needs to be maintained and check for translation into languages other than English (as done by OSA, for example with “Optics for kids”). The coordination seems now to progress.

In October 2005 ETOP meeting will be held in Marseille. H. Arsenault informed as well that OSA and SPIE have arrived to an agreement for the redaction of the MoU. The document will be proposed to ICO for agreement. It is expected that in Marseille there will be a meeting with attendance of OSA, SPIE and representatives. An idea is that ICO could create a committee for linking with this activity. A. Friberg added that previous to this action it is needed a procedure. Recently, a proposal has been received from SPIE that needs to be revised by ICO, under the responsibility of the Executive Committee. A. Wagué was questioning about the planned African session in ETOP 2005. It was assumed that SPIE was supposed to finance some African attendees but this fact is not yet solved and has to be discussed with the corresponding responsible persons.

#### **4f) Standards Committee**

In the absence of L.L. Wang, Chair of the Committee, B.Y. Kim reported. There is currently a common feeling that applying the definition of this committee is not accomplishing the objectives for what is was created. Those who actually need it typically initiate the activities for standards. It is then not having a sense to leader these activities from international organizations. Moreover, it is implying time consuming and ICO cannot afford the internal demanding situation. Therefore, the Committee has arrived to two main conclusions: 1) to suppress this committee among those currently forming the ICO Committees. 2) to create a subcommittee at the CREDO to help developing countries through ICO. If approved by the Bureau it has to be approved by the General Assembly.

M. Kujawsinska pointed out that the industrial representatives at the ICO Bureau could focus their activities on standards. Then, defining a more specific role of colleagues from industry inside ICO Bureau. T. Tshudi added that working for standards has a sense only for those working in the world of industry.

Motion: “To suppress the Standards Committee from the current ICO Committees inside the ICO Bureau accepting the report presented by the members of the Standards Committee”. (Motion: Y. Kim and M. L. Calvo second). In addition to this motion an action is issued toward the creation of a subcommittee for industrial links inside CREDO. Approved unanimously. (Action 05/12, Kim, Friberg).

### **5.- ICO Prize and Awards Committees**

#### **5a) ICO Prize Committee**

A. Friesem, Chair of the Committee reported. For the year 2005 the Committee has received a total of six nominations. He considered that the number is not high enough for helping in increasing the visibility of the Prize in the optics community. It is remarkable that they are all good candidates with interesting scientific profiles and curricula. The one the Committee considered the most relevant was Immanuel Bloch, from Johannes Gutenberg-University in Mainz, Germany, who had sounded contributions in the topic of manipulation of atoms and

Bose-Einstein condensate<sup>1</sup>. His work is supported by collaborations with institutions from other countries. The Committee considered him a good candidate with a potentiality to become a good and remarkable scientist in a future and it is agreed the importance for ICO to recognize this relevance. The other candidates were also very good ones but very much on the edge of the limited age of forty years old.

The Committee then recommended to the ICO Bureau to accord the ICO Prize 2005 to Immanuel Bloch. This was unanimously approved. (Motion: G. Sincerbox, A. Friesem second).

A. Wagué was suggesting that a possibility was to introduce that candidates could provide more letters of recommendation, say, at least to three letters. R. Dändliker pointed out that it was mainly the charge of the Committee to check for additional information as needed.

### **5b) ICO/ICTP Award Subcommittee**

A. Friesem, Chair of the Committee reported. He informed that the Prize for the year 2005 was already accorded to Sarun Sumriddetchkajorn a researcher from the National Science and Technology Development Agency (NSTDA), Pathumthani, Thailand's Ministry of Science and Technology. The Award ceremony took place at the last Winter College held at the ICTP, Miramare, Trieste, Italy organized by Gallieno Denardo and with high attendance. All the information related to this award has been published at the Green Book "Toward ICO-20" (see page 89).

### **5c) Galileo Galilei Award Committee**

G. Von Bally Chair of the Committee reported. The call of the year 2005 has resulted on receiving nomination of good candidates. A total of eight nominations have been received from six different countries or regions: Argentina, Ghaza<sup>2</sup>, India, Kuwait, Romania and Russia. The merits of the candidates were high and the selection was a dedicated task. It was considered the evaluation of the list of scientific publications of each candidate. In particular, the Committee was considered that the candidate accomplishing the fully requirements was Valentin Vlad, professor at the Institute of Atomic Physics, Romania. He has done very interesting and high quality scientific research on spatial solitons and non-linear optics. Moreover, he has done a very valuable work for improving the research activities in Romania under comparable unfavorable circumstances. The Committee then recommended to the ICO Bureau to accord the Galileo Galilei Award 2005 to Valentin Vlad. (Motion: G. Von Bally, A. Friesem second). The motion was unanimously approved.

## **6.- ICO participation in meetings and schools**

### **6a) Preparation of ICO XXI**

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<sup>1</sup> At the time of writing these minutes, the Nobel Prize in Physics 2005 has been already accorded. Among the three recipients: Roy J. Glauber, Theodor W. Hänsch and John L. Hall, it is to mention that Immanuel Bloch was the PhD Student and collaborator of Theodor W. Hänsch.

<sup>2</sup> According to UN resolution, Palestine, to which Ghaza Strip belongs, is an entity having received a standing invitation to participate as observer in the sessions and the work of the UN General Assembly and maintaining permanent office at UN Headquarter.

A. T. Friberg, ICO Associate Secretary in charge of meetings reported. For the celebration of the ICO-21 meeting to be held in 2008 a call was launched for bids at the ICO Newsletter earlier in 2004. It was receiving a bid from Australia, as an initiative of the Australian Optical Society. One of the main concerns is that ICO general meetings be organized in different geographical regions. Thus, there was as well an interest for exploring the possibilities of receiving a bid from Latin-American countries, in which up to the present date there was never held an ICO General meeting. At the occasion of the ICO Bureau meeting 2004 one bid was received from Mexico but the Bureau considered that there was a technical problem since the proposal arrived out of deadline and hence could not be considered. Therefore, the Bureau has to consider the bid presented by Australia.

### **6b) ICO XXI, presentation**

R. Dändliker, ICO President and Chair of the meeting introduced John Love, applicant and representative of the Australian Optical Society (AOS) who presents the resume of technical aspects for ICO-21 in Australia. The proposed date would be Monday, Friday, 7-11 July 2008, Sydney. Initially, it will be organized under the status of an Optics (ICO-21 + AOS) and Photonics joint meeting having the same local organizing committee. The technical programs being separated from Photonics (OECC+ACOF, participants expected mainly from South Asia). The sponsorship is a key aspect from Australian optics/photonics industries. The organizers are requesting a grant of 10,000 US\$ from ICO as well as a similar amount to AOS. The technical organization would be on the charge of a professional conference organizer (*Iceaustralia*) taking care as well on the conference website. The venue will be at Sydney Convention & Exhibition Centre (Darling Harbor, Sydney). There will be planned five concurred sessions and three for the other parallel meeting plus the plenary and invited lecturers. Abstract books and referred papers will be edited on CD's.

Discussions arisen regarding the convenience to run these two separate meetings while having common subjects. There was a large consensus that the proposals needed to be organized under different schedules. J. Love indicated that the main problem was to handle a unique budget not yet identified. An improved solution would be to handle separate budgets in terms of income. The meetings might be clearly identified in different areas of the Convention Centre. The liability should be shared by ICO and the other sponsoring societies. There might be a tacit agreement with the Australian organizers that ICO-21 identity be kept. A solution arisen was to propose collocated meetings. There has to be also a maximum rate for registration fees not higher than the accorded one annually provided by IUPAP rules. Also, accepting common budget could be considered if excluding risk money. Motion: "To organize the two proposed meetings as collocated and ICO-21 maintaining its own identity". (Motion: R. Dändliker, A. T. Friberg, second). Votes: eleven votes in favour, abstentions: six. Motion approved by majority. An action issued concerning the study of the viability for editing the papers of ICO-21 (Action 05/13, Executive Committee<sup>3</sup>).

### **6c) Other meetings and schools**

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<sup>3</sup> Since the new ICO Bureau will be operational by October 1, 2005, it is understood that Action 05/13 concerns the ICO Executive Committee elected for the term 2005-2008.

This section of Point 6 of the Agenda is transferred to the Second meeting, jointly with the Old and New Bureaus and to be reported by A. Friberg, ICO Associate Secretary in charge of meetings.

#### **6d) ICTP: TSOSA Advisory Group**

P. Chavel, ICO Senior Adviser, ICO representative at the Trieste System for Optical Sciences and Applications Advisory Group (TSOSA) and currently Chair of the same reported. The TSOSA had its annual meeting at the ICTP, Trieste, on February 9, 2005, at the occasion of the Winter College Optics and Photonics in Nano-science and Nano-technology. P. Chavel, and M.L. Calvo, ICO Secretary, represented ICO. The participation of representatives from international organizations and institutions belonging to TSOSA was adding the expected interest for discussions: Elettra Synchrotron Trieste, ICO, ICTP, Italian Optical Society (SIOF), LAM, OSA, OWLS, SPIE, Third World Academy of Sciences (TWAS), the United Nations Industrial Development Organization (UNIDO). All these organizations have signed the Terms of References, and it is expected that yet some others will join the Advisory Group. To this concern the European Optical Society (EOS), also present at the TSOSA meeting, is considering the agreement.

In order to have efficient results for TSOSA one main action would be to have permanent activities at the ICTP, with the aim to increase the visibility of optics and photonics research in developing countries. For example, African countries are now having emerging industrial activities, but there is a need for improving the quality and expansion of the same. During the year 2004 some activities already took place, as an internal discussion on the development of the so-called STEP program, the Sandwich Training and Education Program, addressed to young students and researchers from developing regions. Apart from the traditional Winter College, having the assistance of researchers and young scientists from all over the world (Asia-Pacific, Africa, Latin-America, North-America and Europe), the ICTP organized the 13th International Laser Physics Workshop (LPHYS'04, 12-16 July) in collaboration with the Russian Academy of Sciences.

Inside the new fellowship program a student from Ghana was following a training stage at LFO and the University of Padova (Italy). A more extensive program needs to be developed, in order that a convenient number of students could benefit of this program.

The year 2005 was having as well the organization of the Winter College in Optics and Photonics in Nano-science and Nano-technology.

The mentorship program that was proposed by the year 2004 seems to require more inputs and efforts. ICO has to define its own activities inside this program with interesting proposals having training and educational contents and a feasibility in terms of local facilities and subjects. P. Chavel, was earlier in this year summarizing the main definition of the mentorship program, consisting essentially with two calls per year and clear and open facilities for both mentor and student. It is to notice that ICO Bureau was agreeing on the contents of the summary of the mentorship program but still the call for proposals is open. One action arisen: To search for mentors from scientists in all ICO territories. To be submitted to ICTP. A call in newsletter would be estimated, coordinate with G. Denardo. (Action 05/14, Chavel, Calvo)

It is expected that at the forthcoming TSOSA meeting to be held in 2006 (most probably February 2006) there will be consistent ICO proposals to be presented.

## **7.- Membership**

### **7a) ICO membership**

M. L. Calvo, ICO Secretary reported. The Secretary maintains the information database on membership and its regularly update at the ICO website. There are currently 45 Member Territories and three more applications for full membership have been received from three of the five Associate Members, namely: Ecuador, Greece and Moldova. The bureau has approved during the year 2005 two of them as new associate members: Ecuador and Moldova. It is mentioned that some of the Territorial Committee members sometimes overlook to update the composition of their Committee or board when elections for a new term are held. Also, the ICO would like to have a copy of the operating rules (statutes, bylaws, etc.) used by its members. This is now a requirement for all new membership applications, but some of the more faithful members of ICO apparently never provided the information. The basic rules of Territorial Committees are that they must be representative of and maintain contacts with the Optics and Photonics community in their geographical Territory, they must be acknowledged by science authorities in their country. There are currently contacts with South Africa, Pakistan and Portugal.

### **7b) ICSU membership**

P. Chavel, ICO Senior Adviser and responsible of ICO-ICSU relations, reported. On the basis of the decision previously taken by the General Assembly, ICO is applying for the status of an ICSU International Scientific Associate. He mentioned the current status of ICO as an external commission of IUPAP, and that the same is an ICSU international union. ICO being an Affiliated Commission of IUPAP, is a second rang body within ICSU. Because of its interaction with many disciplines and its technical and economic aspects, optics is becoming more and more a separate discipline. While keeping the status of an IUPAP Affiliated Commission in recognition of the deep root that optics has in physics, it is appropriate for ICO to apply for that additional status of ICSU International Scientific Associate. ICO is in the process of requesting the ICSU decision; the same will be issued at the General Assembly to be held in October 2005. The requirement for a positive decision is to have a minimum of nine endorsements by ICSU full membership. Moreover, no particular opposition would be expected. Currently, six endorsements have been received from USA, Japan, Finland, IUPAP, the International Union of Theoretical and Applied Mathematics (IUTAM) and the International Union of Toxicology (IUTOX). In order to enhance the effectiveness of the application for ICSU full member additional support is required. There are currently contacts with France, Germany and the International Union for Radio Science (URSI). All Bureau members are now requested to do their best and generate expressions of endorsement from the ICSU full members that they are closest to (Country Members or Union Members). The model of contact letter will be e-mailed by P. Chavel to all Bureau Members. To this concern the Secretary and P. Chavel should be informed. The sending of the supports obtained from closer contacts has to take place not later than September 4, 2005. Notice that if the admittance is not accomplished then there will be another application for the next ICSU General Assembly. (Action 05/15, P. Chavel).

### **7c) IUPAP links**

Y. Petroff, IUPAP representative at the ICO Bureau, reported. He summarized the various recent actions:

- IUPAP has been quite active, during the last three years, on visa issues to allow free circulation of scientists.
- The creation of a new associated commission on Medical Physics will be presented at the next GA. Later on, we may consider the creation of a commission on Environment. For the moment, there are 19 commissions with ICO representatives in three of them: A. Wagué in C13 (Physics and Development), A. Friberg in C15 (Atomic, Molecular and Optical Physics) and G.C. Righini in C17 (Quantum Electronics).
- In view of the recent developments in Nano-science and cold atoms, the working group has suggested to establish, every 2 years, small conferences (100 people) on these topics.
- Every commission will be able to create a Prize for Young Scientists (1,000 US\$ every year or 3,000 US\$ every three years).
- For the World Year of Physics, IUPAP has sponsored and been involved in two main conferences: the launching conference at UNESCO in Paris (1200 participants, among them 600 students from the Olympiads of Physics, coming from 73 countries) and the conference on Physics and Development in Durban.
- In addition to the existing working groups (namely, ICFA, PANAGIC, Women in Physics...), IUPAP has created recently one working group on Nano-science and one on Energy: reports will be presented at the next GA.
- Today, one of the main priorities of IUPAP is to increase the links with the developing countries. This is why the next GA is, for the first time, taking place in Africa. For that, we will be interacting with the four new regional centres that ICSU is establishing. A specific program, to allow countries to join IUPAP, is under preparation. This will be discussed at the GA and at the Durban Conference: 20,000 US\$ have been included in the budget of 2006. Comments arisen regarding fees (A. Wagué) since there are very expensive for developing countries.
- Tunisia will be joining the IUPAP after the GA. We also are discussing with Serbia-Montenegro, Nigeria, Greece and three other countries.
- Over a period of 3 years, the budget for conferences and grants has been increased by more than 25 %.
- In 2002, IUPAP moved to euros and the financial situation is good so the fees will stay constant during the next 3 years.

Y. Petroff leaves the room for agenda reasons. Further information is provided by A. Wagué. Currently, enhancing contacts with C13 responsible is a main priority. A. T. Friberg reported on C15. The contacts took place at the level of electronic mails exchanging. Regarding C15 meeting, it was held July 22, 2005, in Rosario (Argentina), the report was not yet available. G. C. Righini reported on C17, enhancing current contacts is suggested as well. It is to remark that ICO was sometime out of the proposed actions (P. Chavel).

## **8.- Reports of liaisons with Territorial Committees and International Societies**

### **8a) Territorial Committees**

N. Gaggioli responsible on the liaisons with Latin-American TC's reported. In Argentina it has been organized a national laboratory network with the aim to improve the infrastructure of

Argentinean laboratories. This action has expectations toward an increase of activities and scientific coordination. There are now contacts with Brazilian scientists in the area of optics in order to organize a similar activity in Brazil analogous objective. To this concern a report has been prepared and provided to ICO Bureau. An action is needed toward the enhancement of coordination in all the Latin-American TC's and possible new members in this geographical area. (Action 05/16, Chair of the CREDO).

The additional reports concerning this Point of the Agenda are transferred to the Second Bureau (Joint Old and New Bureaux).

## **8b) International Societies (ICO Bureau members)**

H. Arsenault, representative of SPIE at the ICO Bureau reported on SPIE activities. In particular, SPIE has participated in two meetings in Africa held in 2005: Optics Teaching Regional Workshop organized by United Nations Educational Scientific and Cultural Organization (UNESCO), the International Center for Theoretical Physics (ICTP), SPIE and the Optical Society of Tunisia (STO) within International Year of Physics for 30 participants from North Africa and the meeting on "Active Learning in Optics and Photonics: Training of Physics Trainers" that met for the 3rd time at the Department of Physics, University of Monastir (Tunisia) in March 2005. It will be convenient that ICO be involved as well and having an agreement on financial support. An action that is to be proposed is to send letters to UNESCO responsible informing on the convenience of supporting these activities. UNESCO took initiatives on these Active Learning meetings and continues up to the present time. The SPIE Board is interested in introducing more efforts. To this concern there is an interest in issuing a statement proposing common activities toward this subject. A. Wagué explained that for the former meetings there was a LAM initiative that later was developed by UNESCO. Motion: "The future ICO President will write a letter to UNESCO proposing common activities toward the Active Learning meetings scheme". (Motion: H. Arsenault and second G. C. Righini). Motion approved by majority.

M. Kujawska informed on the activities of the National Science Foundation (NSF) for supporting educational kits and other publications for young students. It can be requested to ask to send these kits to developing countries. OSA and SPIE have a common program on "Hands on Optics" (A. Sawchuk) to be developed in USA. This information should be transferred to OSA and SPIE Boards for extending collaborations. A. Wagué indicated that LAM will be interested in collaborating on this issue.

A. Wagué, LAM representative at the ICO Bureau reported. There has been organized a LAM meeting in Duala (Cameroon). The Duala Declaration issue from that meeting appears on the website of LAM. ICO support to this activity was well appreciated. It is urgent that international organizations be involved in the development of programs in Africa. A report has to appear on ICO NL.

G. Von Bally, OWLS representative at the ICO Bureau reported. There has been organized a very successful meeting in Australia with a high number of participants. The Assembly was electing a new board and a new President (from Japan). The Assembly has elected as well G. Von Bally representative at the ICO Bureau. In the case he will be elected Associate Secretary in the forthcoming elections at the ICO General Assembly he will be replaced by other Board member. For the year 2006 an OWLS conference will be held in Taipei.



### 8c) OiC Steering Committee

M. Yzuel, ICO representative at the OiC Steering Committee reported. The actions toward the reactivation of the SC were decided at the previous ICO Bureau, held in Porlamar (Venezuela) in October 2004. The current activities concern the organization of 2006 conference on Information Photonics (IP). As agreed, the last conference was held in Charlotte (North Carolina, USA). A report on the meeting was provided to all ICO Bureau members. A. Sawchuk, member of the OiC SC reported. He informed on the various topics considered at the last IP meeting and that the number of attendees was around 400. The main question arising concerned the organization of the IP in 2006. The main problem being the very late organization. At the present state, two proposals have been received for organizing the meeting in Japan or in Australia. A latest plan was to organize the IP meeting collocated with ICO Topical meeting on Optoinformatics in 2006 in Saint Petersburg (Russia). A possible procedure will be to operate in parallel and with complementary sessions. For this action an international representation should be needed, since ICO Topical meeting is rather a regional one. The subject is important and it is a challenge to identify this 2006 meeting. OiC is been in charge of ICO as well, but the SC has been inactive for the last years. The new representatives in some cases have not been appointed, and it has to be reactivated. IEEE/LEOS could be a possible candidate for future collaboration at the OiC SC. Moreover, the Bylaws should be written. Also, it is necessary to plan the IP 2007 that has to be held in USA. OSA has run full service operation in the past. Presently, OSA agrees to share functions with organizers. Two immediate actions have to be taken: 1) to reactivate the OiC, 2) to fix the plans for future meetings. M. Yzuel added that she was in communication with one of the Chairs of the ICO Topical Meeting 2006, Prof. Pavlov, and he agreed to participate as local organizer of IP 2006. An additional Chair of IP would be needed.

A. Sawchuk proposed a change of the name of the SC to fit with the one of the conference. Other possibility is that the meeting be held in Japan, volunteer to organize 2008 meeting. Motion: "To change the name of the OiC SC to IP SC". Motion: A. Sawchuk and G. Sincerbox second. Motion approved by majority.

H. Arsenaault, SPIE representative at the ICO Bureau explained the position of SPIE and indicated that it is currently open to new join actions. In addition, IEEE/LEOS could participate, as well at the SC A. Sawchuk will take care of this action. (Action 05/17, A. Sawchuk, H. Arsenaault).

The Chair for IP 2006 has to be nominated with proposals from those involved in the precedent meeting in USA. J. Jahns could be a candidate and other issues will be considered. In next forthcoming month (September 2005) the proposal will be presented.

### 8d) ETOP

A. Friberg ICO representative at the ETOP SC and Chair of the ETOP Long Range Planning Committee (LRPC) reported. The forthcoming ETOP 2005 meeting will take place in Marseille (October 2005). A meeting of the LRPC is scheduled as well. In it the MoU agreed by ICO, OSA and SPIE will be adopted. Discussions for bids for the ETOP 2007 meeting are expected.

### 9.- Administrative business

This Point of the Agenda is transferred to the Second meeting, jointly with the Old and New Bureaux and to be reported by M.L. Calvo, ICO Secretary.

#### **10.- Other business**

This Point of the Agenda is transferred to the Second meeting, jointly with the Old and New Bureaus and to be reported by M.L. Calvo, ICO Secretary.

Meeting ended at 6:00 PM.

### **APPENDIX I**

#### **Executive Committee Meeting**

held in Changchun, China, 21 August 2005, 8:00 AM to 9:00 AM

The members of the Executive Committee: R. Dándliker, M.L. Calvo, A. Friberg and G. Sincerbox, (apologizes for absence have been received from A.H. Guenther), revised the important points and aspects to assure the proper functioning of the Bureau Meeting and General Assembly. These points were:

1. Organization of the General Assembly, contacts with local organizers are now under process having as well the support of ICO Administrative Secretary.
2. Opening Ceremony organization. ICO Secretariat will issue a protocol-detailing list to inform the local organizers.
3. Presentation of the Australian's bid. Contacts with J. Love, representative of the Australian Optical Society have been made to assure the technical aspects of his presentation at the General Assembly.
4. The Point dedicated to Schools (6c) will be treated at the Second Meeting
5. The Points 8b, 8c of the Agenda will be treated at the Second meeting
6. The Point 9 of the Agenda will be treated at the Second Meeting
7. Elections. Glenn Sincerbox has been designated Chair and will take care on the procedure.
8. The proposal for the denomination of P. Chavel as "senior adviser" will be proposed in the Second Bureau

*ICO Secretariat, Madrid (Spain), December 12, 2005*

# MINUTES OF THE JOINT MEETING OF THE OLD AND THE NEW ICO BUREAU

held in Changchun, China, on Friday, August 26<sup>th</sup>, 2005, 9:00 AM to 1:00 PM

## **Present:**

ICO Bureau Members: H.H. Arsenault, M.L. Calvo, P. Chavel, R. Dändliker, A.T. Friberg, A.A. Friesem, N.G. Gaggioli, M. Gu, A. Guzmán, G. Jin, B. Y. Kim, M. Kujawinska, J. Love, G.C. Righini, A. Sawchuk, G.T. Sincerbox, T. Tshudi, G. Von Bally, A. Wagué, I. Yamaguchi

Assistant: R. de Cecilio

Apologies for absence have been received from: A. H. Guenther, L.L. Wang, A. Weiner, Y. Petroff

## **1.- Call to order, introduction**

R. Dändliker opened the session and thanked all the members of the old Bureau for the valuable work done during the preceding term. In particular, he thanked all members who are leaving the Bureau. Then, he introduced the new members elected at the late General Assembly. One important date is the one at which the operations of the new Bureau will start: traditionally, November 1, 2005.

R. Dändliker then handed over the chair to A.T. Friberg, the new elected President.

## **2.- Operation of the ICO Bureau 2005-2008**

A.T. Friberg considered the Points of the Agenda successively. There was a revision of the current status of positions at the ICO Bureau. In particular, the position of Senior Adviser “ad personam”, agreed by P. Chavel, as well as taking care of the ICSU-ICO relations matters. The actual status of the ICO application as an International Scientific Associate in ICSU still required three letters of support from professional societies or institutions. R. Dändliker informed that the responsible of the Swiss Optical Society has been contacted. Another possible support could come from the International Union for Radio Science (URSI).

Regarding the operation procedure for the remaining Points it was done as in precedent terms. The printing of the new letterheads will to be done as soon as representatives of the International Society (IS) on the ICO Bureau be confirmed (Action 05/18, Calvo). For this task, it is required that all IS will send their new representatives not later than November 1, 2005. Prior to this date the old letterheads will be useful.

Another point is the operation with the ICO account opened in France, for facilitating various tasks of the Treasurer. It is agreed that the account has to remain active under the support of P. Chavel (Action 05/19, Chavel).

### **3.- Financial Operation 2005-2008**

The Treasurer reviews the current information. As a first action the new ICO Treasurer, A. Sawchuk, has to be officially recognized to operate in the French account (Action 05/20, Calvo, Chavel, Sawchuk). By October 1, 2005, the change of the American account to a different bank institution will be studied with the aim of looking for better operations. M. Kujawinska mentioned the difficulties for getting donations to ICO accounts, and it is necessary to consult with the American institutions, an action that has to be initiated by the new Treasurer. One important point influencing the current status is the recognition of ICO by the US as a non-profit organization (Action 05/21, Sawchuk).

G. Sincerbox, who is the past-Treasurer, keeps on reporting the current points as a continuation of the information presented at the precedent Bureau meeting. He presented the statements as per September 2005<sup>1</sup> and analyzed the increases on expenditures. In general, the past-Treasurer pointed out that the ICO finances are in good shape with regard to the end of year 2005. The necessity of an increase by US\$1500 of the Travelling Lecturer support for ETOP has been stressed. Motion: G. Sincerbox, first and M. Kujawinska, second. That increase has been unanimously approved.

The new budget, starting October 1, 2005, was revised. In summary, and as an index of benefits, the reduction of current resources would require a total of twenty years. Regarding the current arrears, there are four territories considered with low expectation for paying and completing their dues. An exception was Indonesia that already covered the arrears. The three remaining territories are: Belgium, Brazil and Hungary.

Regarding the ICO Book series, volume VI, this volume has not been published during the term 2002-2005, so that the budget assigned to it was accumulated. Increase in the Secretariat expenses and in the whole Bureau are not expected. Ways to reduce the NL expenses have to be sought continually. An increase of the ICTP Winter College grant, to US\$2,000 per year, was approved. The Travelling Lecture program was assigned a total of US\$5,000. The total expenses approved for the budget of the term 2005-2008 are US\$ 122,215<sup>2</sup>.

### **4.- ICO representation in external committees, 2005-2008 and**

### **5.- ICO Committee Structure 2005-2008**

A.T. Friberg, ICO President, proposes to treat together these two Points. The consideration of the ICO Bureau members, for assuming representative committee chairs, was based upon their seniorship and accumulated experience. A.T. Friberg read the list of the proposed chairs, as follows:

- Nominating Committee (Chair: R. Dändliker)
- Long Range Planning Committee (Chair: A.T. Friberg)
- Committee for Regional Development (Chair: A. Guzmán)

This is one of the most important committees of ICO. The structure of this committee and the Subcommittee for industrial links will be designated in the forthcoming term after internal discussions.

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<sup>1</sup> See Section 3, Minutes of the First ICO Bureau, Changchun, China, August 21, 2005.

<sup>2</sup> See Green Book, "Towards ICO-20", page 178.

- Education Committee (Chair: M. Kujawinska)
- Travelling Lecturer Program (Chair: A. Sawchuk)
- ICO Prize Committee (Chair: Y. Kim)
- ICO Galileo Galilei Committee (Chair: I. Yamaguchi)
- ICO/ICTP Committee (Chair: A. Wagué).

Representatives of the ICO Bureau in external committees:

ICO Associate members in IUPAP Commissions:

- C13 (Physics on Development): A. Wagué
- C15 (Atomic and Molecular Physics and Optical Physics): A. Guzmán
- C17 (Quantum Electronics): S. Bagayev (to be confirmed)

IUPAP Triennial General Assembly and the annual IUPAP Council and Chair meetings: the President or his representative will attend these meetings.

Steering Committees:

- Education and Training in Optics and Photonics (ETOP): J. Love
- Optics in Computing (OiC) currently known as Information Photonics (IP):  
A. Sawchuk

Trieste System Optical Sciences and Applications Advisory Group (TSOSA): A. Guzmán (see below).

R. Dändliker indicated that the IUPAP representative has to be confirmed not later than November 1, 2005. Motion: R. Dändliker, first and M. Gu, second. Unanimously approved.

P. Chavel reported as the TSOSA representative of ICO. He presented an introduction to what TSOSA is. Currently, all contacts are efficient and assumed by Gallieno Denardo, in charge of ICTP Optics and Photonics activities. All ICTP associated centres in Africa were actual participants as well as other international societies. Moreover, there are sponsors and IS bodies. The Terms of Reference for ruling the coordination of activities inside TSOSA were approved in 2004<sup>3</sup>. The Bureau agreed that the ICO representative in TSOSA for the forthcoming year 2006 will be A. Guzmán. The next TSOSA annual meeting should be scheduled for February 2006. Other activities are mentioned. Thus, the Winter College is organized annually with various topics and, as ICO participates in it, a grant of US\$2,000 per year was approved<sup>4</sup>. The ICTP Director, K.R. Srinivasan, is interested in introducing the Mentorship Program. This activity could avoid the secular isolation of Optics compared with other relevant branches of science and, so, introduce Optics as a new permanent research activity at Trieste, with theoretical aspects at ICTP and experimental aspects at the synchrotron. The main question, which arises, is whether ICO could contribute in an efficient and relevant way, so as to enhance a more formal cooperation ICO/ICTP. For example, regarding future topics and future directors for the Winter College at ICTP, a direct participation would be suitable. The forthcoming 2006 Winter College will be devoted to: "Classical and quantum aspects of information optics", including updated topics treated in precedent years as quantum optics and quantum information, and M.L. Calvo will be one of the Co-directors. More ideas are needed for the topics of the 2007 Winter College and beyond. The Mentorship Program needs to be better designed and implemented, in particular, the ICO role and its scientific support. Important aspects such as the involvement of more scientists in this program would be expected. The STEP program, Sandwich Training and Education Program, addressed to young students

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<sup>3</sup> See Green Book "Towards ICO-20", pages 112-113.

<sup>4</sup> See Minutes of the First Bureau meeting 2005, section 3.

and researchers have to be developed in Trieste, with duration of 6 or 12 months and connected with local programs and installations as the ELETTRA synchrotron. For this purpose, new ideas for activities at synchrotron and laser laboratories in Trieste are needed and publicized. Yet, these facilities are not quite wide open to the optics community. These aspects were discussed in February 2005 at the occasion of the TSOSA annual meeting<sup>5</sup>. It would be expected as well that IS will increase the financial support to TSOSA activities. The Italian Society of Optics and Photonics has already initiated this action. ICO needs to work on that basis, initiatives and proposals of actions might come from CREDO, and thus, the new Chair should be representing ICO at TSOSA. A. Guzmán pointed out that currently ICTP has no local activities in optics.

One main initiative could be to call ICTP associate scientists from developing countries to work on local programs. A. Guzmán added that she will take care on these issues and agreed to represent ICO at the TSOSA Committee. G.C. Righini mentioned that local supervisors acting as mentors could facilitate the task. M. Kujawinska indicated that another action could be to assign to mentors some profit to enhance the participation. As a main concern, ICO representative at TSOSA needs to work on the mentor program development (Action 05/22, Guzmán). ICO needs to plan financial support for mentorship program as a preliminary request. Discussions arose about possible specific activities. However, it was not possible to reach available and practical conclusions. A. Wagué suggested alternative actions involving various research laboratories in Italy and nearby countries. Specific proposals should be required for next ICO Bureau 2006 (Action 05/23, Wagué). The Bureau needed to move for the approval of the ICO representative at TSOSA, A. Guzmán. Motion: G. von Bally, first, and T. Schudi, second. Unanimously approved.

H. Arsenault informed on the current UNESCO program on Active Learning. It was proposed that ICO might write a letter to UNESCO for encouraging both this activity and ICO participation. (Action 05/24, Friberg)

## **6.- ICO Participation in meetings and schools**

A.T. Friberg, ICO President and Past-Associate Secretary reported. As a summary of activities between the end of ICO-19 and ICO-20, ICO participated in 31 meetings and schools, in addition to ICO-20 itself: 1 Regional Meeting, 2 Topical Meetings, 8 Cosponsored Meetings, 17 Endorsed Meetings, and 3 ICO Schools.<sup>1</sup> The number of ICO meetings and schools had remained relatively stable, around 21-24, over several past three-year periods, but in this triennium it jumped to 32. For this triennium (including ICO-20), there were US\$ 41,250 in grants, US\$ 13,500 in risk and US\$ 5,000 in loan. Since the last Bureau meeting in Porlamar in October 2004, 10 ICO meetings and schools (excluding ICO-20) have taken place (4 Cosponsored, 5 Endorsed, and 1 School), with a total of US\$ 11,250 in grants. Additionally, US\$ 12,750 for grants and US\$ 1,500 in risk to conferences in the next triennium have already been allocated. The grant for ICO/ICTP Winter College has been approved for US\$ 2,000 (A. Wagué ICO representative). The forthcoming ICO Topical Meeting Optoinformatics 2006 has an initial grant of US\$ 2,500 together with a risk of US\$ 1500, already approved.

Two new applications were presented: OWLS 9 in Taipei, Taiwan in 2006 and ICO-21 in Sydney, Australia in 2008. The Bureau decided to accept OWLS 9 as a Co-sponsored

<sup>5</sup> Minutes of the TSOSA annual meeting 2005 to be published in the Green Book "Toward ICO-21"

<sup>1</sup> A complete listing is in the Green Book "Towards ICO-20", pages 90-96.

conference, to award it a grant of US\$ 2,000 as well as to assume a risk of US\$ 2,000; ICO representatives are M. Gu and G. von Bally. For the ICO Triennial Congress ICO-21 an initial grant of US\$ 7,000 was approved, together with a loan of US\$ 5,000; a possible risk by ICO will be decided later when the budget structure be presented in more detail. These financial decisions corresponding to a motion: T. Tshudi, first and G. Jin, second, were unanimously approved.

Other considerations dealt, e.g., with previous ICO Bureau decisions, namely the visa issues regarding Florence 2002 and the two meetings application dates per year from Joensuu 2003. These changes have now been implemented. More specifically, (a) the meetings guidelines and application questionnaires have been reformulated, (b) they are available for download in mS Word format on the ICO website, and (c) the Rules and Codes of Practice were changed in the General Meeting to reflect these changes. Additionally, updated information should appear at the ICO Newsletter (Action 05/25, Calvo).<sup>2</sup>

The OiC/IP conference series was discussed. The forthcoming IP 2006 meeting has to be proposed and approved by the IP Steering Committee. A. Sawchuk informed that the preparation of a proposal for combined ICO Topical Meeting 2006 / IP 2006 conference in St. Petersburg was under development and discussions were underway with the organizers and Chairs of the forthcoming ICO Topical Meeting 2006. The proposal deadline was September 7, 2005 and was extended to October 15, 2005 (Action 05/26, Sawchuk). Regarding the ETOP Long Range Planning Committee, a draft of the revised MoU of the ETOP series had been received just before the Bureau meeting. It was proposed that the Execom study the MoU and send comments to A. Friberg for discussion and revisions with OSA and SPIE. The revised MoU should be ready for the ETOP 2005 meeting in Marseille in October 2005 and then must be formally approved by the ICO Bureau (Action 05/27, Friberg).<sup>3</sup> Another issue to be considered is the location and dates of the ETOP future meeting 2007. These aspects will be discussed in Marseille on the occasion of the ETOP meeting 2005. Currently, some potential proposals included, for example, Ottawa, Canada (Marc Nantel) and Brisbane, Australia (John Love).

## **7.- Date and place of the next ICO Bureau meeting**

There was a current proposal for letting the meeting to be held in Saint Petersburg at the occasion of the forthcoming ICO Topical Meeting in Optoinformatics, 4-7 September 2006. M.L. Calvo, ICO Secretary, informed that the proposed dates could be 2 and 3 September 2006, prior to the celebration of the meeting or at the end of it. (Action 05/28, Calvo).

A. Friberg mentioned that proposals for the location and dates of the ICO Bureau 2007 are needed. It could be at the occasion of an ICO Topical or Regional Meeting. For that purpose, proposals from the ICO Bureau are expected (Action 05/29, all ICO Bureau).

M. Kujawska informed that a meeting organized by Former Soviet Union countries is being considered for 2007 with expected agreement by the end of November 2005. The possible location could be in Ukraine. Another possible location for the Topical Meeting 2007 could be

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<sup>2</sup> This information appeared in the January 2006 issue of the ICO Newsletter.

<sup>3</sup> The revised MoU of the ETOP series was approved by all permanent sponsors (ICO, OSA, SPIE) and signed in October 2005.

Dakar, Senegal, or elsewhere in Africa, such as in Ghana: these two countries have applied for celebrating ICO Bureau meetings in Africa periodically.

Other considerations: The ICO Proceedings donation program has to be continued by sending proceedings to libraries in developing countries. It was confirmed that the reception of the proceedings was highly appreciated. For the effectiveness of this action the list of current addresses needs to be updated. The ICO Bureau members will receive and review the current list for updating. All suggestions for new addresses in the donation program should be sent to the ICO Associate Secretary in charge of meetings and schools, G. von Bally (Action 05/30, Friberg and von Bally).

The visa problems detected in previous years and currently affecting various colleagues from different countries and regions constitute a problem that should be studied by CREDO. A proposal arose to analyze the situation, to ask the affected members to send reports to CREDO Chair for information and later to inform IUPAP. (Action 05/31, Guzmán). In this connection, some information was received previously by the ICO Galileo Galilei Committee Chair that should be transferred to CREDO.

## **8.- ICO Book preparation**

A. Friberg, ICO President reported. There is an ICO tradition for preparing the ICO Book series covering a broad area of subjects in optics and photonics. The last volume of the International Trends in Applied Optics was edited in 2002. It was mentioned that the financial revenues from this series were not important enough as to be considered as a positive data. The volume was normally prepared by the ICO President. Regarding the last proposal for the term 2002-2005 to the ICO Territorial Committees the responses were not positive enough, so that there was a declining interest in publishing. A new proposal was to prepare a new edition for the ICO Book series by including a narrower topic: Nano-Photonics, Information Optics, Bio-Photonics, as examples. Another aspect to be solved should be the need of potential publishers. Another consideration was to prepare the forthcoming volume as a co-edition (Action 05/32, Friberg). A first contact for potential publisher should be SPIE. The number of available copies to be delivered to the authors should be negotiated as well. M. Kujawinska mentioned that it is important to check the most interesting topics at the moment of preparing the edition. At the present times, there are many publications in optics on the market. I. Yamaguchi indicated that there is not clear evidence on the effectiveness of editing a book solely by ICO and that the inclusion of optical engineering topics might be considered, as well.

## **9.- Other business**

M. L. Calvo, ICO Secretary, informed on the current administrative aspects. For the term 2005-2008 no new changes are expected. ICO Secretary office is located at the Department of Optics of Complutense University, in Madrid (Spain). The official and legal address of ICO has been maintained at the Institute of Optics, Orsay, France, for operational reasons. The account in France will be maintained for similar reasons in order to facilitate operations with all ICO Territorial Committees. The support of P. Chavel for this task has been gratefully acknowledged.

No more items have been discussed. The meeting ended at 12:12.

*ICO Secretariat, Madrid (Spain), 27 December 2005*





*Some members of the old and new ICO Bureau at the gate of CIOMP, Changchun, China, where ICO-20 took place. From left to right, first rang: A. Wagué, M. Gu, G. Jin, A. Guzmán, M. Kujawinska, M.L. Calvo, I. Yamaguchi, Y. Kim. Second rang: J. Love, A. Friberg, R. Dändliker, H. Arsenault, A.A. Friesem, G.C. Righini, G. Von Bally, P. Chavel, G. Sincerbox, A. Sawchuk, T. Tshudi.*

# MINUTES OF THE ICO BUREAU MEETING

Held in Saint Petersburg, Russia,  
on Saturday, September 2, 2006, from 2:00 PM to 7:00 PM  
and Sunday, September 3, 2006, from 9:00 AM to 6:30 PM

## **Present:**

ICO Bureau Members: M.L. Calvo, R. Dändliker, A.T. Friberg, M. Gu, A. M. Guzmán (Second day), G. Jin, B.Y. Kim (Second day), M. Kujawinska, H. Lefèvre, Y. Pettrof (First day), A. Sawchuk, G.T. Sincerbox, P. Stahl, G. Von Bally, A. Wagué, I. Yamaguchi.

Assistant: R. De Cecilio

EOS Representative to the ICO Bureau 2006: A. Consortini

Apologies for absence have been received from: S. N. Bagayev, J. Braat, P. Chavel, J. Love, I. Khoo

## **1.- Call to order, introduction, matters arising from last Bureau, approval of minutes First and Second Bureaus, Changchun, 2005**

Ari T. Friberg, President, opened the session. Apologies for absence have been received from S. N. Bagayev, J. Braat, P. Chavel, J. Love, I. Khoo, due to major reasons. He thanked all the attendees as well as all the local organizers from the Saint Petersburg State University for Information Technology, Mechanics and Optics (IFMO) for all the facilities accorded to celebrate the 2006 Annual ICO Bureau. The president listed one change in the Agenda. It is proposed that Point Nine dedicated to Membership be moved earlier and scheduled for September 3 in the morning. The proposal is unanimously approved.

The approval of the minutes of the previous ICO Bureau Meetings, held in Changchun, China, August 2005 was proposed.

Proposal: "To approve the minutes of the First and Second ICO Bureau Meetings held in Changchun, China, August 21, 2005 (First Bureau) and August 26, 2005 (Second: Joint Meeting of the Old and New ICO Bureaus)". (Motion: A. T. Friberg, first, and G. Sincerbox, second, unanimously approved).

A. T. Friberg proceeded to review the list of actions decided at the last First and Second ICO Bureau Meetings held in Changchun in August 2005.

- Action 05/1 Calvo: The Institute of Publishing (IoPP) in United Kingdom has been contacted to review the conditions for the ICO Newsletter publishing in 2006. A copy of the current contract with BTB for the mail distribution was provided along with the documents for the ICO Bureau 2006.
- Action 05/2 Friberg, Calvo: The possibilities for the creation of a Council of Past-Presidents was discussed previously at the Long Range Planning Committee meeting (see Appendix I). There is not a definitive issue to this action mainly due to the need of a proper definition for its activities.

- Action 05/3 Friberg, Kim, Yamaguchi: The need for enhancing contacts with industry was discussed at the Long Range Planning Committee meeting (see Appendix I). As a main point optics industry has strongly evolved since the years of ICO foundation and it cannot be focused any more as merely optical activity. Territorial Committees have to be encouraged to contact local industries and to provide links with ICO. Also, since the Standards Committee was dissolved the activities of the two Vice-Presidents from industry have to be enhanced inside the CREDO.
- Action 05/4 Von Bally: The ICO/ICTP Award Committee and the Galileo Galilei Award Committee are now working in coordination. It is noticeable that in some periods there was a lack of good candidates (A. Consortini). This aspect has fortunately changed nowadays.
- Action 05/5 Sawchuk, Sincerbox: The current ICO Treasurer is working for the updating of the information regarding the Territorial Committees that are in arrears. More information will be provided at the ICO Treasurer report (Point Three of the Agenda).
- Action 05/6 Calvo: ICO Secretary was contacting IoPP for requesting a new procedure to reduce the ICO Newsletter mailing cost. This has been achieved with a new contract with the British BTB Co. so that the order of a 20% of reduction of the mailing cost has been obtained for the year 2006.
- Action 05/7 Friberg: ICO President was sending letter to TC's having current dues on arrears and indicating them the problems arising from this situation producing automatic loss of ICO Membership for those with more of six years on arrears.
- Action 05/8 Sawchuk: At the Long Range Planning Committee meeting it was discussed the need for reviewing the current status of the ICO bank accounts in order to assure that donations are feasible (see Appendix I).
- Action 05/9 Kujawinska: This action has not yet been totally closed and it is still under study.
- Action 05/10 Kujawinska, Sawchuk: This action is now under study since there had been some new applications for the year 2006 to the Travelling Lecturer Program. The need of further coordination is required to achieve positive actions.
- Action 05/11 Sawchuk, Sincerbox: The current aspect for the financing resources of the Travelling Lecturer Program will be discussed at the specific point of the agenda (Point Four, section c).
- Action 05/12 Kim, Friberg: The two Vice-Presidents elected from industry are now working inside the CREDO.
- Action 05/13 Executive Committee: The current status of the project for the editing of the proceedings of ICO-21 was discussed at the proper point of the agenda (Point Seven section d).
- Action 05/14 Chavel, Calvo: There are currently various initiatives for encouraging the presentation of proposals for professors and researchers to act as mentors inside the TSOSA. This has been done in collaboration with ICTP and G. Denardo. In particular, M. L. Calvo has established contacts with the Rectorate of the Complutense University of Madrid. Other contacts from members of TSOSA are expected in near future.
- Action 05/15 Chavel: Since ICO was admitted as a Scientific Associate to ICSU in October 2005 this action was not considered further.
- Action 05/16 Guzmán: This action was reported by A. Friberg in the absence of A. Guzmán. Current contacts with Latin-American TC's are now quite fluid with an improvement on the

coordination from the Chair and members of CREDO. Further details were provided at the report in the Point Four of the agenda, section *d*.

- Action 05/17 Sawchuk, Stahl: The Information Photonics (IP) Steering Committee (SC), as a continuation of the former OiC SC was not currently showing a noticeable activity. There was at the moment no additional news apart from the organization of the IP Meeting in 2006 that needed to be approved. The SPIE Executive Director, Eugene Arthurs remained interested for participating in activities inside IP SC if the same denoted an interest and sense (P. Stahl). Further discussions regarding the organization of IP 2007 and IP 2008 would be required in a near future and topics and frames needed to be considered<sup>4</sup>. SPIE was open to forthcoming collaborations (P. Stahl).
- Action 05/18, Calvo: It was acknowledged that only electronic format for letterheads will be provided to ICO Bureau members, to reduce expenditures of the ICO Secretariat budget. Due to late information on some new IS representatives, for this term, the letterheads were arriving only by October 2006. Letters will have both A4 and US format (**Action 06/01**, Calvo). It is agreed that for future terms, IS will send the information on their representatives on due time, September 1, 2008, after the celebration of the General Assembly (Sydney, July 2008). The Chair of the Nominating Committee will inform to the IS on this issue. If necessary, special cases could be considered under previous information. This particular way of internal organizing has to be reflected on the ICO Status (**Action 06/02**, Dändliker).
- Action 05/19, Chavel: In the absence of Pierre Chavel, M.L. Calvo informs that the French account is maintained by the Institute d'Optique in Paris, under the responsibility of P. Chavel. Periodical information is arriving to the ICO Secretariat and Treasurer.
- Action 05/20, Calvo, Chavel, Sawchuk: All the necessary arrangements have been done to assure whole operability of the ICO account in US.
- Action 05/21, Sawchuk: This action will be discussed at the time of presentation of the ICO Treasurer report.
- Action 05/22, Guzmán: In the absence of A. Guzmán, M.L. Calvo reported that actions are now under development with the collaboration of ICTP. More information will be provided at the time of the CREDO Chair report.
- Action 05/23, Wagué: This action is still in progress under the collaboration of M.L. Calvo.
- Action 05/24, Friberg: The letter to UNESCO is now prepared and will be mailed in near future. The reason was that this is a long standing program with participation of IS as SPIE and OSA, that needed to be contacted as well for a possible coordination (**Action 06/03**, Friberg and IS representatives).
- Action 05/25, Calvo: Information on new procedures for ICO supporting of meetings and new questionnaires were published at the ICO Newsletter and at the ICO website, with the

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<sup>4</sup> Dated September 7, 2006, at the occasion of the ICO Topical Meeting on Optoinformatics/Information Photonics 2006, an informal meeting of the IP SC was celebrated in Saint Petersburg. In the absence of A. Sawchuk, ICO representative at the IP SC, M. L. Calvo, ICO Secretary, was attending the meeting. Other attendees: A. Pavlov (Russia), J. Jahns (Germany), J. Tanida (Japan), and C. Debaes (Belgium). The Japanese representative J. Tanida was proposing the celebration of the IP meeting 2008 in Japan. Further considerations for avoiding the overlapping with the ICO-21 meeting were mentioned by M. L. Calvo, so that the IP 2008 meeting was accorded to be scheduled June or July 2008, with specific date to be determined.

collaboration of the Associate Secretary, G. Von Bally.

- Action 05/26, Sawchuk: The Information Photonics (IP) meeting 2006 was held as a collocated meeting with the ICO Topical Meeting on Optoinformatics 2006. This action was done with the collaboration of ICO Secretary and ICO Associate Secretary.
- Action 05/27, Friberg: All the information regarding the ETOP MoU was sent on time for further corrections. The documents of the ICO Bureau 2006 contain copy of the final format of the documents.
- Action 05/28, Calvo: All the arrangements for Annual ICO Bureau Meeting were done according to the proposed schedule.
- Action 05/29, all ICO Bureau: Aspects of this action were discussed in Point Eight of the Agenda.
- Action 05/30, Friberg, Von Bally: This action was not procuring the expected information since only five replays were received. There are obsolete addresses that need to be update to arrive to more efficient results. Further contacts with the ICO Galileo Galilei awardees are needed. (**Action 06/04**, Friberg, Von Bally).
- Action 05/31, Guzmán: This action was discussed in Point Twelve of the Agenda.
- Action 05/32, Friberg: The coordination of the new volume on International Trends in Optics was confirmed along with R. Dändliker. Contacts with authors were already done since February 2006 and contacts with potential editors were as well in progress.

## **2.- President's report (Ari T. Friberg)**

### **2a) President's report**

### **2b) ICO book**

**2a)** The President inform on the actual changes taken place in the new term for the President and new Executive Committee. He thanked the ICO Secretary, M. L. Calvo and to all old and new Bureau members for their assumed responsibilities. Particular activities were carried out by R. Dändliker, ICO-Past-President, during his term as President and work during the World Year of Physics (WYP 2005), designing of logo and activities in ICO meetings during the WYP 2005. Even if the actual received responses were not large enough, there was a dissemination of information throughout the ICO website. A report on these activities was also published in ICO Newsletter.

The main activities during the year 2005 have been enhanced by the admittance of ICO as a Scientific Associate of ICSU. This fact is no doubt elevating the status of optics to a higher level as an independent discipline. The International Societies (IS) as ICO associate members were also publicizing this new and an article prepared by P. Chavel was also published in ICO Newsletter. At the occasion of the Winter College 2006, held at the ICTP (Trieste, Italy) a special ceremony celebrating the election of ICO as an ICSU member took place, with presentations by P. Chavel and A. Friberg. A video prepared by R. Dändliker was also presented. This new condition required further to analysis to define new forthcoming activities. A meeting with the current ICSU Executive Director took place in May 2006 and to that occasion additional information was provided to ICO Bureau by explaining the various details:

a) ICSU does not direct work with members. b) There is a current interest for ICSU to redefine its role. Therefore, it was not expected that ICO may have at present a significant work in ICSU. There are currently three types of activities addressed to research programs, in which ICO could

participate as a natural link. Information on these activities is available at the ICSU website. However, important areas as nano-science are not completely considered, as it is the case of computer science as well. There is a clear indication of addressing the activities towards general science and global programs. Another ICSU projection concerns the definition of policies in the world of science: Universality of science, visa problems and other related aspects. ICSU is preparing a planning of actions for a five years term, for 2006-2011. ICSU was celebrating the 75 anniversary in an international Scientific Symposium hosted by the French Academy of Sciences in Paris on July 4, 2006. They are currently opening regional offices: South Africa (although they actually not totally representing Africa, Y. Pettrof), Latin-America, Asia, and Middle-East. T. Rosswall, ICSU Executive Director, was invited to participate at the ICO Bureau in Saint Petersburg but his presence was not possible due to other commitments. Another invitation will be addressed to attend the ICO 21 General Assembly in Sidney in 2008 (**Action 06/05**, Friberg). ICSU is nowadays however in spite of its activities facing some financial problems. It is planned another meeting in October 2006 in Paris for ICO/ICU links.

ETOP meetings series continues its activities. A new MoU has been signed by the three current involved societies and organizations: ICO, OSA and SPIE. One main aspect of the new MoU is that it defines the responsibility of organizers and sponsoring societies. In the year 2006 a new member has been admitted: IEEE/LEOS. This will be reflected on a new MoU written to include the information on this new representative. Motion: "To rewrite the MoU with inclusion on the data regarding the new member IEEE/LEOS" (Motion: A. Sawchuk, first, P. Stahl second). Unanimously approved. The last ETOP meeting was held in Marseille, October 2005, and it was a very successful one. The forthcoming ETOP 2007 will be held in Ottawa, June, with Chair M. Nantel and J. Love as ICO representative. A. H. Guenther will be participating as well as an extraordinary ICO representative.

The activities of ICO inside the TSOSA Group continuing in advancing. The ICO/ICTP collaboration is maintained annually with important implication of ICO at the Winter College, held in February 2006 this year. Additional reports on these activities will be present in Point 4b of the Agenda.

ICO is maintaining traditional tight contacts with IUPAP. Regarding these contacts Y. Petroff, IUPAP representative will inform in Point 9c) of the Agenda on the Council Chairs meeting. IUPAP has created an Award for Young Scientists. There is currently a new working group on Nano-Science. The next Council Chairs meeting will be held in October 2006 in Prague. Regarding the activities inside Nano-science, this is yet a very recent one; it was decided to organize more golden conferences every two years (YP). As other relevant IUPAP initiatives there is an entrepreneurship in physics in developing countries.

Prior to the ICO Bureau Annual Meeting, the Long Range Planning Committee (LRPC) meeting and Executive Committee meeting took place. In both of them the degree of discussion and exchanging of points of view was quite high. A. Friberg reported a resume of the same. Regarding the action took in previous years for studying the establishment of a Council of Past-Presidents, this action was not approved by the LRPC. The main reason was that it was required previously a clear definition on the role of this Council. A somehow similar situation regarding the definition and search of the role of ICO in industry and reciprocally. A possible issue could be the proposal for the formation of a Working Group to be approved in the present Bureau meeting. It should be constituted by the two Vice-Presidents from industry and other proposed members from the LRPC. The first results and proposals from this Working Group should be presented at the forthcoming ICO Bureau meeting. It was also agreed that an additional

representative from USA would be required. SPIE is a clear example of IS with important links with industry then having a certain difference with European societies case (P. Stahl). As other case, one may notice that OSA represents probably a more academic membership but it is having as well active links with industry (A. Sawchuk). It would be interesting to work in coordination with these IS, as well as IEEE/LEOS<sup>5</sup>. This activity needs a great effort to arrive to positive results (A. Consortini). Some good examples could be withdrawn from the term in which C. Velzel from Phillips was Vice-President at the ICO Bureau. As a conclusion it is necessary to creating the task force and the proper commission to be designated by ICO President (**Action 06/06**, Friberg).

Regarding the current status of ICO as an international commission it is necessary to study the procedure for making possible external donations. This aspect will be discussed in Point Three of the Agenda.

It was discussed the importance of increasing the visibility of ICO by listing all meeting organized from all IS and to be linked at the ICO website (**Action 06/07**, Von Bally).

**2b)** A document including all the relevant information for the programmed forthcoming ICO Volume VI “International Trends in Optics” was prepared and copies were provided to ICO Bureau members. The subjects of this ICO Volume will be related to ICO activity and Information Optics. At the occasion of the last Winter College 2006 contacts were done with potential authors among lecturers and co-director, having interesting contributions on that subject. At the time of giving the report all authors were contacted with confirmation of participation. The same contacts will be done as well at the occasion of the ICO Topical Meeting 2006 on Optoinformatics and IP in Saint Petersburg as well as with all ICO Prize winners. The publisher needed to be discussed and there is a possibility to have the SPIE publication. However, potential candidates will be considered. There was mentioned the importance for the publishers to assure an interest so the bid could be extended but volume should be ready by July 2008 (P. Stahl). Additional information related to copies, cost and schedule might be also assured. Important considerations were done related to the impact of previous volumes, in the past the edition success was not quite evident (R. Dändliker) so that a minimum of interest might be demonstrated. Some question arose during discussions regarding number copies planned to be edited (A. Sawchuk), a reasonable number could be the order of 300. AS for other previous experiences the work with Academic Press was not producing good results since very little promotion was done (A. Consortini). Other aspects discussed were related to the proper orientation of the contents to be decided for focusing or not on specialists, or to design a tutorial book coinciding with the original idea. SPIE could help for the electronic access to the book (A. Sawchuk), or to be decided if it could be part of SPIE Digital Library. (**Action 06/08**, Friberg, Dändliker).

### **3.- Financial matters.**

A. Sawchuk ICO Treasurer reported. He presented the ICO balance sheet as of 1 August 2006 as shown below.

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<sup>5</sup> In the absence of IEEE/LEOS representative no further information was available.

**INTERNATIONAL COMMISSION FOR OPTICS**  
**Balance Sheet 1 August 2006**

**ASSETS**

Current Assets

Checking/Saving

Bank of America - checking	\$15,533
Bank of America - Money Market	\$114,365
French Account (converted 08/29/06, as of 08/01/06)	\$6,946
<b>Total Checking/Saving</b>	<b>\$136,844</b>

Accounts Receivable

Accounts Receivable (current year dues)	\$29,550
Dues in arrears	\$15,900
Loans and grants due	\$12,000
<b>Total Accounts Receivable</b>	<b>\$45,450</b>

**TOTAL ASSETS**

**\$182,294**

**LIABILITIES AND EQUITY**

Liability

Meeting/School Support	\$4,000
Prizes/Awards/Prize travel	\$2,000
Expense reimbursement	\$10,090
Newsletter distribution	\$1,556
<b>Total Liability</b>	<b>\$17,646</b>

Equity

Retained Earnings	\$164,648
<b>Total Equity</b>	<b>\$164,648</b>

**TOTAL LIABILITIES AND EQUITY**

**\$182,294**

The European account (in euros) in the bank in Paris (France) and the USA account (in dollars) are both active. There were additional problems for performing efficient transferring to the account located in Los Angeles, in view of the new operation way after the election of A. Sawchuk as new Treasurer. He occupied time for looking for lower wire transfer and bank



services to earn annual expenditures due to bank services. There was important information referred related to what it is named in USA as 501(c)(3) and 501(c)(4), to define the ICO status as an organization. An interesting fact is that ICO could be converted from (4) group to (3) one. With this fashion, possibilities for receiving donations from other institutions and/or organizations could be feasible. Still the cost of the procedure could not be known. In particular, information from another IS organization should be required. This IS might be searched among the current IS as ICO members. Also, the example of IUPAP (holding an account in Geneva) could be of help to know the way to proceed. To that concern, the current IUPAP Secretary, J. Franz should be asked. (**Action 06/09**, Y. Pettrof). Discussions arose regarding the possible analogies of legal condition of international organizations in the EU, with no clear conclusions, in particular, EU has no competences for taxes (only independent countries).

The current situation regarding the account in Paris is that no transferring from donations is feasible. In the past some donation from United Kingdom were received (as informed by A. Consortini). In those cases the transfers were not done directly to ICO, but through an internal UK organization for students. Another alternative for solving the problem could be to check through the National Academy of Sciences in USA, since ICO has a representative from the USAC/ICO Committee. G. Von Bally proposed a procedure of acceptance of donations from German local industries to be transferred later to ICO accounts. This produce would not produce problems from the tax point of view.

A. Sawchuk continued the report information on the Territorial Committees (TC) in arrears. The case of Brazil is a delicate one because they have more than six years in arrears. According to ICO Status, Article 7 the situation would result in the withdrawing as TC. There had been additional contacts to know the local situation of the Brazilian TC. Y. Pettrof, IUPAP representative informed that he was able to contact the Brazilian Ministry of Research. The same confirmed to him that Brazilian National Agency was suffering from a severe lack of revenues. Additional contacts with C. de Araujo, confirmed the mentioned situation.

There was a unanimous opinion that at the forthcoming General Assembly at the occasion of ICO-21, the conditions for re-application for membership will need to be discussed and redefined. Advices on how to proceed in the case of TC in arrears should be required, for example, when after the reinstalling the TC still persists on arrears.

A. Sawchuk continued reporting on the current procedure for approving ICO support to meeting support. The current Rules, as approved at the last GA in Changchun needed to be reinforced.

Regarding the future budget to be prepared and approved, A. Sawchuk proposed to remove from the general amount the particular budget associated to the GA, so that the expenditures for this part would represent no more than 1/3 of the remaining amount.

Motion: "To extract from the general budget the particular fraction associated to the GA, so that the expenditures for this fraction would represent no more than 1/3 of the remaining amount"

(Motion: G. Sincerbox first, G. Von Bally second, unanimously approved the report).

At the end of the presentation of the Treasurer report, Prof. N. Nikonorov director of the Research Institute of Optoinformatics, hosting ICO Bureau was introduced by A. Friberg. N. Nikonorov was presenting a resume of activities and research lines developed at the Institute, with details on research on optical materials, GRIN media and 3D holography. A. Friberg thanked him for the interesting presentation and excellent hospitality and facilities accorded to hold the ICO Bureau at the Institute of Optoinformatics.

#### **4.- Committees reports, except prizes and awards<sup>6</sup>**

##### **4a) Long Range Planning Committee (LRPC)**

A. Friberg, ICO President and Chair of the LRPC reported. Various relevant matters were discussed on the LRPC held in Saint Petersburg, prior to the Annual Bureau. The main points concerned:

- The current status of ICO as a legal international entity needed to be revised to check a possible change of this status to the so named 501(3), in US, in order to assure that donations could be received. For example, foundations located in US were not able to perform any donation under the current status. There was a local case for the Goodman's Foundation.
- Studying the legal status of TC's with respect to local or national societies, representing the optics in the territories could help to understand the search for a prompt solution.
- The USAC/ICO Committee could help for orienting the proper way of procedure.
- The enhancement of links with industry could as well induce new ways for operating, since for the present state these links are mostly inexistent, and ICO operates almost 100% as a scientific society. Not any relation with industry, only a scientific society.
- The considered and chosen change should be done in USA as part of an initiative inside the National Science Foundation.
- The current status of TC's was revised. In particular, it was reported some problems of representation in China at the time of the GA in 2005. There are currently in China and Taiwan various associations representing activities in optics that could enter into some conflict with the Chinese Optical Society. This society is officially representing the TC at the People's Republic of China and it is having the support of the Chinese Science Foundation. ICO is highly respectful with the internal organization of TC's and it is concerned on maintaining fluent contacts with TC's to give support as required.
- Revision on current TC's in arrears was done by ICO-Treasurer A. Sawchuk.
- The organization inside ICO of a Council of Past-President needed further discussions. If accorded a revision of ICO status should be required.
- To increase the cooperation of ICO and optical industries. This is an urgent matter to be considered by the whole Bureau and definition on the activities of Vice-Presidents from industry is necessary.
- The ICO/ICTP common collaboration is having satisfactory activities at the Winter College, TSOSA and ICO/ICTP Award. However, more work has to be done inside TSOSA for proposing new activities.
- For an efficient work of the LRPC the structure needed to be discussed and to assure proper links between members. Electronic mail is the current procedure for internal discussions.

##### **4b) Committee for the Regional Development of Optics (CREDO)**

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<sup>6</sup> Chronologically reported in sequence as: 4a), 4c) first day, 4b) and 4d) second day.

A. Guzmán, Chair of the Committee reported. She explained the current structure of CREDO. A great effort has been done to obtain a highly representative Committee with the inclusion of new subcommittees: Latin-American: with representatives from Argentina, Brazil and Mexico; Asian: with representatives from India, Pakistan and Thailand. African: with representatives from Côte d'Ivoire, Ghana, Morocco and Tunisia. The main activities of CREDO are focused on the following points: a) to develop strategies that continue to help ICO be the place where the world of optics meets. b) To advocate continuous support by the ICO of activities and initiatives of the International Center for Theoretical Physics (ICTP). c) To create an ICO Committee for Women in Optics. d) To facilitate the delivery of educational tools in optics to developing countries.

A Latin-American Network for Optics has been organized by the name of REDOLA (Red Óptica Latino- Americana). Current work is being developed for contacting student chapters from optical societies to participate in the network. The website is under construction and will be hosted in Mexico. In future the link could be also done at the ICO website. REDOLA is occupied in programming courses and schools, with various topics. Local optical communities are involved as well, creating organizations to enhance collaboration. A. Guzmán mentioned the current problems occurring in Brazil (mainly at Brazilian Physical Society), and the unfortunate lack of a Brazilian Optical Society. Current work is done for programming a meeting in next RIAO/OPTILAS 2007 to be held in Campinas, Brazil. Some information on the history of RIAO/OPTILAS joint meeting series was provided (A. Consortini). The promotion for association of new territories is under development, as an example there the visit to Peru from M. Tebaldi, member of the Latin-American Subcommittee and an article was under preparation for ICO NL. A. Guzmán and the Latin-American Subcommittee are currently collaborating with RIAO/OPTILAS 2007 organization with the Chair J. Frejlich.

A. Guzmán continued in informing Asian Subcommittee activities, the same extends as well inside ICTP and through a Regional Network, participation in Asian Photonics 2008.

The African subcommittee had already permanent members. There had been activities in Tunisia (Education meeting), and related activities (schools addressed to high school teachers). It would be necessary to extend contacts with the Education Committee.

As some general remarks, A. Guzmán informed on some diplomatic problems issued during the last year with some representatives of optics community in various countries. These aspects are now quite aware.

A. Guzmán had invited all ICO representatives invited to participate in the subcommittees. India, was addressing very positive response. Some other committees were facing internal difficulties for handling the activities (Y. Kim).

A. Friberg, ICO President, indicated that industrial Vice-Presidents needed to have responsibilities in CREDO, to follow entrepreneurship initiated by Peter Melville (IUPAP).

R. Dändliker, ICO Past-President was, thanking A. Guzmán for the quite competent new organization of CREDO.

In November 2006, a meeting in Columbia will be held including activities for ICO Women in Optics. The meeting is supporting young scientists from senior researchers, and opening a mentorship program. The current activities of CREDO should be linked at the ICO website, including CREDO document (**Action 06/10**, Guzmán, Calvo).

#### 4c) Travelling Lecturer Committee

A. Sawchuk, Chair of the Committee reported.

During the year 2005 three applications have been received: M. Pereira (UK), B. Masters (USA) and V. Fájér (Cuba). The three were granted in view of the quality of applicants and programs.

For the last period in 2006 two new applications were received and were under consideration of the Committee to be reviewed.

From the total budget approved for a total of 5000 US\$, an amount of 3000 US\$ were expended. There was discussed the possibility to include in the budget some additional money from ICO income from royalties.

A. Sawchuk mentioned that applications have increased in quality related to candidate scientific profile and programs. A proposal to create two annual deadlines was done, following the same procedure as for meetings (**Action 06/11**, A. Sawchuk). An important remark was the interest for not to over-promote the program, and to adjust to current budget.

Another form to progress inside this program could be the coordination with similar ones offered by IS as OSA, SPIE and the USAC/ICO Committee. Also, suggestions from local societies for proposing a particular candidate could be received (G. Jin). One question arose was on how the process should be initiated. A possibility could be receiving direct proposals from the local host. For example, in China many universities are having contacts to promote initiatives for invitations. At SPIE, the initiatives are coming from the particular chapters (as it is the case for OSA). Motion: "To promote applications for the Travelling Lecturer Program from local societies inside TC's". (Motion: G. Sincorbox, first, A. Consortini, second). Unanimously approved. (**Action 06/12**, A. Sawchuk and TL Committee members).

As a final resume it was indicated that the program might increase in competitiveness.

#### **4d) Education Committee**

M. Kujawinska, Chair of the Committee reported. She was showing a resume of activities (ppt presentation). There is an increasing interest inside the Committee for proposing a new focus enhancing of education activities for educational kits. These activities should be periodically linked and update at the ICO website (**Action 06/13**, M. Kujawinska). All ICO TC's might be involved on these activities and the Chair of the Committee indicated her intention for doing so (**Action 06/14**, M. Kujawinska). A way to proceed was to start with the already existing kits developed by SPIE/OSA/NOA initiatives and sponsored by the US NSF inside the so-called "Hands in optics". In Europe there were initiatives inside the Network of Excellence on Micro-Optics (NEMO) as a European Network with twelve countries and financed through the 6<sup>th</sup> Frame Program. There was a particular action for applying the production of kits (currently on refractive and diffractive optics). The network partners were collecting information to introduce new ideas. There was a proposal for distributing the kits through Student Chapters and TC's might be more involved. An article was under preparation for the ICO NL. As for forthcoming activities, regarding ETOP 2007, there might be a new session dedicated to the current developments on optics kits. These additional activities will be presented to EU 7<sup>th</sup> Frame Program for obtaining additional funds for mass production.

M. Kujawinska informed on the so called Erasmus Mundus Master for Optics and Photonics already approved by the EU (the master including courses offered in five universities from Europe in: Belgium, Sweden and United Kingdom). The objective of this Master course is to create the best conditions for the transfer of knowledge and know-how in photonics at the

European level. It would be important to collect information on similar programs in other regions of the world. To this concern M. Kujawinska requested ICO Bureau members for cooperation. There will be held a special Focus Session in ICO Topical Meeting 2006 on Photonics 21 with participation of responsible from EU General Directorate on Micro-Technologies program, G. Kelm, as well as C. Dainty and M. Kujawinska herself, the late both members of Photonics 21 platform.

It was discussed the importance for identifying education programs for teachers training (A. Sawchuk). It was remarked that the location of distribution channels is often a difficult problem. In US there are financial problems for continuity in a future (in case the NSF should cancel the grant).

Other important aspect was the necessity for having the available prepared academic documents to be translated in various languages for correct dissemination (R. Dändliker). A possibility could be to develop the program under the support of SPIE Student Chapters. This was an important input, in particular for African countries (A. Wagué). It could be addressed to education in a Master level in African universities, to support this program at a master level. (**Action 06/15**, A. Wagué)

## **5.- Reports of liaisons with Territorial Committees and International Societies<sup>7</sup>**

### **5a) Territorial Committees (ICO Bureau members)**

ICO Bureau members discussed on the various aspects for revising the liaisons with TC's. It was agreed that there exists problems for maintaining fluid contacts with TC's. It was concluded that further encouragement would be needed to enhance contacts with TC and to improve internal functions.

It was agreed as well that any problem might be reported. R. Dändliker, ICO Past-President in charge of liaisons with Switzerland informed. The Swiss TC is considering applying for a bid for ICO-22, for 2011 (the bid to be prepared next spring May 2007) at the city of Geneva. There is a plan for contacting EOS as well. Another bid from Mexico for ICO-22 is expected in immediate dates.

A. Wagué in charge of liaisons with African TC's informed on the situation in Morocco. As an ICO Associate Member is currently having two societies with parallel work. To arrive to a complete full membership it is important that both societies may arrive to a common work and organization.

M. L. Calvo, ICO Secretary informed on the contact with Greece's TC. They are considering presenting a bid for the organization of an ICO Topical meeting 2009 on "Nano-structured materials for optics and photonics".

It was concluded that in general, TC's have not many initiatives during the last period 2005-2006 and there must be a reactivation of the same.

### **5b) International Societies (ICO appointed Bureau members)**

G. Sincerbox, ICO Vice-President appointed by OSA reported. There was an important issue to be considered regarding OSA Foundation. The same is currently supporting programs for young

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<sup>7</sup> This Point of the Agenda was the last one of the first day meeting, Saturday September 2, 2006.

researchers, education and research initiatives. The same is directed toward OSA Sections and Student Chapters as well as external non-profit organizations. The various programs concerns calls for grants, students chapter awards, optical kits and translation into various languages (for example, the Spanish translation is already available), and teachers activities. As a resume, OSA Foundation has been very active on the past years. It would be important that ICO may consider its participation as an external organization.

M. Gu, ICO Vice-President appointed by OWLS reported. The conference OWLS9 will be held in Taipei, Taiwan, November 26-29 2006. It is expected a high participation from researchers and colleagues from the Asian countries and offering a multidisciplinary scope. The Honorary Chair is Y. T. Lee, Nobel Laureate and President of the Academia Sinica, Taiwan. At the occasion of this meeting it is expected to have the plenary assembly to decide the dates and location of the forthcoming OWLS10.

P. Stahl, ICO Vice-President appointed by SPIE reported. He informed on the recent election results held at the Annual Meeting of the Society, 16 August, 2006, in San Diego, California with the following elected Officers and Directors: B. Culshaw for 2007 President; K. G. Harding for 2007 President-Elect; M. J. Yzuel for 2007 Vice-President; B. A. Lula for Secretary/Treasurer 2007. Terms begin January 1, 2007. Maria J. Yzuel has served as ICO Vice-President for the terms 1990-1993 and 1993-1996. Moreover, she has participated in various ICO Committees and has represented ICO at the OiC steering committee. P. Stahl informed as well on the students grants program running with a budget of 250.000 US\$. Travel grants have assigned a total of 50.000 \$US. These budgets have been increased with respect to previous terms. He informed on the program "Hands on Optics", an inquiry-based informal science education program for students in which SPIE is participating as a partner along with OSA and the National Optical Astronomy Observatory (NOAO). It was expected that new partners will participate in a future in these programs. P. Stahl indicated that there is an interest to have all the information related to SPIE meetings to be linked at the ICO website in order to improve the dissemination of information. Regarding the SPIE Student Chapters, there is an increasing interest for sharing activities and resources with OSA and IEEE chapters for not to enter into competition.

A. Consortini, in the absence of J.J. Braat, ICO Vice-President appointed by EOS reported. She was receiving the mandate to represent EOS at the ICO Annual Bureau 2006. Although there was not specific matters to be considered there were general ones to be mentioned: Regarding programs for students, there is an interest in studying possibilities for proposing in a near future these programs. The Board of Directors will be held next October 2006 in Paris as well as the General Assembly and the meetings of the Advisory Committee, Industrial Committee, and the Executive Committee. EOS is studying the position for Fellowship program but not yet installed. In 2005, the Board of Directors decided to launch a fully electronic international online journal with available information at the EOS website. The future Annual meeting 2007 will be under consideration for deciding dates and location and to be announced on due time.

A. Wagué, ICO Vice-President appointed by LAM reported. LAM has been working during the past year on strengthening links with various African geographical areas. LAM is working on tight collaboration with ICTP to organize an African Regional Center. Various university centres in Senegal are now enrolling students from other countries from the same African region in particular from Cameroon and from Central-African countries for training and with exchanging programs with Egyptian laboratories. There is still a lot of work to be done in order

to collaborate with other similar programs in other regions. Regarding African TC's, A. Wagué was mentioning the particular condition of the Morocco representatives, since at the present moment two optical societies are co-existing with parallel activities, an effort is now being done to help for full membership application. Another case is the one of South-African representation, disregarded years ago and searching for reinstalling. The present situation is a very difficult one for materializing collaboration. South-African activities in optics and photonics are trying to be centralized but still a higher diversity is present. A possible action could be done inside the board of the African Laser Center (ALC) of which LAM is a member. LAM is open for collaborating with other IS. The programmed LAM meeting in Ethiopia for December 2006 was forced to be moved to Ghana for technical reasons. There were additional discussions regarding the current difficulties for organizing Students Chapters in African academic centre (M. Kujawinska). IS's have to collaborate for join actions towards the organization of these chapters to get the proper mechanism for developing academic programs. A. Wagué indicated that there already exists an OSA Chapter in Ghana and the same is participating in the ICTP Winter College activities. Moreover, other new insights are necessary to open new structures. Possible proposals were discussed as, for example, through UNESCO enhancing the activities for "Hands on Optics" program. There was organized as well a LAM School in Optics, in Senegal, Zambia and Zimbabwe, but unfortunately not having any support from UNESCO, and therefore it represent independent activities from that organization. It is necessary the Education Committee be involved in LAM activities (A. Friberg). The technical information regarding ICO NL has to be sent to ICO Secretariat at least two months previous to the ICO NL issue (M.L. Calvo).

### **5c) OiC/IP Steering Committee**

A. Sawchuk, ICO representative at the OiC/IP Steering Committee reported. He presented a summary of activities with resume on previous meetings held in the period 2005-2006. For 2007 and according to the MoU, there must be organized an OSA meeting in US<sup>8</sup>. For the year 2008, solid plans exist for organizing a meeting in Japan in 2008. Further discussions will be required on whether this meeting could be considered as an ICO Satellite meeting (A. Consortini). As a resume, A. Sawchuk admitted that the OiC/IP SC was having very little activity are clear reactivation is needed to be reactivated.

### **5d) ETOP (Steering Committee)**

A. Friberg, ICO President and ICO representative at the ETOP Steering Committee reported. During the years 2005-2006 the SC was very active. ICO was designing J. Love as ICO representative. A new MoU was signed by all partners by January 2006 and including the new joining member IEEE/LEOS. Copies of this new MoU were provided to all ICO Bureau members. The new IEEE/LEOS representative should be designated as P. Shumate, IEEE Executive Director announced recently his retirement. In 2005 the ETOP meeting was held in Marseille (France). It was quite a successful one with high representation from all over the world, and in particular from the Mediterranean region. The forthcoming ETOP 2007 will be

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<sup>8</sup> At the time of preparing these Minutes, no information on the preparation or programming of the IP meeting 2007 has been received at ICO Secretariat.

held in Ottawa (Canada) and it is under a good planning and organization. For the year 2009, at the present state some proposals could come from India or Australia. These proposals needed to be evaluated by the SC. It could be important to consider as well the organization of an ETOP meeting in the African continent and in collaboration with LAM (A. Wagué).

## **6.- ICO Prize and Awards Committees**

### **6a) ICO Prize Committee (Yoon Kim, Chair)**

Y. Kim, Chair of the Committee reported. He informed on the members of the committee: S. Bagayev, A. Friesem, G. Jin, J. Love and A. Weiner. For the 2006 call very good nominations were received. In particular the Committee was discussing among two of them, and in view of the high international prestige of the Prize. The Committee arrived to a final decision to propose: Dr. Hideyuki Sotobayashi, Senior Researcher at the Advanced Communications Technology Group, National Institute of Information and Communications Technology (NICT) (Japan). And the citation read: "For his outstanding contributions in the field of optics communications, optical fibre and new photonic devices achieved before reaching the age of 40 years old (as per December 31, 2006)". Motion: "To nominate Dr. Hideyuki Sotobayashi, as recipient of the ICO Prize 2006 Award". (Motion: R. Dändliker, first and A. Friberg, second. Unanimously approved).

After the information on 2006 Prize discussions arose regarding the current assignation of the ICO Prize a highly reputed award although with not very high assigned amount, so that there would be some initiatives to study the possibilities for elevating the award.

Another point concerned the dissemination of information. Last year ICO Secretariat was sending electronically poster with information of the Prize to all ICO Bureau members and TC's. For the year 2007 the same action should be done. (**Action 06/16**, Calvo).

### **6b) ICO/ICTP Award Committee**

A. Wagué, Chair of the Committee reported. He informed on the current members: A. Consortini (ICO), M. Danailov (ICTP), G. Denardo (ICTP). As in precedent calls, the ICO/ICT 2006 was already awarded and announced at the time of the Winter College held in February 2006 at the ICTP, Trieste, Italy. The recipient for the year 2006 is Dr. Cesar Moya-Cessa, from the Instituto Nacional de Astrofísica, Óptica y Electrónica (INAOE) Mexico (a related article with information appeared at the ICO NL April 2006 issue). All the considered applications of year 2006 were coming from the participants of the Winter College.

### **6c) Galileo Galilei Award Committee**

I. Yamaguchi, Chair of the Committee reported. He informed on the current members of the committee: S. Bagayev, Z. Ben Lakhdar, A. Consortini, N. Gaggioli and V. Vlad. For the call of the year 2006 very good nominations were received to be added to those from previous calls of the years 2004 and 2005. The Committee needed to perform a serious and detailed work in view of the high scientific and professional profile of the candidates. After ending with the internal discussions the Committee arrived to an agreement to propose Prof. Mohammed M. Shabat, professor of physics and optics at the Department of Physics at the Islamic University of



Gaza, Gaza Strip (Palestine), and the citation read: “For his outstanding scientific contributions in the area of theoretical and electromagnetic optics, which was accomplished under comparative unfavourable circumstances as defined on the award call and for his relevant work for the organization of optics and photonics activities in Palestine”.

Other considerations issued were related to geographical distributions, explanation of comparable unfavourable circumstances from each candidate and relationship with ICO/ICTP Award.

After the information of I. Yamaguchi discussions arose related to the proposal of the committee. Motion: “To nominate Prof. Mohammed M. Shabat for the ICO Galileo Galilei Award 2006”. (Motion: A. Sawchuk, first and G. Sincerbox second. Approved by majority)<sup>9</sup>.

## **7.- ICO participation in meetings and schools**

### **7a) Events taking place in the period October 2005 – October 2006**

### **7b) Events already decided**

### **7c) Future meetings and schools**

G. Von Bally, ICO Associate Secretary in charge of meetings reported.

Regarding the reports that had to be sent to G. Von Bally from ICO representatives at meetings, he indicated the necessity that these reports should be performed. In relation to the meeting “Optics, Life and Heritage”, there is an agreement that it has to be considered a series and not be discontinued. The location and dates of this forthcoming meeting was not yet decided neither its consideration as a satellite meeting. A possible date could be October 2008 (then transferred to budget for 2008).

Discussing on the new applications for 2007 took place. There was a meeting planned in Ghana, defined as an ICO Topical Meeting with the support of IUPAP, ICTP and TWAS (Grant 2000 US\$ and risk 1000 US\$). The AITA 9 meeting (to be held in Mexico) was having the support of the Mexican TC. The situation for the RIAO/OPTILAS 2007 needed to be clarified since at the date of the Bureau meeting the application was not yet arrived. Therefore no information on the grant could be applied on the present state. There is an official deadline applied for meetings applications and the ICO Bureau has to decide to approve a post-deadline application. A delicate aspect was discussed related to the current situation of Brazil’s TC in arrears for six years. It was very important to consider that there was an intention for the meeting to be an ICO regional one (1500 US\$ + 1000 US\$ from a different budget). To increase the grant for RIAO/OPTILAS, it is first required to have the official application. R. Dändliker indicated that the subject was discussed previously at the Executive Committee meeting and the conditions that have to be fulfilled. Exceptional considerations could be applied because of the importance of the Ibero-American meeting. The Bureau has to approve this special situation (G. Sincerbox). This would be an important exception to be applied and in future, for other countries not ICO members, to be considered. Motion: “To vote for the application of exceptional considerations for the ICO support of the RIAO/OPTILAS 2007”. (Motion: G. Sincerbox, first and A. Consortini, second. Unanimously approved).

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<sup>9</sup>NOTE: SPIE representative not present at the time of voting.

Motion: “To approve the Executive Committee proposal after the analysis of the situation”. (Motion: Y. Kim first and A. Consortini, second. Unanimously approved).

The OWLS10 meeting will be held in Singapore in 2008. The consideration of this meeting as a satellite meeting of ICO-21 needed to be approved (1000 US\$ + 1000 US\$ risk). Total expenditure from 2007 budget: 5500 US\$, then remaining an amount of 1500 US\$ to be used for other applications.

Regarding Tecnoláser 2007, A. Guzmán, designated as ICO representative indicated that she was unable to attend the meeting. She will be replaced by A. Friberg.

Further discussions arose on other meetings. A. Wagué informed on Ghana meeting. The IUPAP support is very important. Also, ICTP will be contacted and proposals sent to G. Denardo. The already approved support of the LAM meeting to be held in December 2006 in Ethiopia needed to be considered. For technical reasons the meeting was cancelled (already having 2000 US\$ grant assigned). Then there was a request for moving LAM 8<sup>th</sup> to Ghana. The initiative was supported by ICTP. It would represent to benefit from a higher grant from ICTP and having more invited scientists. Therefore, to be considered as a major event in Africa and as a collocated meeting with ICO Topical meeting 2007. For this action it is required an official document from LAM. Prior contact with Ethiopians colleagues is required and to send an official letter to ICO Associated Secretary informing on the cancelling of the 8<sup>th</sup> LAM workshop in Ethiopia and a second letter from LAM informing on the location of the 8<sup>th</sup> Workshop meeting (**Action 06/17**, Wagué). Y. Kim considered a change in the name of the meeting. To be proposed at the time of the new application.

## **7d) Preparation of ICO XXI**

In the absence of J. Love, Chair of ICO-21, M.L. Calvo, ICO Secretary reported. J. Love was providing a ppt presentation showed by M. L. Calvo. After the presentation various discussions arose related to significant aspects of the organization: a) Motion: “To assure that the Exhibition revenues (in case of positive ones) will be shared by the two parallel events: ICO-21 + AOCOF”. (Motion: G. Sincerbox, first and P. Stahl, second. 6 votes in favour, 5 abstentions, and 3 votes against. b) the duration of the meeting has to be revised. ICO General Meeting and General Assembly is the major ICO event with high international projection. It does not seem reasonable to have a short meeting. c) Accordingly the budget has to be revised and adjusted for a five days meeting. d) ICO-21 will coincide with the 60<sup>th</sup> Anniversary of ICO. ICO Secretary proposed to have specific actions. No agreement was issued from this proposal. Agreement to insert: “ICO acknowledged the 60<sup>th</sup> Anniversary at the occasion of the ICO-21 General Congress and General Assembly” in the announcement of the meeting.

## **8. - Next Bureau meeting**

There was a proposal to have the next ICO Bureau in Ghana, at the time of the ICO Topical meeting 2007. With tentative dates: Saturday and Sunday, 17-18 November 2007 (two days before the ICO Topical Meeting). Motion: R. Dändliker, first and A. Consortini, second. Unanimously approved. (**Action 06/18**, Calvo)

A. Wagué indicated that invitation for participation of ICO Bureau members as lecturers will be produced.

## 9. - Membership

### 9a) ICO membership (Maria L. Calvo, ICO Secretary)

M. L. Calvo, ICO Secretary reported. Currently the number of TC's Committees is 50, of which there are Associate Members: Ecuador, Morocco and Tunisia. Tunisia has presented this year to ICO Secretariat the official letters from the Tunisian Optical Society and official Tunisian Research Institutions supporting the application for full membership. The application was voted. Motion: A. Wagué, first and M.L. Calvo second. Unanimously approved. The President of the Tunisian TC, Z. Ben Lakhdar will be informed. This approval will be proposed for ratification at the forthcoming GA, 2008.

ICO Secretary has been done further contacts with South African representatives. An official letter was received by August 2006, however unfortunately the official representatives of IUPAP Commission were not presenting any agreement. With the adding situation that the previous representative F. Mjwara was not any more under this responsibility. A. Wagué offered to contact with M. Malik (**Action 06/19**, Wagué, Calvo). Y. Pettrof indicated that there is currently a lack of coordination and there are difficulties to take decisions.

Contacts with colleagues in Peru at the occasion of the Third Peruvian Meeting of Optics, October 2006, are planned.

Other contacts are now in progress with Armenia, Pakistan and Saudi-Arabia.

A. Guzmán informed that she is having contacts in Chili for possible application for Associate Members. A meeting will take place by November 2006.

A. Friberg is also contacting colleagues in Iceland. Also, ICO may collaborate with IUPAP for revising current membership conditions in various countries.

### 9b) ICSU links

A. Friberg, ICO President and ICO representative reported. He informed on the current status of ICO as an ICSU Scientific Associate member. There have been parallel cases, as another affiliated commission (Acoustic) following the same pass. A. Friberg was contacting T. Roswell, ICSU Executive Director. ICSU has now prepared a strategic plan for the term 2006-2011 available at the ICSU web site. ICSU was celebrating the 75 Anniversary with a meeting in Paris. The current activities in ICSU related to general strategies in science have low connection with ICO interests, with the exception of some studies on research programs. There is an initiative as a major global research program, the Polar Year 2006, Natural and Human disasters and environmental studies and no programs inside optics. This global initiative might be sent to ICO Bureau members (**Action 06/20**, Friberg). T. Roswell was officially invited to attend the ICO Annual Bureau meeting in Saint Petersburg, however due to other commitments the attendance was declined. New invitation should be addressed to attend the Annual ICO Bureau 2008 and GA in Sidney in 2008. An ICSU forthcoming meeting will be held in Paris (October 2006). Y. Pettrof planned the attendance and to provide information. ICSU is facing economical difficulties and studying to change the headquarters placement. Currently the French government is providing financial support to ICSU organization. There has been an increase in the fees and IUPAP manifested its opposition to the same. Finally, it was informed that an Institute of Mathematics will be open in South Africa.

### 9c) IUPAP links

Y. Petroff, IUPAP Representative reported. The last IUPAP Meeting was held in South Africa and the new Board elected. IUPAP is now studying initiatives for finding equilibrium between the various areas in physics. Regarding conferences there is an interest for increasing the actual support (45%). IUPAP is having working groups on various aspects for affording strategic politics for the future of physics, i.e., next collider project. However, there are still areas not very active. There has been organized a new working group on Nano-science. Recently, the international Medical Physics association was admitted. Also Tunisia has been admitted as a new member. IUPAP budget was revised at the last meeting and considered the requirements for increasing expenses. There was as well actions project in favour of developing countries (initiatives taken a Commission C13). Y. Petroff mentioned the current status of ICO when organizing conferences in developing countries. If the support is applied as C1, then no grants will be accorded. A possible solution could be to ask for the support by applying from Commission C13.

Y. Petroff was informing on the IUPAP support at the World Year of Physics, WYP2005. A conference on Physics in Durban (South-Africa) was held with the order of 300 attendees, mainly from developing countries. The scientific level needed to be improved in future similar meetings. There are currently other areas in Africa that are very well developed as Astrophysics (Telescope installation in Namibia). Also installations in Argentina are well known and contacts with industry and well handled. IUPAP is studying policies to be considered towards receiving support from external foundations. There are projects to create new working groups as Physics in Education, not very well focused with respect to local situation as environmental physics and needing a more realistic focusing (i.e., lack of electricity, health situation of the population). For a near future there are not planned new conferences in Africa.

Regarding the current contacts with ICO representatives, A. Wagué representative at C13 was attending the meeting in Paris. A. Guzmán, ICO representative at C15 was not attending IUPAP meetings this year. Since S. Bagayev, ICO representative at C17 was absent no further information was available. A letter shall be send to S. Bagayev informing him on the forthcoming meetings.

## **10. - ICTP relations and current plans for joint events**

### **10a) TSOSA Advisory Group**

A. Guzmán, ICO representative reported. Information on the current activities of the TSOSA is provided on the Minutes of the meeting held in Trieste, February 2006<sup>10</sup>. An important activity is the Mentorship program. The same has as a main objective to enhance the exchange of students and to designate mentors for directing their work at the original place of the student or research laboratory. Information on some of these initiatives is now linked at the ICTP website. There is an interest for maintaining and increasing the activities in research in optics at the ICTP. For arriving to successful results it is required the support of ICO. To this concern the support from ICTP Director, K. R. Sreenivasan was confirmed. Another objective would be to

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<sup>10</sup> Minutes of the TSOSA Meeting held at the ICTP, Trieste, February 1, 2006, were available with the documents presented to all ICO Bureau members for the Annual Bureau Meeting 2006.

have a permanent group of research in optics at ICTP. Associated researchers from ICTP did make a join proposal for establishing permanent research activities at the ICTP and to establish a network between researchers and topics for the permanent research activities. These last proposals still have pending the response of ICTP responsible.

Regarding ICO/ICTP prize, it was mentioned the procedure applied every year with nomination of awardees from the attendees to the Winter College.

The so called Sandwich Training and Education Program (STEP) developed inside TSOSA applied for the support of IUPAP to obtain one grant.

### **10b) Winter College 2007**

M.L. Calvo, ICO Secretary reported. At the occasion of the TSOSA meeting at the ICTP, February 2006, proposals for the topics of the Winter College 2007 were presented. Considering the topics of previous colleges in the recent past years and after some interactive discussions it was agreed that the topic will be dedicated to: *Fibre optics, fibre lasers and sensors*. The recommendation of IUPAP to enhance the presence of minorities and to balance gender issues for the co-directors and the invited speakers in the forthcoming college will be considered. Further information will be provided on due time at the ICTP website and ICO NL.

### **11. - Administrative business**

M.L. Calvo, ICO Secretary reported. It was included on the documents for the Annual Bureau copy of the contract signed with the British mailing company BTB in charge of the mailing of the ICO Newsletter to TC's. With this new procedure it was earned the order of a 20% of the expenditures in precedent years.

Articles for the forthcoming Green Book "Toward ICO-21" will be requested to ICO Bureau members. It was suggested to inspect periodically the information on the ICO website for updating the current information.

### **12. - Other business**

A. Guzmán, Chair of CREDO was collecting information on TC's responsibility to inform IUPAP on visa issue problems. No relevant information was received.

A. Sawchuk mentioned the current situation at the US for some problems arising with visa issues, efforts at the National Academy of Science were done for improvements. A meeting was held at the NSF with the participation of USAC/ICO Committee representatives.

Meeting ending at 4:20 PM.

*The ICO Bureau at the Hall of the Research Institute of Optoinformatics of the Saint Petersburg State University of Information Technologies, Mechanics and Optics (ITMO) during a break of the Annual ICO Bureau Meeting 2006. First row (from left to right): M.L. Calvo, A.T. Friberg, G. Von Bally, R. Dändliker, A. Sawchuk. Second row (from left to right): P. Stahl, G. Sincerbox, I. Yamaguchi, A. Consortini, H. Lefèvre, B. Y. Kim, G. Jin, A. Guzmán, A. Wagué, M. Kujawska, Y. Pettrof, M. Gu.*



# MINUTES OF THE ICO BUREAU MEETING

Held in Accra, Ghana, on Saturday, November 17, 2006, from 2:00 PM to 7:00 PM  
and Sunday, November 18, 2007, from 9:00 AM to 1:00 PM

## **Present:**

ICO Bureau Members: M.L. Calvo, P. Chavel, R. Dändliker, A.T. Friberg, G. F. Jin, Y. Petroff, G.T. Sincerbox, H. P. Stahl, G. Von Bally, A. Wagué, I. Yamaguchi.

EOS Representative to the ICO Bureau 2007: A. Consortini

Apologies for absence have been received from: S. N. Bagayev, M. Gu, A.M. Guzmán, I.C. Khoo, B.Y. Kim, M. Kujawinska, H. Lefèvre, A. Sawchuk, J. Love, J. Braat (substituted by A. Consortini).

## **1.- Call to order, introduction, matters arising, approval of minutes Bureau, Saint Petersburg 2006**

Ari T. Friberg, President, opened the session. He thanked all the attendees for their presence. Apologies for absence have been received from S. N. Bagayev, M. Gu, A.M. Guzman, I.C. Khoo, B.Y. Kim, M. Kujawinska, H. Lefevre, A. Sawchuk, J. Love, J. Braat due to major reasons. He thanked Prof. Paul Buah-Bassuah, local organizer from University of Cape Coast, for all the facilities accorded to celebrate the 2007 Annual ICO Bureau as well as to ICO Secretariat for the preparation of the meetings. The President informed that a Mexican Delegation would attend the Bureau on due time to present the prepared bid for ICO-22. The approval of the minutes of the previous ICO Bureau Meetings, held in Saint Petersburg, Russia, on September 2006 was proposed.

Proposal: "To approve the minutes of the ICO Bureau Meetings held in Saint Petersburg, Russia, September 2 and 3, 2006". (Motion: G. Sincerbox, first and G.F. Jin second). Unanimously approved.

## **2.- President's report**

### 2a) President's report

Ari T. Friberg, ICO President reported with the aid of a presentation. He informed on the previous meetings taking place for the Executive Committee and Long Range Planning Committee, respectively. The year 2007 was a difficult one for ICO, since there occurred the loosing of three important persons: Arthur H. Guenther former ICO President, Gallieno Denardo, responsible of the optics and photonics programs at the "Abdus Salam" International Center for Theoretical Physics (ICTP) and Roger Lessard, President of the Canadian Territorial Committee. To this respect a memorial session organized in ETOP, held in Ottawa, June 2007, at the VI RIAO/VIII OPTILAS held in Campinas (Brazil), October 2007 and at the present OPTOLASERMED, held in Cape Coast, Ghana, November 2007. All the mentioned activities were very well organized and with participation of colleagues from all over the world and representatives of International Societies (SPIE, OSA, OWLS, LAM and EOS). Two special issues of ICO NL devoted to these losses were published, in July and October 2007,

respectively. Also, a Tribute to Arthur H. Guenther was published by SPIE (2007). In the same a contribution from ICO co-authored by A.T. Friberg, M.L. Calvo and P. Chavel was presented. A proposal was received from the ICO/ICTP Award Committee for changing the name of the award to: ICO/ICTP Gallieno Denardo Award, honouring his memory and legacy. Discussions correspond to Section 6b).

There have been various contacts with ICSU as well as contacts with IUPAP to be reported in Item 9c). In particular there is the IUPAP's proposal for introducing a Young Researcher Award in optics to be awarded by IUPAP. There will be a proposal for this award and ICO representative in this working group. Also, there is a new IUPAP Nano Science Working Group.

The activities ICO/ICTP for expansion and progress of optics and photonics will continue by the presence of J. Niemela, the new responsible person at ICTP for optics and photonics programs. In particular, there is a need for researchers in optics to assist the STEP program, a minimum of two persons. This has been already discussed in previous years but not yet with specific proposals. An important issue was the needing of new funds to support this program. SPIE has already given some support and expecting as well from OSA. There is an action to be informed from K. Sreenivasan, ICTP Executive Director, on the decision the total amount of funding on these programs.

The President presented the report on the TECHNOLASER 2007 meeting held in La Havana (Cuba) April 2007. There was a good organization and scientific level and after discussions with the Cuban representative it was assured the support of ICO toward forthcoming activities in Cuba. At present there are two series of conferences: TECHNOLASER and "Optics Life and Heritage". It was considered the low resources in Cuba, and therefore a proposal was made to organize both meetings as collocated ones. A. Augier, Cuban representative informed on the wish to maintain the present structure with two meetings. Further issues are needed.

The president presented the report on VI RIAO/IX OPTILAS meeting held in Campinas (Brazil), 21-26 October 2007. It was very large meeting with high scientific level and participation from Ibero-American countries. This is as well an ICO major event with the category of Regional Meeting. It was decided that the next VII RIAO/X OPTILAS will be held in Lima (Peru) in 2010. At the occasion of the meeting A.T. Friberg was contacting with the Brazilian Committee for Optics and current President M. Muramatsu. Brazil is now preparing the re-application for membership and a proposal for settling old dues would be required. For this purpose the ICO Treasurer proposal should be required. It was discussed as well the edition of proceedings and the helping for translation in languages other than English. Also, educational programs for university teachers should be expected on a near future. As an additional comment the organizers find difficulties for endorsement of IUPAP except from C13 Commission.

After the RIAO/OPTILAS meeting the Argentina Committee for Optics was organizing a meeting in Buenos Aires and La Plata and it was an initiative of students in both places. At the occasion of the meeting A.T. Friberg was having conversations with the current President of the AIC, J.L. Cavano, and there was a common agreement for collaboration. As an issue, color science is a large field suggesting may be common activities with the world of optics and photonics. A.T. Friberg was as well having very positive discussions with Argentina Territorial Committee regarding ICO membership and focus on the geographical area. Latin-American community needs a major optics organization to be in ICO Bureau as an International Society. A preliminary proposal was already done by A. Guzman and further discussions for the appropriate procedure would be needed. To this regard, there already exist a network the

Multiple Optical Network (MON), based in La Plata, Argentina, pooled by ICTP, and the extension of the same is under consideration. Another possibility could be the formation of a regional optics association and to be organized under a single optical society or under the form of a federation of societies. A preliminary draft is now under preparation.

The President reported on the last ETOP 2007 meeting held in Ottawa (Canada), 3-5 June, 2007. It was a successful meeting with participants from many geographical areas, and some attendees were benefiting from ICO grants. At the occasion of the meeting A.T. Friberg was contacting with M. Alarcon, UNESCO responsible for Active Learning in optics and Photonics (ALOP) so that an agreement ICO/ALOP will be in prepared. As a new facility the ETOP Proceedings series are now available from SPIE and ICO websites.

Other matters as the ICO Summits and the contacts of ICO with industry are reported in Point 4a). A round of opening comments took place. A. Consortini mentioned that in the case of the proposed two separate activities in Cuba it is not very appropriate to have two parallel activities in countries or regions where the optics community is not very large.

## 2b) ICO book

A. T. Friberg, ICO President informed on the current status of the ICO book series, volume VI edited by himself and R. Dändliker. The provisional subject of the book will be: *Advances in Information Optics and Photonics*). A contract ICO/SPIE Press has been signed for the edition of the volume and in paper back to reduce costs. The edition is expected to be ready for ICO-21 General Congress in Sydney (July 2008) with a proposed launching. The number of authors will be a total of thirty six authors, and with thirty manuscripts received. The round-robin review is in progress. The final manuscript is expected by December 2007. The topics focused on information optics and information photonics according to the lectures delivered at the 2006 Winter College on Quantum and Classical Aspects of Information Optics, and the 2006 ICO Topical meeting on Optoinformatics/IP held in Saint Petersburg as well as the ICO Prize awardees in 2005 and 2006. The book will be dedicated to the memory of the late A.H. Guenther, former Past-President. R. Dändliker wanted to express his thanks to A. T. Friberg for all the work done, the decision on focusing was agreed and there was a good response from all the proposed authors.

## 3.- Financial matters

In the absence of A. Sawchuk, ICO Treasurer, A. T. Friberg, ICO President and M. L. Calvo, ICO Secretary, reported. M.L. Calvo informed that A. Sawchuk was sending apologies for not attending the ICO Bureau meeting. He is in the way of ending with the issues and sending of the Invoices for the year 2007 to all Territorial Committees. Also, he notified to ICO Secretary the preparation of the Budget to be published at the forthcoming Green Book, "Toward ICO-21" and for the approval of the same by the forthcoming General Assembly (Sydney, July 2008). He was informing as well to ICO Secretary his decision for not applying for a second term as Treasurer (eventually term 2008-2011).

Discussions arisen on the current status of the ICO bank account located in Costa Mesa (Arizona, USA). This matter is not entirely a question to be handled solely by the USAC/ICO Committee and the ICO Bureau has the responsibility for the management. According to ICO Statutes and the current Rules and Code for Practice, proposals for



nomination can be received on due time to the Nominating Committee from other Territorial Committees (TC). There are problems with the current status of USA\$ currency and transferring money to euros based accounts represent a loss of money. ICO Bureau will be concerned about a possible negative reactions in USAC/ICO Committee if it is decided a change in the way of working and transferring the USA account to a different location. To this concern the role of USAC/ICO Advisory Committee has to be considered, and the fact that SPIE, OSA and IEEE have currently a representation and a role inside the USAC/ICO Committee while there are independent International Societies (IS) in ICO Bureau. Y. Petroff mentioned that Euro currency will become stronger in a near future. To this concern, ICO will get a benefit if working in a convenient currency. Nowadays, interest rates are higher in Europe. R. Dändliker mentioned that to this concern loosing money is not advised, operational money is going down, say that ICO income real value is going down and membership dues are having less value in term of real currency.

H. P. Stahl, Vice-President appointed by SPIE, mentioned that the USA National Academy is the official supporter for ICO activities with an involvement for reactivation and improvement so that no intentions to disrupt these activities are clearly stated. SPIE as an IS cannot be treated similarly since a high percentage of its members are from Europe and Asia so that SPIE is not representing directly the interest of USAC/ICO Advisory Committee. P. Stahl as PIE representative is acting at the USAC/ICO Committee as an observer and not voting. P. Chavel added that the internal organization of USAC/ICO Committee is concerning USA representatives and ICO has not to interfere on this way of working.

G. von Bally, ICO Associate Secretary addressed to P. Stahl and G. Sincerbox for a request to introduce the actual discussion at the occasion of the forthcoming USAC/ICO meeting. Y. Petroff mentioned that IUPAP is operating on the most efficient manner and it is able to move accounts as required by the actual circumstances. To this concern recently the IUPAP account located in USA has been translated to United Kingdom (a periodicity of three times in ten years). ICO Bureau may consider the possibility to pay the dues in euros. In view of the importance of the situation it is reasonable to prepare actions for analyzing the best procedure for the forthcoming Treasurer (term 2008-2011). A proposal has to be prepared for the next General Assembly so that a strategic plan has to be developed by ICO Treasurer. A. Consortini mentioned the present difficulties to discuss the matter without the presence of ICO Treasurer and reminding that the searching for a new ICO Treasurer is a task of the Nominating Committee. M.L. Calvo noticed that it is necessary to have an action for requesting to A. Sawchuk that a planning for the substitution has to be sent to R. Dändliker as Chair of the Nominating Committee and not to ICO Secretariat. G. Sincerbox indicated that transferring funds from USA to Europe will turn into difficulties for having a USA Treasurer. A. T. Friberg proposed a motion: "To develop a strategic plan to optimize the maintenance of ICO funds. A small group has to be formed to work on this strategy" (Committee consisting on: A. T. Friberg, G. Sincerbox, Y. Petroff and A. Sawchuk). **Action 01/07** (Motion: A. Wagué first, second G. F. Jin). Unanimously approved.

#### **4.- Committees reports, except prizes and awards**

##### **4a) Long Range Planning Committee (LRPC)**

Ari T. Friberg, ICO President and Chair of the Committee reported. He informed on the subjects discussed at the LRPC meeting held in November 17 in Accra.

The advances on the initiative for the so called ICO Summits were only under a preliminary status. Discussions were carried out with J. W. Goodman as one of the initiators of this future activity between ICO and the Goodman's Foundation. To start out it was agreed on the needs for defining a specific pilot activity. They agreed as well on the strategic difficulties for affording actions presenting high obstacles according to the political situation of the actual considered geographical region of the world. The feasibility was linked as well with the status of the ICO account in USA and the required study to solve the current taxes problem. This was discussed as well in the previous Point 3 with an action approved. This is a previous aspect to be solved prior to initiate contacts for lateral collaboration.

ICO contacts with industry have been analyzed from ICO many times on the past. H. Lefevre was indicating this aspect in previous electronic mails. P. Chavel added that very low participation of researchers from industry in ICO meetings was noticed. There will be needed to look for philanthropic foundations, from industry or to agree disregard from common activities. A. Consortini pointed out that it is necessary as well those industries might propose common activities with ICO. She noticed that under the current financial status no possibilities for donations exist. At present optics and photonics industries are only present in international organizations such as the European Photonics 21 platform. P. Stahl added that nowadays American and European companies are running good programs for supporting developing countries, a good example are cell phone companies. He was questioning whether companies are having a consciousness attitude. G. von Bally indicated the connection with media responses and to study the scale in which companies are working. Currently the German Optical Society is having a prize granted from industry. Exhibitions are also good points to be considered in collaboration with ICO and to consider if companies would be able to sponsoring ICO meetings.

ICO Bureau Vice-Presidents from industry might identify companies to consider approaches for collaboration. P. Stahl pointed out that the key should be to look for trade companies with a wider international projection. To this concern A. Wagué would like to involve as well LAM meetings in the join activities and including publicity of companies in the programs and industries logos. H. P. Stahl added that at the occasion of ICO-22 an exhibit with proper dissemination of publicity regarding companies would be suggested. (**Action 02/07:** To contact trade companies with wide international projection to identify possible support to ICO, P. Stahl and A. Wagué).

Y. Petroff informed that IUPAP is currently organizing meetings for physics entrepreneurship at the ICTP. To this concern a meeting will be held in March 2008 (Entrepreneurship for physicists and engineers from developing countries). Optics is a marketable field and should be present as well. A. Wagué proposed that ICTP could promote the creation of a training centres on optics and photonics to collaborate with optics and photonics industry.

A. T. Friberg continued in informing on the matters. LRPC considered that it is crucial the definition of the ICO's role in global optics. ICO is not involved in main optics conferences (as CLEO, OFC, OFS, World of Photonics, Photonics West, Frontiers in Optics, etc.). IS should be listing on their websites the ICO activities as ICO is having the links of societies in the website. ICO for definition from former Past-President A. Consortini is the United Nations of optics and acts as an umbrella for all optics societies.

Discussions arising and I. Yamaguchi pointed out that currently there are professional societies (as the actual case of SPIE) not working in contact with IUPAP and ICSU. Also, A. Wagué mentioned that ICO has the status to play an important role for optical training and masters and educational programs, particularly in world regions as in Africa.

#### 4b) Nominating Committee (NC)

R. Dändliker, ICO Past-President and Chair of the Committee reported. The current members of the Committee for term 2005-2008 are: A. Consortini, A. Friesem, A. H. Guenther, R. Sirohi. R. Dändliker addressed a special mention and thankfulness to the late A. H. Guenther, former ICO Past-President for all his work done in the Committee.

As current activities an official letter was sent to all TC's with instructions for nominations (information linked at the ICO website) and with deadline February 29, 2008. However, according to ICO Rules and Code of Practice, nominations can be done at the General Assembly as well. R. Dändliker reminded the positions to be elected (and that would not be re-eligible for a next term): President, Secretary (can be reelected with exception), Associate Secretary (can be reelected), Treasurer (can be reelected). Vice-Presidents, various members would be finishing the second term: G.F. Jin, Y. Kim, M. Kujawinska, I. Yamaguchi. R. Dändliker indicated the requesting to those re-eligible Vice-Presidents who will not run for a second term to inform on due time to the Nominating Committee.

Regarding the elections for Vice-Presidents designated by IS, a rule should be approved to have their designation at the time of the ICO General Assembly. (There is an action approved at the 2006 Bureau Meeting regarding the deadline, September 1<sup>st</sup> of the year of the new Bureau, to start a new term, the same has to be approved at the forthcoming General Assembly, after including the proposal at the forthcoming "Green Book", Rules and Code of Practice). **Action 03/07:** "To include at the "Green Book", Towards ICO-21 the text for the new rule on the deadline, September 1<sup>st</sup> of the year of the new Bureau, to start a new term for Vice-Presidents designated by IS" (Calvo, Friberg)

R. Dändliker informed that at the actual moment two nominations were received from two Territorial Committees. A reminding will be sent by January to all TC's by electronic mail and to be published at the ICO Newsletter (January 2008 issue).

#### 4c) Committee for the Regional Development of Optics (CREDO)

In the absence of A. M. Guzmán, Chair of the Committee, M.L. Calvo, ICO Secretary reported. A.M. Guzman was providing a report to be presented at the meeting with electronic copies to all ICO Bureau members. Additional hard copies were provided by ICO Secretariat at the time of the meeting.<sup>11</sup>

M. L. Calvo informed on the contents of the report with resume of activities during the period October 2006 to November 2007, in particular the activities carried out by, Argentina (Encounter on optics and photonics organized by the Territorial Committee), Brazil (RIO/OPTILAS 2007), Colombia (I Andean and Caribbean Conference on Optics and Applications), India and activities of the Optical Society of India, Mexico and Central America

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<sup>11</sup> Access to the document: <http://www.ico-optics.org/credo.html>

and activities of student chapters of various IS, Peru to host the next RIAO/OPTILAS 2010, Thailand (project Shinning-Spectrum-to-Society), Venezuela (Venezuelan School of Optics),

After the presentation of the report discussions arisen. In particular, comments were made in relation to the organization of Subcommittees and A. Consortini pointed out that members of Subcommittees are not current members of the ICO Bureau. To this concern there must be a recommendation in the sense of including members of the ICO Bureau in these Subcommittees. Although the members were certainly working highly efficiently it was notice the necessity to have more links with the ICO Bureau. A. Wagué commented that it was a positive action to designate external members in the Subcommittees and he manifested his intention to contact A. Guzman to indicate his interest in becoming a member of African Subcommittee.

#### 4d) Travelling Lecturer Committee

In the absence of A. Sawchuk, Chair of the Committee no report was available for discussion. A.T. Friberg indicated that the assigned budget to the Committee was all used with an increase of additional 1,000 US\$. In overall it was agreed that in this term the travelling lecturer programs were having a high level with reasonable projection on the optics community.

#### 4e) Education Committee

In the absence of M. Kujawska, Chair of the Committee no report was available. M.L. Calvo informed that there were done some contacts with South-African colleagues and in particular with Dr. D. Bezuidenhout for the development of optical training programs at the Council for Scientific and Industrial Research (CSIR) and National Laser Center (NLC) in Pretoria. The main idea should be to introduce a similar program as the one developed in the EU with the Erasmus Mundus for African institutions. LAM network is also interested to participate in this initiative.

### **5.- Reports of liaisons with Territorial Committees and International Societies**

#### 5a) Territorial Committees (TC)

A. T. Friberg addressed a request to all Bureau members to enhance the reports on important aspects related to TC's activities. During the period October 2006 to November 2007 no significant activities issued from the liaisons responsible were reported. A. Wagué informed that he was contacting the two current optical societies in Morocco in order to arrive to a mutual agreement for initiating full membership; however no progress for organizing a unique optical society could notified.

#### 5b) International Societies (IS)

G. Sincerbox, Vice-President appointed by OSA reported for OSA activities. The OSA Foundation purposes (established in 2002) were to support philanthropic activities. He was giving examples of founded programs: Travel grants, educational programs and other similar supports for primary, secondary and university levels. Recently, the OSA Foundation was

engaged for ICTP programs financial support. A new OSA medal honouring Emmett N. Leith was created. Regarding visa issue, the ICO should be in charge to inform the USA State Department related to visa for avoiding problems of foreign researchers visiting USA. SPIE and OSA have current co-sponsorship programs. A.T. Friberg indicated that OSA Foundation is indeed benefiting from a very wealthy status and that presently yet no information is available for the ICO Bureau and to study joint activities.

H. P. Stahl, Vice-President appointed by SPIE reported. SPIE is currently financing many programs (including the annual ICTP Winter College). For the current meeting in Ghana SPIE was giving US\$ 600 in grants for students. In addition other activities for travelling grants and student's chapters programs are nowadays being carried out. The elections for the new Board took place in August 2007 and results were announced (as appearing on the SPIE website), as a note a 50% of elected are international professionals out of USA. SPIE was working on the offer for free access to digital library. As an example, ETOP proceedings are freely available at the ICO website as linked from SPIE server. A new remote access is now working after the new SPIE website management.

A. Wagué, Vice-President appointed by LAM reported. LAM was involved in the organization of the ICO Topical meeting in Cape Coast, Ghana, and working for attracting many African participants from all regions. The organizers benefited from the support of many organizations, ALC, ICTP, IUPAP, OSA and OWLS and were receiving many applications for attending the ICO Topical meeting, however because of financial restrictions not all applicants were eligible (the order of 25 grants to African participants). To date African organizations are joining efforts, to disseminate the importance of science. Concerning other links, LAM would like to increase bi-lateral collaboration. The main problem in Africa is to build up good educational programs. LAM website is currently having links with other IS and ICO is in particular having the operational link with LAM. African countries could configure in a near future a large important market.

In the absence of M. Gu Vice-President appointed by OWLS, G. von Bally reported. The Topical meeting in Ghana was an initiative from OWLS. In addition, OWLS was organizing the 3rd Asian and Pacific Rim Symposium on Biophotonics & Biophotonics Down Under II (APBP 2007) July 9 - 11, 2007 in Shangri-La, Cairns, Australia and was a successful meeting. Actually, discussions existed for the organization in Singapore of a satellite meeting of the ICO General Congress in Sydney. This will be the Optics Within Life Sciences (OWLS) 10: Biophotonics Asia 2008 to be held 2-4 July 2008.

A. Consortini representing EOS at the ICO Bureau 2007 reported. EOS is formed by branches and affiliated societies making a total of the order of 5000 individual members. It has been launched an EOS journal on-line, for rapid communications. In addition there is another ordinary journal of optics. EOS is involved in two activities initiated by the EU, OPERA and Photonics 21. EOS internal organization is based upon the General Assembly decisions and it is having common actions with other IS as with SPIE. Next year 2008 the General Meeting will be held in Paris and various other joint topical meetings will be held as well. EOS participates in the TSOSA Committee and it is contributing with a grant for the ICTP activities. The EOS Prize for the best article published in an EOS journal is accorded every year. Three new initiatives for topics in EOS meetings have started in October 2007 and the preparation of a photonic conference in Italy is under current development.

### 5c) OiC/IP Steering Committee

In absence of A. Sawchuk, ICO representative at the OiC/IP Steering Committee M. L. Calvo reported. Regarding a possible Information Photonics meeting in USA in 2007 no news were available. After the meeting held in Saint Petersburg in September 2006 it was decided the organization of IP 2008 in Awaji, Hyogo, Japan. The Chair, J. Tunida was sending a Power Point Presentation to ICO Secretariat with contents the current status of the organization and information with a good insight on the expected results.

### 5d) ETOP (Long-Range Advisory Committee) (LRAC)

A.T. Friberg ICO President and representative at the ETOP LRAC reported. A new MoU was signed with new partner as IEEE/LEOS. One copy of the document was included on the booklet of documents of the ICO Bureau Meeting 2007. He report on ETOP meeting held in Ottawa in June 2007, and that no LRPC meeting took place because of absence of various members of the committee in the ETOP meeting. A special session honouring the late A.H. Guenther and R. Lessard took place with participation of colleagues, friends and representatives of IS in which both persons were having very outstanding activities. A. T. Friberg reminded that he was not a member of the current LRPC (Chair: B. Shoop) and therefore he was merely transmitting general information. The next ETOP LRPC meeting will probably held in Australia and specific dates will be expected. ETOP conferences are organized on the basis of global rotation and there was a good bid for ETOP 2009 in Australia. A.Wagué was inquiring why ETOP meetings are not usually granted the participation of persons from developing countries. A. T. Friberg responded that ETOP meetings intended to be addressed to both technologically advanced countries and developed ones. It was mentioned that the number of participants in the last meeting held in Ottawa in June 2007 was not very high (the order of 90).

## 6.- ICO Prize and Awards Committees

### 6a) ICO Prize Committee

In the absence of Y. Kim, Chair of the Committee, G.F. Jin reported. The Committee consists of five members: S. Bagayev, A. Friesem, G.F. Jin, Y. Kim (Chair) and J. Love after the resigning of A. Weiner.

For the 2007 Call the Committee was receiving various good nominations that were detailed reviewed. Among the nominations one was not following the ICO criteria and therefore was not considered. Based on internal votes of members, the Committee selected there two nominations corresponding to very strong candidates. As a final selection the Committee recommends Prof. Susana Marcos for the ICO Prize 2007. She is a professor of research at the National Research Council (CSIC), in Madrid, Spain. Her main research area concerns vision research, human eye system and effects and anomalies on vision mechanism. She is the author of more than fifty peer reviewed publications and has received various international awards. She was elected Fellow of EOS. The nomination was supported by P. Artal, C. Dainty and S. Burns with very strong supporting letters. The second selected candidate was working field of quantum optics. Some members of the Committee considered that in 2005 the winner was on this field. In the year 2006 there was selected a young researcher in optical computing and optical

communications, then, considering awarding for the first time a researcher in the field of biooptics and biophotonics. Motion: "To accord the 2007 ICO Prize to Susana Marcos from CSIC, Madrid, Spain, for her outstanding contributions in the areas of visual optics and biophotonics. These achievements were done as a researcher younger than 40 years old". (First, G.F. Jin, second G.V. Bally). Unanimously approved.

#### 6b) ICO/ICTP Award Committee

A. Wagué, Chair of the Committee reported. Up to the present date no nominations for the ICO/ICTP Award 2008 were received. The announcement was posted in LAM website in addition to the information appearing at the ICO and ICTP websites. There were some contacts with Tunisian researchers informing that there was one action to send nominations directly to ICTP. A. Consortini reminded that the winner had to fit properly the subject of the Winter College of the year 2008 on Micro and Nano-Biophotonics for Life Science. Also, J. Niemela was receiving other proposals. A. Wagué added that he will contact with J Niemela and M. Danailov for further details and he will coordinate the common work also with A. Consortini. The Committee was considering a proposal to honour the memory of the late G. Denardo, who was pioneering the Award. It was considered to redefine the award as: ICO/ICTP Gallieno Denardo Award. A. Wagué was contacting K. R. Sreenivasan, ICTP Executive Director, who was supporting the proposal as well. Motion: "To rename the ICO/ICTP Award as ICO/ICTP Gallieno Denardo Award honouring his memory and legacy". Motion: A. Wagué, first, A. Consortini, second. Unanimously approved. In addition there will be an action to request to ICTP to change all the publicity and information regarding the Award Call. (**Action 07/04**, Wagué, Consortini).

#### 6c) Galileo Galilei Award Committee

I. Yamaguchi, Chair of the Committee reported. For the 2007 Call the committee was receiving six nominations from various geographical regions. The Committee developed a serious internal work to perform an agreed ranking that he was presenting. In view of all the merits concurring on the candidate the Committee selected O. Angelsky, a professor at the Chernivtsi University, Chernivtsi, Ukraine. In addition to his scientific merits the Committee considered his efforts for promoting scientific meetings on optics in Ukraine, in particular the series of meetings in correlation optics. The Committee considered carefully the unfavourable conditions as he was developing all his professional activities in Ukraine, also the geographical distribution as per previous years and the relation with other ICO Awards was considered. Motion: "To accord the Galileo Galilei Award 2007 to O. Angelsky. The citation reads: For his outstanding contributions in the field of optical correlation, speckle interferometry and holography in diffuse optical fields achieved under comparatively unfavourable conditions". The "comparatively unfavourable circumstances" refers to difficult economic or social conditions or lack of access to scientific or technical facilities or sources of information. (I. Yamaguchi, first, A. Consortini, second). Unanimously approved.

### 7.- ICO participation in meetings and schools

Conference	Date	end./cosp. grant/risk	ICO representative
<b>1. Oct 2005 - 30 Sep 2006 (Period 1)</b>			
5th Conference Optique 06 Rabat, Morocco	19.-20.04. 2006	endorsed grant: US\$ 1,000	Prof. Ahmadou Wagué
5th International Workshop on Information Optics "WIO" Toledo, Spain	05.-07.06. 2006	endorsed grant: US\$ 1,000	Prof. Maria L. Calvo
8th International Conference in Optics: "Romopto 2006" Sibiu/Hermannstadt, Romania	28.-31.08. 2006	endorsed grant: US\$ 1,500	Prof. Nikos Vainos
ICO Topical Meeting on Optoinformatics/ St. Petersburg, Russia	04.-07.09. 2006	cosponsored grant: US\$ 2,500 (risk: US\$ (different budget))	Prof. Maria L. Calvo
Information Photonics 2006 (jointly with ICO Topical Meeting) St. Petersburg, Russia	04-07-09. 2006	cosponsored grant: US\$ 1,500	Prof. Maria L. Calvo
		<b>grants: US\$ 7,500</b>	



<b>1. Oct 2006 - 30. Sep 2007 (Period 2)</b>			
7 <sup>th</sup> International Young Scientists Conference “Optics and High Technology Material Science SPO 2006” Kiev, Ukraine	26.-29.10. 2006	endorsed grant: US\$ 1,000	Prof. h.c. Gert von Bally Prof. Malgorzata Kujawska
I Andinean and Caribbean Conference on Optics and its Applications Santiago de Cali, Colombia	13.-17.11. 2006	cosponsored grant: US\$ 1,000 risk: US\$ 1,000 (different budget)	Prof. Angela M. Guzman
9 <sup>th</sup> International Conference on Optics Within Life Sciences (OWLS 9) Taipei, Taiwan	26.-29.11. 2006	cosponsored grant: US \$2,000 (risk: US\$ 2,000 (different budget))	Prof. Min Gu Prof. h.c. Gert von Bally
5 <sup>th</sup> International Conference on ODF’06 Optics-Photonics Design and Fabrication Nara, Japan	06.-08.12. 2006	endorsed grant: 0	Prof. Ichirou Yamaguchi
Photonics 2006: 8th International Conference on Optoelectronics, Fiber-optics and Photonics Hyderabad, India	12.-16.12. 2006	endorsed grant: US\$ 1,000	Prof. Min Gu
International Workshop Tecnolaser 2007 Havanna, Cuba	17.-19.04. 2007	endorsed grant: US\$ 1,000	Prof. Angela M. Guzman
ETOP 2007 Ottawa, Canada	3.-5.06. 2007	cosponsored grant: US\$ 2,500	Prof. John Love Prof. Art Guenther

The 3rd Asian and Pacific Rim Symposium on Biophotonics (APBP 2007) Cairns, Australia	09.-11.7. 2007	endorsed grant: US \$ 1,000	Prof. h.c. Gert von Bally
International Conference on Optics and Laser Applications ICOLA 2007 Yogyakarta, Indonesia	05.-07.09. 2007	endorsed grant: US\$ 1,000	Prof. Yoon Kim
The 8th International Conference on Correlation Optics Chernivtsi, Ukraine	11.-14.09. 2007	endorsed grant: US \$ 1,000	Prof. Malgorzata Kujawska
		<b>grants: US\$ 11,500</b>	

<b>1. Oct 2007 - 30. Sep 2008 (Period 3)</b>			
Advanced Infrared Technology and Applications International Workshop 2007 (AITA 9) León, Guanajuato, Mexico	08.-12.10. 2007	endorsed grant: US \$ 1,000	Prof. Maria Calvo
Riao Optilas 2007 Brazil	21.-26.10. 2007	grant: US \$ 1,500 risk: US \$ 1,000 (different budget)	

ICO-Topical Meeting 2007 on Optics and Laser Applications in Medicine and Environmental  Monitoring for Sustainable Development  Cape Coast, Ghana	19.-24.11. 2007	cosponsored  grant: US \$ 2,000 risk: US \$ 1,000 (different budget)	Prof. h.c. Gert von Bally
2nd International Topical Meeting on Optical Sensing and Artificial Vision OSAV'2008  St. Petersburg, Russia	12.-15.05. 2008	endorsed  US \$ 0	Prof. Maria Calvo
ODF'08  Taipei, Taiwan	9.-11.06. 2008	endorsed  US \$ 0	Prof. Toyohiko Yatagai
OWLS 10  Singapore  (satellite meeting to ICO 21)	02.-04.07.  2008	cosponsored  grant: US \$ 1,000  risk: US \$ 1,000 (different budget)	Prof. h.c. Gert von Bally
ICO-21, Triennial Congress of the ICO  Sydney, Australia	07.-11.07. 2008	grants. US\$ 7,000  (different budget)	Prof. Ari Friberg, Prof. Maria Calvo (ex officio)

Fourth International Conference "Singular Optics (Optical Vortices): Fundamentals and Applications SO'2008"  Alushta, Crimea, Ukraine	15.-20.09. 2008	cosponsored  US \$ 1,000	Prof. h.c. Gert von Bally  Prof. Oleg V. Angelsky
"Optoinformatics"  St. Petersburg, Russia	15.-18.09. 2008	cosponsored  US\$ 1,500	Prof. Maria Calvo
<b>Budget overview:</b>  1. Oct. 2005 - 30. Sept. 2008 total: US \$ 28,000  <b>Budget distribution plan:</b>  1. Oct 2005 - 30. Sep 2006: US \$ 9,500 1. Oct 2006 - 30. Sep 2007: US \$ 9,500 1. Oct 2007 - 30. Sep 2008: US \$ 9,000		<b>grants: US \$ 8,000</b>  <b>rest: US\$ 1,000</b>	

New legislative period 2008 - 2011	Date	end./cosp. grant/risk	ICO representative
<b>1. Oct 2008 - 30. Sep 2009 (Period 1)</b>			
International Topical Meeting on Information Photonics 2008 Awaji, Hyogo, Japan	16-20.11 2008	endorsed US \$ 0	Prof. Yasuhiko Arakawa

G. von Bally, ICO Associate Secretary in charge of meetings reported. All the related information was available on the booklet of documents prepared by ICO Secretariat:

7a) Events taking place in the period October 2006 – October 2007

Reports have been received but still some of them are missing.

7b) Events already decided. Up to September 2008

(This would be the last date for this Bureau term). The RIAO/OPTILAS 2007 was held in Campinas, Brazil. Still the final report to ICO Associate Secretary was pending. A. T. Friberg confirmed that he will send the report on due time. The ICO Topical Meeting 2007 will be held at the University of Cape Coast (19-24 November 2007) but still the ICO grant accorded to organizers was pending to be transferred from ICO Treasurer.

7c) Future meetings and schools

G. von Bally presented a list of applications. Among them some are not requesting specific ICO grant support. The Bureau has to confirm a representative for the forthcoming 2nd International Topical Meeting on Optical Sensing and Artificial Vision (OSAV'2008) to be held in St. Petersburg, Russia (12-15 May 2008). The Bureau proposed for the task M. L. Calvo. G. von Bally will inform the Chair of the meeting I. Gurov. **Action 07/05:** To proposed M.L. Calvo as ICO representative for the forthcoming OSAV'2008. (von Bally, Calvo)

There was received an application from Taiwan for endorsement of ODF'08 and no requesting grants. This application corresponds to a series of meetings already endorsed in previous years. G. von Bally will contact the organizers with information for the ICO representative. **Action 07/06** (von Bally)

The application received from Singular Optics meeting to be held in Ukraine contained a grant requested too high. One open question was whether the meeting was supported by Ukraine Territorial Committee that was not confirmed in the actual case. A clarification is needed. Considering that there was a remaining 2000 US\$ it was accorded a co-sponsorship with 1000 US\$. Motion: G. von Bally, first, and A. T. Friberg second. Unanimously approved. The proposed ICO representative will be G. von Bally. (**Action 07/07**, von Bally).

The meeting Optoinformatics 2008 was requesting a grant. For the ICO representative the Bureau approved to be M.L. Calvo (**Action 07/08**).

For the next Bureau term there should be considered the proposal for the series Optics Life and Heritage and (Cuba), IP 2008, (Japan). There was considering as well RIAO/OPTILAS 2010 in Peru and next meeting in Taiwan. The ICO Topical Meeting 2009 could be held in Greece. M.L. Calvo is now in contact with N. Vainos, from University of Patras to work on the possible application (**Action 07/09**, Calvo). Finally, there will be an OWLS meeting in Canada.

7d) Preparation of ICO XXI

In the absence of J. Love, G. Von Bally reported. He presented a Progress Report provided by C. Walsh, Chair of the Organizing Committee. A teleconference with C. Walsh was still pending to discuss on details on the Program under work. Data on correct Agenda for Bureau meetings and the two General Assemblies have been discussed. The organizers will provide a room for the Bureau meetings. The broad outline was approved. The schedule was

approved as: Sunday, July 6, 2008, First ICO Bureau; Monday, July 7, 2008, First General Assembly; Wednesday, July 9, 2008, Second General Assembly; Thursday, July 10, 2008 Join ICO Bureau with Old and New ones. **Action 07/10** (Calvo, Friberg).

There will be a recommendation addressed to all the delegates for arriving on Sunday, July 6, 2008. The Program will include all ICO awardees with the emphasis that all awardees have to be treated on an equal basis. **Action 07/11** (von Bally).

There were previous discussions on the topics, the venue was booked and the first draft program prepared. Actually, no information on social programs was provided. ICO conference was prepared for running in a separate floor to assure identification. Other minor details are now under consideration. No risk money requested.

Discussions on proceedings publication arisen, and as some clarification where needed it was decided to have a phone conversation with C. Walsh in order to request him on this issue. The teleconference took place on Sunday November 18 at 10:30 AM. G. von Bally resumed the contents. Financial limits by IUPAP needed to be rearranged (450 euros/inscription). Proceedings will be edited out of IUPAP regulation. It was indicated that the Galileo Galilei Award lecture needed to be in the plenary conferences as for ICO Prize winners.

R. Dändliker proposed a working group to be decided in the ICO Bureau in Sydney in 2008 to work on the proceedings issues associated with ICO meetings. Nowadays, proceedings are losing scientific value in terms of impact index. A.T. Friberg indicated that was not really appropriated to consider proceedings out of scientific value. There are always specific cases that should be considered in detail. For researchers from developing countries it is always interesting to have this type of publication. Motion: R. Dändliker, first, A. Consortini, second. Approved. **Action 07/12** (Dändliker).

#### 7e) Presentation of bids for ICO-XXII

O. Barbosa, representing the Mexican Academy of Optics (AMO) presented a report for the bid for ICO-22 in 2011. He provided CD's and booklet with information to ICO Bureau members. F. Mendoza, President of AMO was unable to travel to Accra as well as F. Granados. AMO proposed the city of Puebla for conference location. Actually, other bids were presented in previous years as well. The Mexican community in optics and photonics is nowadays very active. Mexico is currently hosting many international meetings in optics and photonics. The bid was supported by CONACYT, City of Puebla and various Mexican Universities and Research centres as well as various TC's from Ibero-American countries. The city of Puebla is recognized by UNESCO for cultural heritage. The proposed lemma: "Light for the development of the world", and proposed dates: August 29-September 2, 2011. It can be considered a join congress with the National Symposium of Optics in Industry. The proposed scheduled was also provided. The draft of budget was prepared by CIO, based on 650 delegates. Discussions arisen regarding details on the contents.

R. Dändliker presented the bid for the city of Geneva as proposal from Switzerland TC. He indicated that there was no intention to compete with the Mexican bid. He considered Mexican proposition a good one. The bid was prepared by the Swiss Optics and Microscopy Society with dates, second half of August, not yet decided. It was considered the free circulation of scientists and mentioning also that possible problems for some visas applications could arise. The Congress would be supported by the Canton of Geneva and offering a very convenient access for transportation. The bid was for the Congress to be held at the University of Geneva.

The Budget was also presented on the basis of 500 participants. No rental costs since university would offer the building freely. Reduced fees for students from developing countries were considered in the budget. Discussions arisen after presentation.

There was a third bid from India. Location in Calcutta with the lemma: “Optics for sustainable development” in December 2011. To be organized by the Optical Society of India. Only receiving application form but not budget was received, therefore no discussions were pertinent for technical reasons.

After discussions the Bureau members approached to a decision on the forthcoming location of the ICO-22. The bid presented from the India TC was merely consisting on the application and then G. von Bally indicated that contacts with the Indian representatives for additional information will be done. The Bureau will make a recommendation to be addressed to the General Assembly in Sydney. For the bid for Puebla, there will be in addition a recommendation for the revision of the budget (Y. Petroff), and also in terms of risk and loan (A. T. Friberg) and reconsider the budget before the meeting in Sydney in July 2008 (G. von Bally). P. Stahl mentioned that the budget presented was detailed and that however it is also important to consider the number of delegates that will attend the meeting. An official letter will be addressed to the Mexican representatives informing that the ICO Bureau will recommend Mexico for the organization of the forthcoming ICO-22 and General Assembly (**Action 07/13**, von Bally), Proposal: “To recommend to the ICO General Assembly to be held in Sydney, July 2008, that the next ICO-22 General Meeting and General Assembly will be held in the city of Puebla (Mexico)”. Motion: G. Sincerbox, first and H. P. Stahl, second. Voting: Nine votes in favour, three abstentions. Approved by majority.

## **8.- Next Bureau meeting**

It was accorded that the First ICO Bureau meeting will be held on Sunday, July 6, 2008, before the first General Assembly (GA) take place. The Second ICO Bureau meeting will be held on Friday, July 11, 2008 after the second GA. The place of both meetings will be in Sydney (Australia). Details will be provided on due time by ICO Secretariat. Motion: G. von Bally first, and A. Consortini, second. Unanimously approved.

## **9.- Membership**

### **9a) ICO membership**

M.L. Calvo reported. Regarding the current Associate membership: Ecuador and Morocco, the situations were not progressing. In particular, Morocco has to unify the two currently existing Optical Societies to have a single TC. There were contacts with: Peru, South Africa, for reapplication of membership (IUPAP member) and Costa Rica. Other contacts with Armenia and Pakistan were under progress. Canada was designating a new representative: T. Galstian and the support from H. Arsenault were specifically appreciated and thanking to him.

### **9b) ICSU links**

A.T. Friberg reported. ICO is currently an Associate Member and there was a search for collaboration. He contacted T. Roswald (Executive Director) and C. Smith (Deputy Executive Director). He commented on the difficulties encountered to establish direct contacts for joint actions. ICO was in contact with the African Regional office and ICO Secretariat was sending ICO material at the occasion of the Science and Technology exhibition, January 2007, in Addis Ababa, Ethiopia, and with the local support of A. Ghopal from the University of Addis Ababa (M.L. Calvo). For ICO-21 there will be no ICSU headquarter representative although approaches have been done. ICSU is running three regional offices: Pretoria, Kuala Lumpur and Rio de Janeiro. As per activities: Coordinating and planning multidisciplinary research, science for policies and universality of science. Annual reports on activities are electronically available as well as ICSU Newsletter. The forthcoming ICSU General Assembly will be held in October 2008 in Mozambique. ICO needs a representative. To be decided at the next ICO Bureau in Sydney. A. Wagué was representing IUPAP Regional meeting in Africa

#### 9c) IUPAP links

Y. Petroff reported. The last IUPAP meeting was held in Rio de Janeiro, October 2007. It had the presence of the Brazilian Ministry of Research. Brazilian economical situation is very good and no problem for affording dues of IS existed. Various Latin-American countries have applied for IUPAP membership. The current budget is running for 500 Keuros. IUPAP have cancelled the account in US dollars for financial reasons. The account was transferred to UK because of the higher interest rates offered. Most part of the budget goes to conferences support. Interactions with ICSU are now under development, there are good programs for grants. There is also a plan to build up in South Africa an Institute for Mathematics. Actually, the IUPAP Board was discussing regarding the issue of creating an IUPAP African Regional Office and is now under consideration. The Unions complained to ICSU because of financial problems, unions can decide the amount to be paid (total of 27). This created an unbalanced situation in connection with fees of specific countries members. This is now under study to propose various categories of membership to adjust the fees. A.T. Friberg requested whether this procedure will have an influence on ICO fees and ICO TC's fees.

A.T. Friberg reported on recent IUPAP meetings in 2007 and the IUPAP structure. ICO is maintaining contacts through C13, C15 and C17. Not many joint activities are currently developed. IUPAP is proposing a new Young Scientist Award addressed to research in optics and photonics: cash award 1000 US\$ + diploma and medal (IUPAP/ICO medal) with eight years of activity after receiving the PhD, delivered annually. It was set by the IUPAP Council for three years. A new Committee was needed for IUPAP/ICO Prize to Young Scientist. Actions would be needed for including announcements in the website and a new poster. It has to be approved by the ICO Bureau. A. Consortini asked whether this was interfering with current ICO Prize. More precisions are needed and to be requested to IUPAP. A.T. Friberg indicated that criteria are already fixed by IUPAP. Discussions arisen regarding the convenience of accepting the current criteria. Proposal from P. Chavel for creating a Committee with current Chairs: Y. Kim, G.G. Jin and A. Friesem, to study the criteria. Regulations are detailed at the IUPAP website. Motion: P. Chavel first, G. Sincero, second. Unanimously approved (**Action 07/14**, Kim, Jin)

A.T. Friberg informed on the ICO participation in IUPAP Nanoscience Working Group. He discussed the matter at the occasion of the meeting in Rio do Janeiro. He informed



that A. Guzman indicated her interest in participating in the Nanoscience Group. There as a proposal for her to act as ICO representative. Y. Petroff indicated that there is no specific commission in Nanoscience rather it was included in other various commissions. Motion: first A.T. Friberg, second G. von Bally. Unanimously approved.

ICO website has operational the link at the IUPAP website. IUPAP new members could influence positively in the application of new ICO membership. The next IUPAP GA will be held in Japan in October 2008. ICO needs to nominate a representative.

A. Guzman, representative at C15 was provided a report sent to all ICO Bureau members<sup>12</sup>. The document includes information on the activities developed by C15 during the year 2007.

## **10.- ICTP relations and current plans for joint events**

### **10a) TSOSA Advisory Group**

P. Chavel summarized the activities according to the report sent by A. Guzman, Chair of TSOSA. He informed that he was not attending TSOSA meeting in 2007. A. Guzman was appointed ICO Bureau representative and elected Chair for the year 2008. TSOSA is a working group on international organizations cooperating with ICTP in terms of advising according to the initial philosophy of the late G. Denardo. Discussions arisen on the operational aspects of TSOSA. The ICTP Executive Director, K.R. Sreenivasan was attending the TSOSA meeting. He recognized the importance of optics activities in ICTP. P. Chavel displayed the PPT presentation on the A. Guzman proposal for the optics programs at ICTP. Importance of the STEP sandwich program and mentorship program was stressed. At the TSOSA meeting 2008 will be discussed the next topic for Winter College 2009. Because of the unfortunate dismiss of G. Denardo in July the proposal was not additionally discussed. But it can guarantee the continuation of optics activities and links with ICTP. ICO has to recommend to J. Niemela to pursue this action. A. Consortini mentioned that ICO has a great responsibility for the proposed activities. ICTP is looking for permanent position for optics activities but it is not at the present date totally confirmed. A. Wagué indicated that there must be a wider group of representative to discuss and inform to J. Niemela, or example, needing some representative from African regions. He indicated his availability to participate also as ICO representative. G. von Bally pointed out that next TSOSA meeting will be at the Winter College 2008 and this issue should be discussed. A. Guzman as ICO representative will contact J. Niemela for details on future activities. P. Chavel proposal: “To appoint A. Guzman to coordinate preliminary discussion among TSOSA members based on previous discussions in February 2007 (P. Chavel to provide the file with whole text)”. Motion: P. Chavel first, G. F. Jin second. Unanimously approved. A. Consortini suggested to inform ICTP by sending a letter to the Executive Director (**Action 07/15**, Friberg).

### **10b) Winter College 2008**

The forthcoming Winter College will be held on 11-22 February, 2008, with the topic: Micro and Nanophotonics for Life Science. ICO may contact the organizers and directors for the

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<sup>12</sup> Document available at: <http://www.ico-optics.org/observer.html>

organization of a special session dedicated to the memory of G. Denardo. (**Action 07/16**, von Bally).

## 11. - Administrative business

M.L. Calvo reported on the various items

### 11a) ICO Newsletter

An agreement has to be signed for another one year with IoPP, for the printing of the ICO NL. Motion: R. Dändliker, first, G. Sincerbox, second. Approved  
There must be open a new bid for 2010, preferably in January 2009.

### 11b) ICO web site

There is a need of volunteers support in search of improvements on the current design. Those interested may contact ICO Secretariat.

### 11c) Green Book "Toward ICO-21"

ICO Secretariat needed the participation of ICO Bureau members with articles sent not later than April 1, 2008, as a deadline. The Agenda and Budget to be approved by the General Assembly in Sydney (July 2008) has to be included on due time.

## 12.- Other business

It was received a documents with various proposals from A. Guzman regarding the current calls for the three ICO Awards.

A. Consortini indicated that in the case of the ICO/ICTP Award there was a major reason for the current calendar to assure attendance of the awardees to Winter College just to assure that the prize is properly delivered. Some objections are correct regarding the technical contents.

I. Yamaguchi informed that Galileo Galilei Award Committee discussed more precise parameters. Rotation according to geographical distribution is not applied. The work of the Committees is confidential and it is always respected.

No further business to be considered.

Meeting ends at 1:13 PM.



*The ICO Bureau and delegates at the gate of University of Cape Coast, November 19, 2007*



*Ari Friberg, ICO President, in unstable equilibrium during a excursion of the meeting.*

## ICO TREASURER'S REPORT, 2005-2008

The ICO Treasury operates on a cash basis using a fiscal year matching the calendar year. Because the Green Book goes to press early, reported here are the actual expenses for the period ending August 1, 2006. An update will be presented at the time of the ICO-21 Congress in Sydney, Australia.

The income for the ICO during any three-year period is comprised about US\$ 100,000 from territorial dues, US\$ 3,300 from interested and US\$ 2,000 from book royalties. As for 1 August 2006, the cash reserves are US\$ 182,294.

Dues in arrears have increased slightly to US\$ 15,900. Much of this, US\$ 9,000, is due to five territories being more than four years in arrears. Resolving this situation will continue to receive priority attention in next triennium.

The reserves continue to remain at a high level and now exceed the cost of operation of a single triennium. While it is prudent to maintain a reserve, the ICO Bureau recognizes that funds are available to support new ventures and/or augment current programs. This is reflected in the new budget for the period 2008-2011 where it is proposed that expenses exceed income by approximately US\$ 23,200. Even at this increased rate of spending, it is estimated that, with inflation, a balanced budget will not be required for approximately 15 years. ICO is now studying the possibility of admitting donations. For this purpose a new status of the account will be required.

## BALANCE SHEET – 1 AUGUST 2006

### ASSETS

#### Current Assets

##### Checking/Saving

Bank of America - checking	\$15,533
Bank of America - Money Market	\$114,365
French Account (converted 08/29/06, as of 08/01/06)	\$6,946
<b>Total Checking/Saving</b>	<b>\$136,844</b>

##### Accounts Receivable

Accounts Receivable (current year dues)	\$29,550
Dues in arrears	\$15,900
Loans and grants due	\$12,000
<b>Total Accounts Receivable</b>	<b>\$45,450</b>

### **TOTAL ASSETS**

**\$182,294**

### LIABILITIES AND EQUITY

#### Liability

Meeting/School Support	\$4,000
Prizes/Awards/Prize travel	\$2,000
Expense reimbursement	\$10,090
Newsletter distribution	\$1,556
<b>Total Liability</b>	<b>\$17,646</b>

#### Equity

Retained Earnings	\$164,648
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#### Total Equity

\$164,648

### **TOTAL LIABILITIES AND EQUITY**

**\$182,294**

## INTERIM REPORT OF THE INTERNATIONAL COMMISSION FOR OPTICS NOMINATING COMMITTEE 2008 ICO BUREAU ELECTIONS

According to established procedures, elections for members of the ICO Bureau occur every 3 years and will take place this year at the ICO-21 Congress, “Optics for the 21st Century” to be held 7-10 July 2008 in Sydney, Australia. The procedures and protocols for the election are as described in the ICO Rules and Codes of Practice.

For the upcoming election the Nominating Committee consists of René Dändliker (Switzerland, Chair), Anna Consortini (Italy) Asher Friesem (Israel), and Rajpal Sirohi (India).

According to ICO rules letters have been sent to the territorial committees in 2004 and 2005 asking for nominations to be received by February 29, 2008.

As of this date, April 5, 2008, the following nominations have been received and/or established by protocol, to wit:

Candidate for President - Prof. Maria L. Calvo (Spain)

Candidate for Secretary – Prof. Angela M. Guzman (Colombia)

Candidate for Associate Secretary – Prof. Gert Von Bally (Germany)

Candidate for Treasurer – Prof. James Harrington (USA)

Candidates for Vice President (those in industry are marked with an asterisk\*)

\*Please note that the Bureau is required to have two Vice Presidents members from industry.

Prof. Yasuhiko Arakawa (Japan)

Prof. Sergei N. Bagayev (Russia)

Dr. Jianlin Cao (China)

Prof. Zohra Ben Lakhdar (Tunisia)

Dr. Hervé Lefevre\* (France)

Dr. Fernando Mendoza Santoyo (Mexico)

Prof. Duncan T. Moore (USA)

Dr. Moshe Oron\* (Israel)

Prof. Rajpal S. Sirohi (India)

Prof. Tomasz Szoplik (Poland)

Prof. Ionel Valentin Vlad (Romania)

Present Vice Presidents eligible for a second term are:

Prof. Sergei N. Bagayev (Russia)

Prof. John Love (Australia)

Dr. Hervé Lefevre\* (France)

#### Past President

The position of Past President for the term 2008 – 2011 will be automatically assumed by the current President, Ari Friberg (Finland)

To these in the Bureau composition will be individuals designated as Vice President by the member societies.

However, it should be remembered that nominations for all positions/officers close 24 hours before the second business meeting of the International Commission for Optics General Assembly in Sydney.

The election activities will take place as indicated during the ICO General Assembly-I sessions scheduled for 16:00-18:00 hours July 7, 2008, while the second and final ICO General Assembly-II is scheduled for 16:30 to 18:30 hours July 9, 2008.

Additionally, during the immediate future the Nominating Committee will be collecting endorsements of candidates from the various territorial members and CVs.

#### ***Professor René Dändliker***

*International Commission for Optics Past President*

*Chairman, ICO Nominating Committee*

## REPORT OF THE TRAVELLING LECTURER COMMITTEE

This is a report of the Travelling Lecturer committee covering the period October 1, 2005 to April 1, 2008. During this period we have supported the following five lecturers:

- Prof. Mauro Pereira, Sheffield Hallam University, UK, to visit Ukraine in June/July 2006. Prof. Pereira lectured at the Kharkiv National University (KhNU) and Kharkov University of National Electronics (KhNURE)
- Dr. Víctor Fájér, Center of Technological Applications and Nuclear Development, La Havana (Cuba), to visit Mexico in August/September 2006. The visit included the Federal District and the Sinaloa and Yucatán states: Center of Applied Sciences and Technological Development (CCADET), the Center of Aquiculture and Environment Management (CIAD), Mazatlán Unity, and the Research Centre of Advanced Studies of National Polytechnic Institute, Mérida Unity.
- Dr. Héctor Rabal, University of La Plata (UNLP), Argentina, to visit Brazil in December 2006. The visited included the Federal University of Lavras (UFLA), Minas Gerais State, the University of Campinas and the University of Sao Paulo.

The budget for the Travelling Lecturer program for this 3-year period was US\$ 5,000 and has been fully utilized. There is an additional amount of US\$ 1,322 that can be applied to this program. This money comes from royalties derived from the ICO book(s).

The ICO Travelling Lecturer program still has very few applicants. It would be better for the program if the selection process were a little more competitive. This, to a very large extent, is due to the lack of familiarity with the program within the optics community. We need to do a better job of identifying potential lecturers and/or identifying developing territories that can serve as hosts. Both require more intensive advertising on our part and promoting better awareness. Perhaps we can use the ICTP to reach potential host territories by the distribution of a flyer to attendees at the Winter College in Optics. We must be somewhat careful as our limited budget may result in too many rejections and subsequent loss of interest.

## ICO TRAVELLING LECTURER PROGRAM

### PHYSICS AND OPTICS IN UKRAINE

### A BRILLIANT PAST AND A CHALLENGING FUTURE

The 8th International Conference on Laser and Fibre-Optical Networks Modelling was held at Kharkiv National University (KhNU) and Kharkov University of National Electronics (KhNURE) Ukraine, on June 29 - July 1, 2006 with about 140 papers presented among plenary sessions, invited papers, oral and poster communications. At the occasion of this workshop, Prof. Mauro Pereira gave an invited talk and a longer introductory lecture on advanced microscopic methods applied to designing new materials and structures for optical devices. He visited teaching, research and industrial labs and had meetings with key scientists in Kharkov discussing possible topics and mechanisms for future collaboration. KhNURE is among the oldest and most widely recognized universities in Eastern Europe. Since its foundation in 1804, over 100,000 students graduated and hosted three Nobel Prize Laureates: L. Landau, I. Mechnikov and S. Kuznets. Its current enrolls 12,000 students and employs 2,000 lecturers, including 200 full Professors with Habilitation (Dr. Degree) and over 1,000 Professors with a PhD (candidate degree). However the future of Education and Research in Ukraine is facing some uncertainty, since a typical Prof. salary is around \$200 a month and costs in Ukraine keep rising. KhNURE was set up in 1930, and regardless of all difficulties as mentioned above it struggles to keep good educational standards and as seen in the photos selected, some of its laboratories have joint projects with the industry, e.g. ceramic cylinder construction for printing and digital patterns for printing (cooperation with BASF) and commercial laser engraving in different types of materials. Of particular interest is the theoretical modelling being developed at the Photonics Laboratory. New concepts for optoelectronic materials are being developed in collaboration with the University of Guanajuato in Mexico and the LEOS Student Chapter has developed an interesting interactive teaching software suite for basic photonics studies. The main difficulty to be addressed at present for immediate progress is access to electronic journals. In summary, there is potential for future contributions to optics in Kharkov.



*Lecture Presentation at LFNM 2006  
by Prof. Mauro F. Pereira, Sheffield  
Hallam University, UK.*

International collaboration and partnerships should be supported.

The ICO Travelling Lecture Program is devoted to the support of visiting scientists to lecture in scientific and academical institutions out of their country of origin and to enhance mutual international cooperation.

The Chair of the ICO Travelling Lecture Program is Prof. Alexander A. Sawchuk (USC, USA). Scientists or host

groups interested in participating in this program should send a letter of application by e-mail to Prof. A. Sawchuk with details of the proposed lecture program and ICO

support requested: ico-treasurer@sipi.usc.edu. Official letters of invitation from the local



institutions or research centres are also required along with a tentative calendar of activities supported by the host institution.

Application forms can be downloaded from: <http://www.ico-optics.org/travlecture.html>

## ICO TRAVELLING LECTURER PROGRAM REPORT

### A FRUITFUL VISIT TO MEXICAN INSTITUTIONS

From August 19 to September 9, 2006, Dr. Víctor Fájér, a researcher from the Center of Technological Applications and Nuclear Development, La Havana (Cuba) performed a visit to different Mexican institutions under the ICO Travelling Lecturer Program. These institutions have shown an interest on the current development of laser systems and its applications with analytical purposes constructed in Cuba. The visit included the Federal District and the Sinaloa and Yucatán states. The performed conferences were oriented to design aspects, development of optical instruments and its applications and to promote the collaboration in the region.

The first lecture entitled "New developments of laser polarimeters and its applications" was given in the Center of Applied Sciences and Technological Development (CCADET) receiving the valuable collaboration of Dr. Roberto Ortega. During the visit exchanges with researchers and visit to the laboratories took place. This institution, belonging to the National Autonomous Metropolitan University of México (UNAM), is oriented to the development of methods and techniques employing optics, electronics and mechanics. It has an infrastructure of optical laboratories which allow to perform experimental studies of non linear optics, optical fibers and other topics connected with lasers.



*Victor Fájér at the Laboratory of Chromatography, Center of Aquiculture and Environment Management (CIAD), Mazatlán (Mexico) with researcher I. Martínez-Rodríguez*

The next visit took place in the Center of Aquiculture and Environment Management (CIAD), Mazatlán Unity. In it the seminar "Polarimetric and chromatographic techniques employing lasers for vegetable extracts", was delivered oriented mainly to potential users of the laser systems and to promote different applications. This visit was performed with the collaboration of the director of the Center, Dr. María Cristina Chávez. He visited the analytical laboratory, which has good chromatographic equipments. As a result, an agreement was made in order to promote these techniques in similar units like the Culiacán one which analyzes agricultural products.

The third exchange was realized in the Research Centre of Advanced Studies of National Polytechnic Institute, Mérida Unity, organized by Dr. Rodrigo Patiño. Various visits to different laboratories including those belonging to the Applied Physics Department took place as well. This department was opened in 1987 and at present has 28 lecturers belonging to the National Research System. Its research areas include

corrosion, electrochemistry, physics, and chemistry of materials, condensed matter, complex systems, statistics, non linear physics, elementary particle physics and life matter among others. It was devolved a seminar entitled "Design criteria of automatic polarimeters. Influence of the spectral bandwidth in the polarimetric measurements" in the same there was an active participation of researchers, technicians and students from the Mérida CINESTAV.

During the meeting there were identified collaboration interests for the application of laser systems which could be attended by the performance of a Collaboration Agreement between the Mérida CINESTAV and the Center of Technological Applications and Nuclear Development of Cuba.

All the above mentioned institutions showed their interest in the promotion of the applications and developments of laser systems in the Latin-American region.



## **ARGENTINEAN SCIENTIST VISITS BRAZILIAN RESEARCH CENTRES UNDER THE ICO TRAVELLING LECTURER PROGRAM**

Between December 9 and 23, 2006, Dr. Héctor Rabal visited several research centres in Brazil under the ICO Travelling Lecturer Program auspices: Federal University of Lavras, University of Campinas and Sao Paulo University.



*Dr. Rabal delivering one of the lectures at the Department of Physics of the University of Sao Paulo.*

Dr. Rabal is a fellow of the National Council of Science and Technology (CONICET) and professor at the University of La Plata (UNLP), Argentina and is currently the Argentinean representative at ICO.

In the Federal University of Lavras (UFLA), Minas Gerais State, he delivered a series of talks on different topics on Fourier optics including Digital Speckle Patterns Interferometry (DSPI) and Dynamic Speckle methods and applications that were grouped into a brief course for engineering and science of computing students. He also had the opportunity to maintain several talks with students that were preparing their graduation and post-graduation works on dynamic speckle applications. Also, the administrative tasks related with the edition of a book on Dynamic Speckle were performed with Dr. Roberto Alves Braga Jr, who rules together with Dr. Giovanni Rabelo the Laboratory of Laser and Optics. In this laboratory several experiments are conducted that use dynamic speckle phenomena related to concrete applications to Biomedicine and Environmental Science.

At the University of Campinas he participated in the meeting organized by the Brazilian Local Territorial Committee of Optics. It was coordinated by Dr. Jaime Frejlich and was devoted to the organization of the forthcoming Ibero-American Conference on Optics (RIO) and Latin-American meeting on Optics, Lasers and Applications (OPTILAS) (VI Reunión Iberoamericana de Óptica (VI RIO) y IX Encuentro Latinoamericano de Óptica, Láseres y sus Aplicaciones (IX OPTILAS)) to be held at that place next October 21 to 26, 2007. He also maintained talks with Dr. Dal Fabbro and other local researchers on several common interests concerning dynamic speckle and moiré.

In the University of Sao Paulo, Dr. Rabal was received by Dr. M. Muramatsu, head of the Optics Laboratory. Here he delivered a talk on “Dynamic Speckle: Fundamentals and applications” at the Physics Department. He also assisted to a very interesting interdisciplinary meeting of members of the group of optics with personnel of the Hearsh Institute (Instituto do Coração – InCor) and participated in an actual application to the monitoring of the cicatrization process of Low Power Laser Therapy, using laser speckle techniques. Many fruitful talks were held with Dr. M. Muramatsu, Dr. Armando Tavares (National University of Rio de Janeiro), Dr Walter Pontuschka and with several enthusiastic students on dynamic speckle characterization tools, on optics measurement instruments, on didactical experiments for the teaching of optics, in particular on image formation and hand drawn holograms.

A visit was done to a workshop of Teaching Laboratory, coordinate by MSc. Claudio Furukawa, demonstrating many interesting devices about Optics, Thermodynamics, Mechanics, to undergraduate students.

Dr. Rabal was very grateful to the warm hospitality and interest that he received in the mentioned centres. Several contacts were established for continuation of the interaction.

**Héctor Rabal.**

## TRIENNIAL REPORT OF THE ICO PRIZE COMMITTEE

### 1) Introduction

ICO has established in 1982 the ICO Prize, to be given each year to an individual who has made a noteworthy contribution to optics, published submitted for publication before he or she has reached the age of 40. (Specifically, the Prize winner must not have reached the age of 40 before December 31 of the year for which the Prize is awarded). The character of the work of successive Prize recipients should preferably alternate between predominantly experimental or technological and predominantly theoretical. The "noteworthy" contribution in optics is measured chiefly by its impact (past or possibly future) on the field of optics generally, opening a subfield or significantly expanding an established subfield in research or technology.

The award winners to this date are:

- 1982 Antoine Labeyrie, France
- 1983 James R. Fienup, USA
- 1984 J. Christopher Dainty, U.K.
- 1985 Sergei I. Stepanov, USSR
- 1986 Kensuke Ikeda, Japan
- 1987 Alain Aspect, France
- 1988 no prize bore the number of the year 1988. The 1988 prize was changed to 1989 in order to coincide with the year of the award
- 1989 Demetri Psaltis, USA
- 1990 Rosario Martinez-Herrero, Spain
- 1991 David A.B. Miller, U.K. and USA
- 1992 Wolfgang Peter Schleich, Germany
- 1993 Aleksander K. Rebane, Estonia
- 1994 Emmanuel Desurvire, France
- 1995 Tony F. Heinz, USA
- 1996 Vladimir Buzek, Slovakia
- 1997 Andrew M. Weiner, USA
- 1998 David Mendlovic, Israel and Haldun Ozaktas, Turkey
- 1999 Hugo Thienpont, Belgium
- 2000 Stefan W. Hell, Germany
- 2001 Nabeel A. Riza, Pakistan and USA
- 2002 Prize not accorded
- 2003 Benjamin J. Eggleton, Australia
- 2004 Ashok V. Krishnamoorthy, India
- 2005 Immanuel Bloch, Germany
- 2006 Hideyuki Sotobayashi, Japan
- 2007 Susana Marcos, Spain

The present ICO Prize Committee, chaired by Dr. Byoung Yoon Kim, is now in the process of selection from nominations for the 2008 prize, whose winner will be announced at ICO-21.

## 2) **Rules and Form:**

The Prize includes:

- a citation,
- a cash award of an amount established in the triennial budget of ICO, and the invitation to present an invited paper and receive the award at the next ICO Congress or another ICO meeting mutually agreed to by the bureau and the award winner.

Every year, the ICO Prize Committee issues a call for nominations that is published in the ICO Newsletter, receives the nominations and selects the recipients for approval by the Bureau at its next meeting. The award needs not be made each year if the Prize Committee so chooses. The Prize is preferably given to an individual, but it can be shared by two persons. Eligibility for the Prize is not excluded by previous prizes awarded to the individual. The selected Prize winner is then announced in the ICO Newsletter and, as appropriate, in one or more optics journals. The prize will be presented at the next appropriate major ICO meeting and the Prize winner will be expected to deliver an invited talk at that Meeting.

### **Additional general information about the ICO Prize:**

The cash award presently carries an amount of US\$2000 and US\$1000 for travel expenses. In addition to the rules adopted by ICO, the Carl Zeiss foundation has generously agreed to donate an Ernst Abbe medal to the winner.



The formal rules of the ICO Prize are found in section 9 of the Rules and Codes of Practice in this booklet.

## 3) **Award nomination form:**

<http://www.ico-optics.org/awards.html>

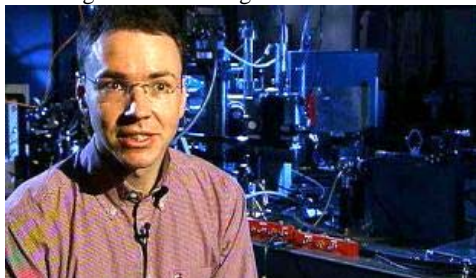
## 4) **ICO 2005, 2006, 2007 Prize winners**

### a) **2005 ICO Prize: Immanuel Bloch**

The proposal of the ICO Prize Committee for this year, celebrating the World Year of Physics, has been to deliver it to Dr. Immanuel Bloch from the Johannes Gutenberg-University of Mainz, Germany. This proposal was unanimously approved by the ICO Bureau held in Changchun (China) last August. The award citation reads: "The ICO

Prize for the year 2005 is given to Dr. Immanuel Bloch in recognition of his outstanding contributions in the areas of condensed matter physics, quantum optics, quantum information and atomic and molecular physics. These achievements were done as a researcher younger than 40 years old".

Immanuel Bloch (33) is full professor of physics at the Johannes Gutenberg-University of Mainz, Germany. His research interests include the investigation of ultracold bosonic and fermionic quantum gases, with special attention to applications in the field of condensed matter physics, quantum optics, quantum information and atomic and molecular physics. His recent research has focused on exploring ultracold quantum gases in artificial periodic potentials formed by laser light, so called optical lattices. Such optical lattices create a potential landscape of hundreds of thousands of small optical tweezers like microtraps, in which the atomic gases can be trapped. Among the research highlights of Immanuel Bloch are the first experimental observation of a quantum phase transition from a superfluid to a Mott insulating state of matter, the observation of collapse and revivals of the macroscopic quantum field of a Bose-Einstein condensate (BEC) and the realization of collisional quantum gates for large scale entanglement and quantum information purposes. Very recently his group was able to establish Hanbury Brown & Twiss type noise correlation techniques for the detection of strongly correlated many body quantum phases of ultracold atoms in periodic potentials (*Nature*, 2005). Immanuel Bloch studied physics at the University of Bonn, with a subsequent research visit to Stanford University. He received his PhD from the Ludwig-Maximilians-University in Munich for his work on atom lasers and phase coherence properties of atomic BEC in the group of Theodor W. Hänsch. Subsequently, he became junior group leader for ultracold quantum gases at the Max-Planck-Institute for Quantum Optics, Garching and the Ludwig-Maximilians University in the same group.



*Immanuel Bloch, a professor of physics at the Johannes Gutenberg-University in Mainz, Germany. ICO Prize 2005, celebrating the World Year of Physics.*

Since October 2003, at just 31 years of age, he was appointed to full professorship of physics (C4) at the Johannes Gutenberg-University in Mainz, Germany.

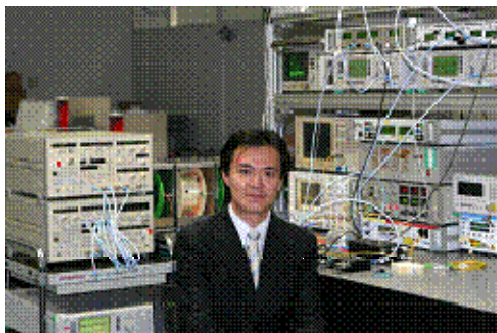
He has received several prizes for his research activities, among them the Otto-Hahn medal of the Max-Planck society (2002), the Rudolf-Kaiser prize (2003) recognizing his work on ultra-cold quantum gases and the 2005 Gottfried-Wilhelm-Leibniz prize of the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation), considered

the most valuable prize in German research.

#### **b) 2006 ICO Prize: Hideyuki Sotobayashi**

The proposal of the ICO Prize Committee for the year 2006 has been to deliver it to Dr. Hideyuki Sotobayashi, a Senior Researcher at the Advanced Communications Technology Group, National Institute of Information and Communications Technology (NICT) in Japan. This proposal was unanimously approved by the ICO Bureau held in Saint Petersburg (Russia) last September 2006. The award citation reads: "The ICO Prize for the year 2006 is given to Dr. Hideyuki Sotobayashi in recognition of his outstanding contributions in the areas of optics communications, optical fibre technologies and new photonic devices. These achievements were done as a researcher younger than 40 years old (as per December 31, 2006)".

Hideyuki Sotobayashi received his PhD in electrical engineering in 1997 at the University of Tokyo. He then was engaged as an attached researcher at the NICT and is currently a senior scientist in the same institution inside the Advanced Communications Technology Group in Tokyo (Japan). Also, he is a researcher affiliated at the Research Laboratory of Electronics, Massachusetts Institute of Technology (MIT), United States of America. His research interests include fibre lasers, highly nonlinear optical fibers for supercontinuum generation,



*Dr. Hideyuki Sotobayashi, a senior scientist at the National Institute of Information and Communications Technology (NICT) from Japan and recipient of ICO Prize 2006 and Ernst Abbe medal, on his laboratory at NICT*

nano-scale photonic crystal microcavities, broad-band optical amplifiers based upon optical fibers, optical code division multiplexing (OCDM) transmission systems and ultrafast hierarchical hybrid OCDM/Wavelength Demultiplexing (WDM) photonic devices. Among these research activities and achievements, one should mention that in 2002 Hideyuki Sotobayashi and two other collaborators in Japan were proposing a photonic gateway performing the bilateral conversion and reconversion of multiplexing format and operating at 40-Gb/s (4/spl times/10 Gb/s). The optical OCDM-to-WDM conversion and WDMO-to-CDM reconversion was experimentally demonstrated for the first time. The experimental scheme was based upon ultrafast photonic processing both in the time domain and frequency domain, namely, optical encoding/decoding along with optical time-gating in the time domain and supercontinuum generation followed by spectrum slicing in the frequency domain. Thus, they were demonstrating the feasibility of ultra-high-speed operation features in photonic networks. Moreover, Hideyuki Sotobayashi has reviewed the very current photonics devices for redesigning with simplified configurations. Thus, he has significantly contributed to improve the performances of key technologies for hierarchical Optical Time Domain (OTDM)/WDM multiplexing format conversions, and OTDM wavelength-band conversion networks.

Hideyuki Sotobayashi has authored or co-authored more than 60 peer reviewed articles in international journals. He has been invited to various international



conferences, has received many distinctions and awards, to mention for example the 1999 Young Engineer Award from the Institute of Electronic and Communication Engineers of Japan and the recent 2005 Young Scientist Award from the Ministry of Education, Culture, Sports, Science, and Technology of Japan. He holds one awarded patent. He is also very active in various professional societies in the area of optics, photonics and electrical engineering and has participated in many scientific committees and tutorials in the area of photonics and optics communications technologies in the recent past years.

With the contributions of Hideyuki Sotobatashi it is nowadays demonstrated that the optical transmission technologies are dramatically progressing. The future of photonic networks seems to be very promising and will allow performing routing and switching in the optical layer by use of ultrafast photonic processing.

### c) **2007 ICO Prize: Susana Marcos**

This year the ICO Prize goes to Susana Marcos, a professor of research at the Institute of Optics, Spanish National Research Council (CSIC), in Madrid, Spain. This proposal was unanimously approved by the ICO Bureau held in Accra (Ghana) last November 2007. The award citation reads: "The ICO Prize for the year 2007 is given to Prof. Susana Marcos in recognition of her outstanding contributions in the areas of visual optics and biophotonics. These achievements were done as a researcher younger than 40 years old".



*Susana Marcos, a Professor of Research at the Spanish National Research Council (CSIC), Madrid, Spain*

Susana Marcos (Salamanca, Spain, 1970) received her MS (1992) and PhD (1996) degrees in Physics from the University of Salamanca (Spain). She carried out her predoctoral research at the Instituto de Optica, Consejo Superior de Investigaciones Científicas (CSIC), Madrid, Spain, in the field of physiological optics, working on a novel technique to resolve the foveal cones in vivo. She was a Postdoctoral Research Fellow for three years at Stephen A. Burns' lab at the Schepens Eye Research Institute, Harvard University. She was recipient of a Fulbright Postdoctoral Fellowship and a Human Frontier Science Postdoctoral Fellowship.

Prof. Marcos is currently a Professor of Research, *Profesora de Investigación* (at the Instituto de Optica in Madrid (Spain)). She leads several research grants on visual optics and biophotonics, funded by national and international agencies, as well as international companies. She is the director of the Visual Optics and Biophotonics laboratory, and supervises currently the work of several Ph.D Students.

Susana Marcos has pioneered research in novel techniques to assess the optical properties of the ocular optics and the human retina. In particular she develops along

with her group at the CSIC Biophotonics Laboratory pioneering studies in optical aberrations and myopia, intraocular lenses evaluation and design, mono and multi-focal contact lenses, adaptive optics in vision, microscopic detection of ocular pathogens, among the most active research lines. She carries research as well on the design and development of new instruments as laser ray tracing, Hartmann-Shack wavefront sensor, Purkinje imaging system and Gradient index- LRT. She has published more than fifty peer-reviewed publications (with over twelve hundred citations), and has been invited to lecture in over one hundred international conferences and research centres. Her work has been recognized with several national and international awards, including the Adolph Lomb Medal, awarded by the Optical Society of America or the European Young Investigator Award (EURYI), from EURHORCS-ESF. Some of her findings have been reported in newspapers in Spain and United States of America.

Susana Marcos served as the Chair of the Applications of Visual Science Technical Group at the Optical Society of America, and is the current President of the Visual Sciences Committee at the Spanish Optical Society and an elected Fellow of the European Optical Society. She is a Topical Editor in Vision Research journal, has been member of the organizing committee in several international meetings and served in panels for several funding agencies and organizations.

## TRIENNIAL REPORT OF THE ICO GALILEO GALILEI COMMITTEE

### 1) Introduction

At the 1993 General Assembly of ICO, the International Commission for Optics established the ICO Galileo Galilei Award, to be given each year for outstanding contributions to the field of optics achieved under comparatively unfavourable circumstances. The award will normally be given to an individual. However, if a collective contribution is judged to be worthy of the award, a team of several persons may be selected.

The award winners to this date are:

- 1994 Ion N. Mihailescu, Romania.
- 1995 Rajpal S. Sirohi, India.
- 1996 Daniel Malacara, Mexico
- 1997 Natalyia D. Kundikova, Russia
- 1998 Ajoy K. Ghatak, India
- 1999 Mario Garavaglia, Argentina
- 2000 Vladimir P. Lukin, Russia
- 2001 Kehar Singh, India
- 2002 Rashid A. Ganeev, Uzbekistan
- 2003 Cid B. de Araujo, Brazil
- 2004 Milivoj Belic, Serbia and Montenegro, and Caesar Saloma, Philippines
- 2005 Valentin Ionel Vlad, Romania
- 2006 Mohammed M. Shabat, Palestine
- 2007 Oleg V. Angelsky, Ukraine

The present ICO Galileo Galilei Award Committee is chaired by Prof. Ichirou Yamaguchi. The Committee is established as part of the ICO Committee for Regional Development of Optics.

### 2) Rules and form

The Galileo Galilei medal of ICO is awarded for outstanding contributions to the field of optics which are achieved under comparatively unfavourable circumstances.

The outstanding contributions in the field of optics should refer to:

- fundamental scientific questions or problems, or
- research or development of optical methods or devices, or
- scientific or technical leadership in the establishment of regional optical centres.

"Comparatively unfavourable circumstances" refers to difficult economic or social conditions or lack of access to scientific or technical facilities or sources of information.

The outstanding contributions must be documented, if applicable, by internationally acknowledged publications. Exceptionally, reports can be considered, provided that they are made available to the Award Committee.

The award is normally given to one person. Exceptionally, however, if a collective contribution is judged to be worthy of the award a team of several persons may be selected.

Every year, the ICO Committee for the Regional Development of Optics issues a call for nominations that is published in the ICO Newsletter, receives the nominations and selects the winner for approval by the Bureau at its next meeting. The award need not be given every year if the Bureau so chooses.

The award consists of:

- a) the Galileo Galilei Medal,
- b) assistance in travel to present an invited paper and receive the award at the next ICO Congress or another ICO meeting mutually agreed to by the Bureau and the award winner,
- c) a cash donation
- d) special attention and appropriate measures of ICO to support the future activities of the award winner



The formal rules of the ICO Galileo Galilei award are found in section 10 of the Rules and Codes of Practice in this booklet.

Additional general information about the Galileo Galilei Award:

The Italian Society of Optics and Photonics, SIOF (Società Italiana di Ottica e Fotonica) has agreed to support ICO's initiative and donate the silver medal with the portrait of Galileo Galilei to be given to the recipient.

The Award contributes to one of the essential missions of the International Commission for Optics: recognize the promotion of Optics under difficult circumstances. The award was established by the 1993 General Assembly of ICO and has been awarded annually since 1994.

### 3) Award nomination form:

<http://www.ico-optics.org/awards.html>

### 4) ICO 2005, 2006 and 2007 award winners:

#### a) **2005 ICO Galileo Galilei award: Valentin Ionel Vlad**

Valentin Ionel Vlad graduated the Polytechnic Institute of Bucharest, Dept. of Electronics, in 1966 and obtained the scientific title of Doctor Eng. in the same Institute, in 1972, with a thesis on information processing in holography.

From 1966 to 1975 he was a researcher at the Institute of Atomic Physics Bucharest (IAPB), where he achieved in 1968 the first solid state laser in Romania (with G. Nemes). In 1969-70, he studied at the University of Paris (with Prof. M. Françon) and at CGE-Marcoussis. In 1975, he became chief of Holography Laboratory at the Department of Lasers, IAPB. In the period of 1977-89, he was a senior researcher at the Central Institute of Physics. During that time, he was also a visiting scientist at the Physical Institute "A.F.Ioffe" in St. Petersburg (with Profs. Yu. I. Ostrovski and M. P. Petrov) and at the Technical University Darmstadt (with Prof. T. Tschudi). Since 1990, he has been professor at the University of Bucharest, chief of the Nonlinear and Information Optics

Laboratory in IAPB-NILPRP, Department of Lasers and he is co-director of the Romanian Center of Excellence in Photonics (ROCEP). He has been visiting professor in



*Prof. Valentin I. Vlad*

various centres and universities: Chiba University (Japan, with Prof. J. Tsujiuchi) in 1991; Centro de Investigaciones en Óptica (Mexico, with Prof. D. Malacara) in 1992; Università “La Sapienza” di Roma, Dept. Energetics, with Prof. M. Bertolotti and Prof. E. Fazio, in 2001 and 2005. He was also invited, as a visiting researcher, to the USAF Laboratory in Hanscom (USA), in 1999. Additionally, he was active as an external collaborator at the Imperial College, Blackett Lab., in London, since 1991 (in a project with Prof. J. C. Dainty and Prof. M. Damzen) and at the Max-Planck-Institute for Quantum-Optics in Garching (in a collaboration with Prof. H. Walther), since 1994. In 1995, he became associate researcher at ICTP, Trieste (Italy) and in 2003, ICTP Senior associate. In 2001-2004, he was a project co-coordinator, with Prof. E. Fazio, in the frame of the Italian–Romanian Collaboration Agreement in R&D.

He has published more than 150 scientific papers in Romania and abroad, he took part in over 200 scientific communications at conferences and is the author or co-author of five books and editor of four SPIE “ROMOPTO” Proceedings. He holds four patents (one in USA).

Valentin Vlad has been the President of the Physics Commission of Romanian Consultative College for R&D in 1991-2002 and is Vice-president of Grant Commission of Romanian Academy, since 1994. He is also the National representative in the EU Network of Excellence FP6-PHOREMOST-NoE IST-2-511616 (on Nanophotonics) and in the EU-FP6 COST P8 Action of the European Union. Currently, he is the President of Div. Optics and Quantum Electronics of the Romanian Physical Society (also acting as ICO Territorial Committee). In 1991-1993, he was Vice-president of SPIE - Romanian Chapter. He is the chief-editor of the journals “Romanian Reports in Physics” and Proc. Romanian Academy: A, as well as a member of the editorial board of “Journal of Optics: A” (IoPP). Valentin Vlad received different awards for his work, including “T. Vuia” Award of the Romanian Academy in 1978. He was elected Fellow of the Optical Society of America in 1978; Member of the Romanian Academy (a lifetime position between 281 distinguished intellectuals of the country) since 1991 and Fellow of the Institute of Physics and Chartered Physicist, U.K., since 1999. In 2005, he was elected Member of Academia Europaea and has won the ICO Galileo Galilei Award 2005.

#### **b) 2006 ICO Galileo Galilei award: Mohammed M. Shabat**

For the year 2006 the recipient of the award is Prof. Mohammed M. Shabat from the Islamic University of Gaza (IUG), Gaza Strip (Palestine). The citation of the award reads: “For his outstanding scientific contributions in the area of theoretical and electromagnetic optics, which were accomplished under comparative unfavourable circumstances as defined on the award call and for his relevant work for the organization of optics and photonics activities in Palestine”.

Mohammed M. Shabat, was born in Beit Hanoun, Gaza Strip, Palestine in 1960. He received his B.Sc. in Physics from Al-Azhar University, Cairo, Egypt in 1984 and the Ph.D. degree from the University of Salford, U.K. in 1990. He was a Research Fellow at the University of Manchester Institute of Science and Technology, UK, from 1989 to 1992. In April 1992, he joined the IUG as an Assistant Professor of physics. The IUG is the first higher education institution to be established in Gaza Strip. The Faculty of Science at IUG is one of the pioneering faculties in Palestine. It is established to meet the needs of specialities and scientific research in different fields and to provide students with the latest ever-achieved in science and technology.



*Mohammed M. Shabat, a professor of physics of the Islamic University of Gaza, Gaza Strip (Palestine), has won the ICO Galileo Galilei Award 2006.*

In 1996 M. Shabat became an Associate Professor and a Professor of Physics in 2000. In the period 1993-1997, he was the Dean, Faculty of Science, and in the period 2001-2005, he was the Vice President for Administrative Affairs at IUG. He was awarded the Shoman Prize for a Young Arab Scientist (Jordan) in 1995, and the Humboldt Research Fellowships in 1998-99 at the Center of Semiconductor Technology and Optoelectronics, Duisburg-Essen University, Germany.

Since 1994 M. Shabat has been a visiting scientist in various institutes, universities and research laboratories: Bochum University, Germany; the Institute National Polytechnic de Grenoble, (INPG), France; Salford University, U.K; International Center for Theoretical Physics (CTP), Trieste, Italy and Duisburg-Essen University, Germany among the most significant to his carrier. He is currently visiting scientist in Max Planck Institute for the Physics of Complex Systems, Dresden, Germany. He has published more than 140 papers in international journals and presented many contributions at local and international conferences. His research

interests include non-linear optical sensor, optoelectronics, magneto static surface waves, numerical techniques, mesoscopic systems, energy physics, applied mathematics, nanotechnology and physics education.

Mohammed Shabat is very devoted to his students. He has supervised more than 20 postgraduate students (M.Sc and PhD) in physics and mathematics. Recently he has established a Palestinian Optical Society (POS). In relation to the development of new education programs he has been an active member of Scientific Committees for establishing new programs at IUG (Master program in mathematics, in physics, and in electrical engineering, BSc., programs in Computer Science, environmental sciences, and optometry). He was also a member of the Editorial Board of the IEEE Transaction on Magnetism from 1996-97.

Mohammed Shabat has been very active in the international projection of Palestinian science. In 1997, he became associate Member of the ICTP. He was member of Palestinian delegation to the 44th meeting of the International Atomic Energy Agency (IAEA), Vienna, Austria, September 2000. In 2003, he became a Senior member of IEEE (the Institute of Electrical and Electronic Engineer). In 2003, he also was selected member of the Steering Committee of World Renewable Energy Congress and World

Renewable Energy Networks, U.K. Prof. Shabat was elected in 2004 fellow of the Academy of Sciences for the Developing Countries (TWAS). He has been a committee member of the Shoman Prize for the Arab Young Researcher in 2006. He is member of the Palestinian Physical Society and the Palestinian Society for Mathematics and Computer Sciences. He is also a Fellow of Palestinian Academy of Sciences. He is member of the Palestinian National Committee of Ministry for Higher Education for Science, Technology and Research. Professor Shabat is the first scientist from the Arab World winning the Galileo Galilei Award since its establishment in 1993.

**c) 2007 ICO Galileo Galilei award: Oleg V. Angelsky**

In the ICO Bureau Meeting held in Accra, Ghana, on November 17 and 18, 2007 it was approved the proposal of the ICO Galileo Galilei Award Committee for the ICO Galileo Galilei Award 2007 to be presented to Prof. Oleg V. Angelsky of Chernivtsi University in Ukraine. The citation reads: "For his outstanding contributions in the field of optical correlation, speckle interferometry and holography in diffuse optical fields achieved under comparatively unfavourable conditions". The "comparatively unfavourable circumstances" refers to difficult economic or social conditions or lack of access to scientific or technical facilities or sources of information.

Prof. Angelsky, born on May 5, 1957 in Ukraine, is presently a Professor of a Correlation Optics Department of the Chernivtsi University. He is a PhD from Institute of Physics, Kiev, Ukraine (1983). After obtaining Dr. Sci. from Saratove State University, Russia in 1990, he became Professor of Chernivtsi University in 1991.



*Oleg V. Angelsky, a professor of Chernivtsi University, Chernivtsi, Ukraine, recipient of the ICO Galileo Galilei Award 2007*

In employment he was a post-graduate student of Chernivtsi State University in 1979-1982, Assistant Professor in 1979-1982, and Associate Professor in 1985-1988, of the Department of Optics of the same University. Since 1988 he is the Head of the Department of Correlation Optics, Chernivtsi State University. Since 1997 he is also Dean of the Engineering Faculty, Chernivtsi National University.

Oleg Angelsky main research areas of interest consist of rough surfaces characterization, fractal optics, holography, light scattering by random phase objects and singular optics on which he has published more than one hundred peer reviewed scientific articles and holds 18 patents.

As for his contributions to academic societies and professional activities he has chaired since 1993 the International Conferences series on "Holography, Correlation

Optics and Recording Materials" and "Correlation Optics" held bi-annually in Chernivtsi under the support of SPIE, ICO and EOS. This is an international meeting series in which scientists from many countries from all over the world usually take part as participants and lecturers.

Oleg Angelsky has been the Editor of various SPIE Proceedings for the above mentioned conferences. He was also Guest Editor of the special issue of Optical Engineering, volume 34, issue 4, 1995, entitled as "Optics in Ukraine".

Angelsky's academic and scientific merits have been recognized with various awards and honours as Fellow of the Institute of Physics (IoP, United Kingdom) (1999, 2004), chartered Physicist of IoP, (UK) (1999), chartered Scientist of IoP, (UK) (2005), elected Fellow of SPIE (2001) and OSA(2003). Moreover he is a Member of the Academy of Science of University of Ukraine (1997), recipient of the "Rozhdestvensky Russian Optical Society Medal", Russia (1995), recipient of the "Yaroslav Mudry Medal" of the Academy of Science of Universities of Ukraine (1998) and recipient of the title of Honoured Worker of Science and Engineering of Ukraine.

The main achievement of Prof. Angelsky during the period of serious economic problems in Ukraine (1990-2000) was the establishment and development of the Scientific School on Correlation Optics at the Department of Optics of Chernovtsi University.

The Galileo Galilei Award 2007 ceremony will be held during the year 2008 and it will be followed by the plenary lecture delivered by Oleg V. Angelsky in one of the ICO major conferences in that period. The related information will be publicized on due time in issues of the ICO Newsletter and ICO website.



## **TRIENNIAL REPORT OF THE ICO/ICTP GALLIENO DENARDO AWARD COMMITTEE**

### **1) Introduction**

ICO, the International Commission for Optics, and ICTP, the Abdus Salam International Centre for Theoretical Physics, Trieste, have agreed to establish a joint prize, called the ICO/ICTP Galliengo Denardo Award. It is reserved for young researchers from developing countries (as defined by the United Nations), who conduct their research in a developing country. The award will be given to scientists less than 40 years old (on December 31 of the year for which the award is given), who are active in research in Optics and have contributed to the promotion of research activities in Optics in their own or another developing country. While this web site has complete information, the following should be appropriate to prepare a nomination.

The award winners to this date are:

- 2000: Arbab Ali Khan (Pakistan)
- 2001: Arashmid Nahal (Iran) and Fernando Pérez Quintián (Argentina)
- 2002: Alphan Sennaroglu (Turkey)
- 2003: Robert Szpöcs (Hungary)
- 2004: Imrana Ashraf Zahid (Pakistan) and Revati Nitin Kulkarni (India)
- 2005: Sarun Sumriddetchkajorn, Thailand
- 2006: Héctor Manuel Moya Cessa, México
- 2007: Svetlana Boriskina, Ukraine
- 2008: Mourad Zghal, Tunisia

The present ICO/ICTP Galliengo Denardo Award Subcommittee, consisting of A. Wagué (Chair), A. Consortini (ICO), J. Niemela (ICTP) and M. Danailov (ICTP).

### **2) Rules and Form**

**Purpose:** It is reserved for young researchers from developing countries, who conduct their research in a developing country. The award will be given to scientists less than 40 years old (on December 31 of the year for which the award is given), who are active in research in Optics and have contributed to the promotion of research activities in Optics in their own or another developing country.

The award consists of the following:

1. The ICO gives a cash amount of US\$1000 and a diploma.
2. The ICTP invites the winner to attend a three weeks College at Trieste at the next appropriate opportunity, and to give a seminar on his/her work when appropriate. ICTP will pay for travel and living expenses. In February 2003, ICTP might to host an ICTP/ICO/OSA Winter College in Biophotonics.

**Periodicity:** The award will be delivered to the winner at Trieste in the presence of representatives of ICO and ICTP. The award is given to one person every year.

**Nominations:** The winner is selected on the basis of nominations received by the Award Committee in response to a call published by both ICO and ICTP. The nominations must be documented by a complete curriculum vitae including a list of

publications and selected reprints (no more than three) as well as a complete employment history and a description of the nominee's achievements for the promotion of research activity in developing countries.

The ICTP invites the winner to attend a three weeks College at Trieste at the next appropriate opportunity, and to give a seminar on his/her work when appropriate. ICTP will pay for travel and living expenses. In February 2009, ICTP will host an ICTP/ICO/OSA/SPIE/EOS/OWLS Winter College in "Optics in Environmental Science".

### 3) **Award nomination form:**

<http://www.ico-optics.org/awards.html>

### 4) **ICO/ICTP 2006, 2007, 2008 award winners**

#### a) **2006 ICO/ICTP award winner: Héctor Manuel Moya-Cessa**



*Dr.H.M. Moya-Cessa*

As every year and at the occasion of the Winter College celebrated at the ICTP, Trieste (Italy), the ceremony of the ICO/ICTP Award takes place. For the year 2006 the award has been accorded to Héctor Manuel Moya Cessa. Dr. Moya Cessa was born in Acayucán, Veracruz, México, in June 1966. He did the BSc in Universidad Autónoma Metropolitana in México City and then move to León, (State of Guanajuato), to the Centro de Investigaciones en Óptica where he did his MSc. In 1990 he went to London, England to study the PhD at Imperial College under the supervision of Professor Peter L. Knight. He graduated in 1993 and went back to Mexico to the Instituto Nacional de Astrofísica, Óptica y Electrónica, in Puebla, México, where he got a position as researcher, and where he has been working for the last 12 years, with two sabbatical periods, one in 1999 in Università di Camerino, Italy and in 2005-2006 in the University of Ulm, Germany.

His research is on atom-field interactions in high-Q cavities, where he has shown that reconstruction of quasi-probability distribution functions can be achieved in the case of a dissipative cavity. In ion-laser inter-actions he has shown that the problem may be treated in a complete analytic form, even in the case when micromotion is included. On these topics he has published over 50 articles. He is a member of the Mexican Academy of Sciences, a Fellow of the Alexander von Humboldt Foundation and a Regular Associate of the International Centre of Theoretical Physics.

Dr. Moya-Cessa has organized two international conferences, has been invited to present his work in more than ten international conferences and has been invited to deliver courses in Cuzco, Perú and Tucson, Arizona, USA. He was invited editor of the June 2004 issue of Journal of Optics B.

The ICO/ICTP Award Committee has recognized the merits of Dr. Moya-Cessa as a young scientist developing his major achievements in his country of origin considered a developing country as per the UN definition. Moreover, the merits are resumed his outstanding research activities on the foundation of Quantum Optics and for his

involvement in organizational activities aimed at diffusing the interest on Quantum Optics in Latin America.

**b) 2007 ICO/ICTP award winner: Svetlana Boriskina**

°The ICO/ICTP Prize is addressed to young researchers from developing countries (as defined by the United Nations), who conduct their research in these countries. The award is delivered to scientists less than 40 years old (on December 31 of the year for which the award is given), who are active in research in Optics and have contributed to the promotion of research activities in Optics in their own or another developing country. For the year 2007 the Prize has been accorded to Dr. Svetlana V. Boriskina, from the School of Radiophysics, V. Karazin Kharkov National University, Kharkov – Ukraine. The citation of the Prize reads: “The prize is assigned for her original work in the development of numerical modelling techniques for optoelectronic devices, micro-optical resonators, dielectric lenses and waveguides and for her active commitment aimed at the diffusion of research in optics in Ukraine”.



*Dr. Boriskina, a senior research scientist at the V. Karazin Kharkov National University, Ukraine*

Svetlana Boriskina received the M.Sc. (hons.) and Ph.D. degrees in Radio-physics from V. Karazin Kharkov National University (KNU), Kharkov, Ukraine, in 1995 and 1999, respectively. From 2000 to 2005 she worked in the School of Electrical and Electronic Engineering at the University of Nottingham, Nottingham, UK, first as a Postdoctoral Fellow, and then as a Research Fellow. In 2005 she returned to KNU and is currently working there as a Senior Research Scientist. In 1990s, Dr. Boriskina's research at KNU was focused on developing rigorous analytical

methods and advanced software tools based on boundary integral equation techniques. These tools were initially applied to modelling reflector antennas and narrow-band dielectric waveguide filters. Later on, Svetlana's research interests shifted to the field of optics and photonics, and now include micro- & nano-photonics and plasmonics.

During the last two years, Dr. Boriskina has established an original research program in micro and nano-photonics at KNU. Her on-going research is focused on the development of theoretical framework and software tools for the spectral design and modelling of photonic and plasmonic micro and nano-structures, both ordered and disordered. The results of this research hold high promise for improving performance of existing and creating novel photonic devices, such as low-threshold semiconductor microlasers, wavelength-selective optical filters and temperature-sensitive switches, near-field imaging systems and bio(chemical) sensors. A new innovative lecture course “Electromagnetic Theory on Micro- and Nano-Scale” that Svetlana developed based on her research has been awarded with a 2006 SPIE Educational Grant. Svetlana is also supervising several graduate and undergraduate student projects.

Dr. Boriskina authored the order of 90 journal and conference publications, and coordinated or participated in several international research projects. She has made numerous regular and invited talks at major international conferences and taught tutorials

at Ukrainian seminars for young researchers. She is the Organizer of the Special Session on Micro-resonators and Photonic Molecules at the International Conference on Transparent Optical Networks (ICTON, [www.itl.waw.pl/icton](http://www.itl.waw.pl/icton)). Dr. Boriskina is also active in conducting various youth optics education outreach activities, including adaptation of optics educational materials to non-English speaking audiences and organizing outreach events for grade-school and university students. She was a founder of Student Chapters of OSA and SPIE at KNU (<http://www-radiophys.univer.kharkov.ua/theor/OSA/>) and now serves as the chapters Faculty Advisor. Among the chapter activities in 2006 was organization of a Young Researchers Career Development Workshop in Kharkov, which was partially supported by ICTP and brought together student chapters not only from various regions of Ukraine, but also from USA and Australia.

Dr. Boriskina has been awarded SUMMA Foundation Graduate Fellowship in Advanced Electromagnetics, IEEE MTT Society Graduate Student Scholarship, Royal Society/NATO Postdoctoral Fellowship, ISSEP Foundation Scholarships, and numerous travel grants to attend topical meetings. Svetlana is a Senior Member of the Institute of Electrical and Electronic Engineers (IEEE), a Member of the Optical Society of America (OSA), and a Member of the International Society for Optical Engineering (SPIE).

Svetlana Boriskina received the diploma and cash award on a special ceremony at the occasion of the Winter College of Fibre Optics, Fibre Lasers and Sensors, held at the "Abdus Salam" International Center for Theoretical Physics (ICTP), Trieste, Italy on February 14, 2007. She was delivering the invited ICO/ICTP Award Lecture on: "Scattering theory and modelling of light propagation in nano-photonic devices based upon boundary integral equations (BIE)".

#### **c) 2008 ICO/ICTP Gallieno Denardo award winner: Mourad Zghal**

The ICO/ICTP Gallieno Denardo Prize is addressed to young researchers from developing countries (as defined by the United Nations), who conduct their research in these countries. The award is delivered to scientists less than 40 years old (on December 31 of the year for which the award is given), who are active in research in Optics and have contributed to the promotion of research activities in Optics in their own or another developing country. For the year 2008 the Prize has been accorded to Dr. Mourad Zghal, from the *École Supérieure des Telecommunications de Tunis*, Tunisia. The citation of the Prize reads: "The prize is assigned for "his original work in the development of numerical modelling techniques for photonic crystal fibers, microstructured optical fibers, polarization and for his active commitment aimed at the diffusion of research in optics in Africa."



*Dr. Mourad Zghal*

Starting from this year, the ICO/ICTP Award is named in memory of Gallieno Denardo, who was in charge of optics activities at ICTP for more than twenty years.

Mourad Zghal received in 1995 his B.S. degree in communication engineering from the Engineering School of Communications of Tunis (Sup'Com) Tunisia. He has received his M.Sc and Ph.D degrees in electrical engineering from the National Engineering School of Tunis, in 1996 and 2000, respectively. During his PhD, he

developed a sensor based on the Tunable Diode Laser Absorption Spectroscopy technique (TDLAS) for the detection of pollutants. The results obtained have shown a potential use of this system to measure methane concentration in urban atmosphere. From 1995 to 2001, he worked as a senior engineer at the technical institute of telecommunications of Tunis. He then joined the electrical engineering department of the National Engineering School of Tunis, where he started to investigate modelling and characterization of new generation optical fibre such as photonic crystal fibers. Since 2003, he has been a faculty member of the electronics and physics department of Sup'Com, which is the leading engineering school dedicated to Information and Communication Technologies (ICT), in Tunisia and as a particularly dynamic stage in Africa.

Sup'Com (Univ. of 7th of November at Carthage) meets the cutting-edge of technological advances and has attracted outstanding faculty members and exceptional students from around the country, offering B.S., M.Sc and Ph.D degrees as well as M.Sc programs for continuing education. The comprehensive undergraduate curriculum encompasses basic science, engineering and lab experiments, as well as exposure to the humanities, and social sciences to teach students how to create, protect and manage technology with regard for ethics, human values and social benefits. The Master and PhD programs are designed to educate and train future leaders in the high-tech engineering system, to serve as a model to broaden particularly the communication engineering science and manufacturing, and to expand the scope and practice of high-tech engineering.

Dr. Zghal's research is carried out at the "circuits and advanced techniques for communication systems" laboratory at Sup'Com, where he founded and is in charge of the "new photonic devices for all optical network" group. His present research topics include theory, design, modelling and characterization of functional optical components including photonic crystal fibers, PMD compensators, fibre delay lines, and photonic crystal-based devices. Dr. Zghal is author and co-authors of more than 70 publications and international communications. He also served at numerous program or steering committees of international scientific meetings.

In addition to his research activities, Dr. Zghal has demonstrated sustained teaching excellence over a period of more than ten years with 34 undergraduate and 14 postgraduate (Ph.D. and MsC) projects. Dr. Zghal's lecturing fields include propagation and electromagnetism, optoelectronics, optical communication and systems, optical networks. He has been extremely active in promoting within Tunisia training and research in photonics and optical communications, by proposing curricula, teaching courses and by supervising undergraduate and graduate students. He was also able to establish several international research collaborations, and take part in the organization of international meetings. He is the founder and treasurer of the Optical Society of Tunisia, a member of the ICO family. He also founded the African Laser Center, an organization encouraging exchange of researchers and students across Africa. Dr. Zghal has indeed positively influenced acquisition of knowledge through teaching and educational development especially in Africa thanks to his several international research collaboration initiatives.

Mourad Zghal received the diploma and cash award on a special ceremony at the occasion of the Winter College of Micro and Nano-Photonics for Life Science, held at

the "Abdus Salam" International Center for Theoretical Physics (ICTP), Trieste, Italy on February 18, 2008. He was delivering the invited ICO/ICTP Gallieno Denardo Award Lecture on: "Modelling techniques for photonic crystal fibers and applications".

## MEETINGS WITH ICO PARTICIPATION, 1946-2008

List compiled by Gert von Bally, ICO Associate Secretary, in charge of meetings

Below is a complete listing of events with ICO participation. Since the list may contain omissions or inaccuracies, corrections are particularly welcome. Events approved by the Bureau as of end of February 2005 have been included.

The first column indicates the ICO participation category: Z = no category; E = endorsed; C = cosponsored; X = ICO School; T = ICO Topical Meeting; R = ICO Regional Meeting; G = ICO General Meeting; S = Satellite. From 1992 on, the last four columns indicate respectively the ICO Bureau Member delegated by ICO in the Program Committee of the event and the amount of financial help; a "\*" in the "grant" column indicates a specific help for identified registrants from less favoured countries.

cat	start	end	cntry	city	title	ICO rep	grant	risk	loan
Z	14/10/46	19/10/46	FRA	Paris	Réunions d'opticiens				
Z	1/6/47	/ /	CZE	Praha	ICO Preparatory Meeting				
G	1/7/48	/ /	NLD	Delft	ICO-1				
G	1/7/50	/ /	GBR	London	ICO-2 Optical Instruments				
G	10/4/50	11/4/50	ESP	Madrid	Optical science				
C	11/11/51	11/11/51	FRA	Paris	Colloquium on Phase-Contrast				
C	11/11/52	11/11/52	ITA	Milano	Optics and Microwaves				
G	1/4/53	/ /	ESP	Madrid	ICO-3 Optical Problems of Vision				
C	1/9/54	/ /	ITA	Parma	International Symposium on Infra-Red				
G	1/3/56	/ /	USA	Cambridge, Mass.	ICO-4 Frontiers in Physical Optics				
C	1/6/57	/ /	FRA	Paris	The Physical Problems of Colour Television				
Z	6/5/58	9/5/58	BEL	Brussels	Optics in Metrology				
G	24/8/59	30/8/59	SWE	Stockholm	ICO-5 Modern Systems for Detection and Evaluation of Optical Radiation				
X	4/7/60	12/7/60	FRA	Paris	Modern Aspects of the Theory of the Formation of Images				
C	1/7/61	/ /	GBR	London	Optical Instruments and Techniques				
C	1/7/61	/ /	FRA	Paris	Optical Materials				
G	1/8/62	/ /	DEU	München	ICO-6 Image Formation and Vision				
C	1/9/63	/ /	FRA	Marseille	L'Optique des Couches Minces Solides				
C	1/8/64	/ /	AUS	Sydney	Interference and Coherence				
C	1/9/64	/ /	JPN	Tokyo, Kyoto	Photographic and Spectroscopic Optics				
C	1/4/65	/ /	HUN	Budapest	Thin Films				

C	11/11/65	//	FRA	Paris	The Teaching of Optics to Specialists
G	1/5/66	//	FRA	Paris	ICO-7 Recent Progress in Physical Optics
C	1/6/67	//	HUN	Budapest	Second Colloquium on Thin Films
C	1/9/68	//	ITA	Firenze	Symposium on Applications of Coherent Light
C	1/9/68	//	USA	New York, NY	First International Conference on Electrophotography
G	1/7/69	//	GBR	Reading	ICO-8 Optical Instruments
X	1/7/69	//	FRA	Orsay	Optical Processing of Information
C	1/7/70	//	FRA	Besançon	Holography
C	29/6/70	4/7/70	FRA	Marseille	Space Optics
X	19/7/70	//	FRA	Marseille	Space Optics
C	19/4/71	22/4/71	GBR	London	Symposium on Perception & Applications of Flashing Lights
C	21/7/71	23/7/71	DEU	München	Symposium on Visual Perform. when using Optical Instruments
C	30/8/71	2/9/71	JPN	Tokyo	Vacuum Ultra-Violet Radiation Physics
C	11/11/71	11/11/71	HUN	Budapest	Thin Films
C	11/11/71	11/11/71	GBR	London	Modern Optics in Metrology
C	1/5/72	//	ITA	Venice	International Conference on Thin Films - ICTF 2
C	1/10/72	//	USA	Tucson, AZ	Beam Foil Spectroscopy
C	7/2/72	9/2/72	USA	Las Vegas, NV	Integrated Optics, Guided Waves, Materials & Devices
G	10/10/72	12/10/72	USA	Santa Monica, CA	ICO-9
C	1/3/73	//	USA	Aspen, Colorado	Optical Storage of Optical Data
C	12/6/73	16/6/73	DEU	Oberkochen	100 Years of Abbe's Theory
C	29/1/73	4/2/73	RUS	Novosibirsk	5th Soviet Conference on Holography
C	1/5/74	//	USA	Rochester, NY	Image Assessment & Specification
C	21/1/74	23/1/74	USA	New-Orleans, LA	Integrated Optics
C	19/8/74	21/8/74	AUS	Sydney	Optical Information Processing
C	26/8/74	30/8/74	JPN	Tokyo	Optical Methods in Scientific & Industrial Measurements
C	1/4/75	//	FRA	Paris	Optics of Guided Waves
C	1/4/75	//	GBR	Glasgow	Engineering Use of Coherent Optics
G	28/8/75	29/8/75	CZE	Praha	ICO-10
C	1/8/76	//	ISR	Jerusalem	Applications of Holography & Optical Data Processing
C	1/9/76	//	DEU	München	Lasers & Applications
C	1/12/76	//			Submillimeter Waves
C	13/6/76	16/6/76	DEU	Aalen	100 Years of Abbe's Theory
C	1/10/77	//	FRA	Strasbourg	European Conference on Optics in Metrology
C	1/3/78	//			Submillimeter Waves
G	11/9/78	14/9/78	ESP	Madrid	ICO-11
C	4/8/80	8/8/80	MEX	Ensenada, BC	Optics in Four Dimensions
C	31/5/80	4/6/80	USA	Oakland, CA	International Lens Design Conference



C 18/11/80	21/11/80	HUN Budapest	Optika '80
S 7/9/81	11/9/81	AUT Graz	Optics in Biomedical Sciences
G 31/8/81	5/9/81	AUT Graz	ICO-12
C 4/7/83	4/7/83	JPN Kobe	4th Top. Meeting on Gradient Index Optical Imaging Systems
C 6/4/83	8/4/83	USA Cambridge, MA	10th Int'l Optical Computing Conference (IOCC)
T 6/4/83	9/4/83	FRA Paris	3rd Int'l. Top. Meeting on Photoacoustic Spectroscopy
C 7/6/83	10/6/83	HUN Budapest	Optika '83
C 13/8/84	17/8/84	USA Madison, WI	1984 International Conference on Luminescence
S 15/8/84	17/8/84	AUS Melbourne	Progress in Optical Physics
S 15/8/84	17/8/84	NZL Canterbury	Information Processing in Optics
G 20/8/84	24/8/84	JPN Sapporo	ICO-13 Optics in Modern Sciences & Technology
S 27/8/84	28/8/84	JPN Tsukuba	Post Congress Meeting
C 10/9/84	11/9/84	ITA Firenze	1984 IEEE Int'l Workshop on Integr. Optical & Rel. Techn.
C 26/9/85	27/9/85	ITA Palermo	6th Topical Meeting on Gradient-Index Optics
C 28/10/85	1/11/85	DEU Dresden	5th Int'l Conference on Lasers & Their Applications
T 11/6/85	14/6/85	FIN Espoo	Image Science '85
C 6/7/86	11/7/86	ISR Jérusalem	Int'l Optical Computing Conference (IOCC)
T 16/7/86	18/7/86	FRA Paris	Image Detection and Quality
C 7/7/87	9/7/87	CZE Praha	Optics in Solar Energy
G 24/8/87	28/8/87	CAN Québec	ICO-14
S 31/8/87	1/9/87	USA Cambridge, MA	Directions in New England Optics
T 30/8/88	2/9/88	FRA Toulon	ICO Topical Meeting on Optical Computing
C 13/9/88	16/9/88	HUN Budapest	Optika '88
C 19/12/88	21/12/88	ISR Tel-Aviv	6th Meeting of Optical Engineering
C 2/10/89	6/10/89	CZE Praha	Applied Optics in Solar Energy III
C 11/9/89	13/9/89	GBR Bath	2nd Int'l Conference on Holographic Systems & Components
G 5/8/90	10/8/90	DEU Garmisch-Partenkirchen	ICO-15 Optics in Complex Systems
C 21/5/90	25/5/90	USA Anaheim, CA	International Quantum Electronics Conference
T 8/4/90	12/4/90	JPN Kobe	1990 Int'l Topical Meeting on Optical Computing
C 22/8/90	25/8/90	CHN Beijing	Int'l Conference on Opto-Electronic Science & Engineering, ICOESE
C 22/10/90	27/10/90	SGP Singapore	Asia Pacific Conference on Optical Technology 1990
C 28/10/90	2/11/90	DEU Aachen	Int'l Conf on Physical Concepts of Materials for Novel Optics
C 11/6/90	14/6/90	USA Monterey, CA	International Lens Design Conference
CS 12/8/90	16/8/90	DEU Garmisch-Partenkirchen	International Conference on Optics in Life Sciences
C 17/3/91	23/3/91	PRT Porto	Optics in Biomedicine

C 14/5/91	17/5/91	POL	Szlarska Poreba	Diffraction Optical Elements D.O.E. 91				
T 27/8/91	30/8/91	ITA	Firenze	Atmospheric Volume & Surface Scattering & Propagation				
C 16/9/91	18/9/91	GBR	Edinburgh	3rd Int'l Conference on Holographic Systems				
C 28/9/91	1/10/91	RUS	Leningrad	Int'l Conference on Education in Optics				
C 15/10/91	17/10/91	CHN	Beijing	Int'l Conference on Photodynamic Therapy				
XE27/01/92	21/02/92	ITA	Trieste	The Physics & Technology of Lasers & Optical Fibers, ICTP	J.C. Dainty	0	0	0
E 19/05/92	22/05/92	CZE	Prague	Workshop on Digital Holography	C.H.F. Velzel	0	0	0
T 28/06/92	02/07/92	BLR	Minsk	ICO Topical Meeting on Optical Computing	J.W. Goodman	5000	0	0
C 03/08/92	07/08/92	USA	Seattle, WA	Int'l Meeting on Wave Propagation in Random Media	A. Consortini	2000	0	0
C 21/09/92	23/09/92	ESP	Barcelona	3rd Spanish & 1st Latin American Optical Congress	M.J. Yzuel	0	2000	0
C 04/10/92	10/10/92	DEU	Münster	Optics Within Life Sciences OWLS II	F. Lanzl	0	2000	0
E 14/12/92	16/12/92	ISR	Tel-Aviv	8th Meeting of Optical Engineering in Israel	A. Consortini	0	0	0
XC22/02/93	12/03/93	ITA	Trieste	Winter College on Optical Systems	J.C. Dainty	0	0	0
CS01/08/93	03/08/93	DEU	Garching bei München	Adaptive Optics	J.C. Dainty	0	0	0
G 09/08/93	13/08/93	HUN	Budapest	ICO-16 Optics for High Technology	G. Lupkovics	6000	6000	0
TS 16/08/93	19/08/93	HUN	Pecs	Education & Training in Optics	J.C. Dainty	2000	0	0
T 04/04/94	08/04/94	JPN	Kyoto	ICO Topical Meeting on Frontiers in Information Optics	P. Chavel	0	3000	0
E 10/04/94	14/04/94	JPN	Tokyo	OWLS III	A. Consortini	0	0	0
XC22/05/94	10/06/94	IRN	Zanjan	School on Nonlinear Optics and Optical Design	C.H.F. Velzel	0	0	0
XC08/08/94	27/08/94	GHA	Cape Coast	School on Lasers	J.C. Dainty	1000	0	0
C 15/08/94	18/08/94	CHN	Beijing	ICOESE 94, Optoelectronic Science and Engineering	Mu G.G.	0	0	0
E 17/08/94	30/08/94	RUS	Moscow	ICO Int'l Conference on Optical Memory and Neural Networks	P. Chavel	0	0	0
C 22/08/94	25/08/94	GBR	Edinburgh	Optical Computing OC'94	J.W. Goodman	0	2000	0
E 24/10/94	26/10/94	ISR	Tel Aviv	9th Meeting on Optical Engineering in Israel	A. Consortini	0	0	0
XT21/02/95	10/03/95	ITA	Trieste	ICTP/ICO Winter College on Optics	A. Consortini	1000	0	0
E 03/04/95	06/04/95	NLD	Delft	European Conf. on Integrated Optics ECIO 95	P. Chavel	500*	0	0
E 15/05/95	19/05/95	UKR	Chernivtsy	Int'l Conf. on Holography and Correlation Optic	P. Chavel	300*	0	0
E 09/07/95	10/07/95	USA	San Diego, CA	1995 Int'l Conf. on Education in Optics	R.R. Shannon	0	0	0
E 23/08/95	26/08/95	CZE	Prague	Photonics '95	C.H.F. Velzel	0	0	0
C 18/09/95	22/09/95	MEX	Guanajuato	II Reunion Iberoamericana de Optica	M.J. Yzuel	1500	1500	0
E 25/09/95	26/09/95	BEL	Liège	3rd Int'l Workshop on Optical Fiber Measurement and Control	P. Chavel	0	0	0
E 20/11/95	25/11/95	CUB	la Habana	V Latin American Meeting on Optics, Lasers and Applications	M.J. Yzuel	300*	0	0
C 06/01/96	14/01/96	SDN	Khartoum	4th Int'l Workshop on the Physics and Modern Appl. of Lasers	J.C. Dainty	1000		
C 21/04/96	25/04/96	JPN	Sendai	OC'96 Int'l Topical Meeting on Optical Computing	P. Chavel	800*		
E 09/07/96	13/07/96	DEU	Münster	OWLS IV, Optics Within the Life Sciences	C.H.F. Velzel	0	0	0
G 18/08/96	24/8/96	KOR	Taejon	ICO 17 Optics for Science and New Technology	S.S. Lee	6000	6000	0
E 26/08/96	28/08/96	CHN	Nanjing	Int'l Conf. on Holography and Optical Information Processing	G. Sincerbox	1200*		

E	27/08/96	29/08/96	JPN	Wako	Int'l Workshop on Interferometry	C.H.F. Velzel	0	0	0
C	10/12/96	14/12/96	IND	Madras	Photonics '96	T. Asakura	1000*		
E	02/03/97	06/03/97	ISR	Jerusalem	10th Meeting on Optical Engineering in Israel	A. Consortini	0	0	0
E	16/03/97	21/03/97	USA	Lake Tahoe, NV	OC'97 Optics in Computing (OSA)	P. Chavel	0	0	0
E	02/04/97	04/04/97	SWE	Stockholm	ECIO'97 European Conf. on Integrated Optics	A.T. Friberg	0	0	0
E	20/05/97	23/05/97	UKR	Chernivtsy	3rd Int'l Conf. on Correlation Optics	K. Macukow	1000*0		0
C	09/06/97	13/06/97	RUS	Shatura	Int'l Workshop on Adaptive Optics for Industry and Medicine	F. Merkle	1000*		
E	07/07/97	09/07/97	FIN	Savonlinna	EOS Topical Meeting on Diffractive Optics (DO'97)	C.H.F. Velzel	0	0	0
T	19/08/97	22/08/97	NLD	Delft	ICO 50th Anniversary, Education and Training in Optics (ETOP)	C.H.F. Velzel	2000*5000		0
E	26/08/97	30/08/97	RUS	Moscow	Optical Information Science and Technology (OIST'97)	P. Chavel	0	0	0
E	09/09/97	12/09/97	ROM	Bucharest	RomOpto '97	K. Macukow	0	0	0
XT	09/02/98	27/02/98	ITA	Trieste	ICTP/ICO Winter College on Optics	T. Asakura	1000	0	0
E	15/06/98	16/06/98	JPN	Tokyo	Int'l Workshop on Optics Design & Fabrication (ODF'98)	R.R. Shannon	0	0	0
C	17/06/98	20/06/98	BEL	Bruges	OC'98 Optics in Computing	P. Chavel	1000*2500		0
T	03/08/98	06/08/98	CHN	Tianjin	Optics for Information Infrastructure (OI'98)	S.S. Lee	3000*0		0
E	14/09/98	17/09/98	HUN	Budapest	Optika '98	F. Merkle	0	0	0
C	28/09/98	02/10/98	COL	Cartagena de Indias	III RIAO / VI OPTILAS '98	A. Consortini	2000	0	0
E	13/10/98	16/10/98	GRC	Crete	OWLS V, Biomed. and Culture in the Era of Modern Optics and Lasers	C.H.F. Velzel	2000*0		0
C	09/12/98	12/12/98	IND	Dehradun	Int'l Conf. of Optics & Optoelectronics (ICOL-98)	T. Asakura	1000	0	0
E	21/06/99	23/06/99	CZE	Prague	Photonics '99	R. Dändliker	1000*0		0
CS	28/07/99	30/07/99	MEX	Cancun Q.R.	Education and Training in Optics and Photonics (ETOP'99)	A. Guenther	3000*0		0
ES	28/07/99	30/07/99	MEX	Cancun Q.R.	Light for Life	R.R. Shannon	2000*0		0
G	02/08/99	06/08/99	USA	San Francisco, CA	ICO 18 Optics for the Next Millennium	T. Asakura	5000*5000		0
E	23/08/99	25/08/99	DEU	Jena	EOS Topical Meeting on Diffractive Optics (DO'99)	J. Ojeda-Casta.	0	0	0
E	30/08/99	01/09/99	DEU	Mainz	3rd Int'l Conf. on Micro Opto Electro Mechanical Systems (MOEMS'99)	F. Merkle	0	0	0
E	09/11/99	11/11/99	ISR	Tel Aviv	11th Int'l Conf. on Electro-Optics and Microelectronics in Israel	A.A. Friesem	0	0	0
XT	07/02/00	25/02/00	ITA	Trieste	ICTP/ICO Winter College of Optics and Photonics	A.T. Friberg	1500	0	0
C	22/02/00	24/02/00	AUS	Sydney	OWLS VI Down Under	J. Ojeda-Casta.	2500*0		0
T	10/04/00	14/04/00	SEN	Dakar	Optical Science and Applications for Sustainable Development	P. Chavel	5000	0	0
E	04/06/00	05/06/00	HUN	Budapest	Dennis Gabor Memorial Conference	Dändl./Consort.	0	0	0
C	18/06/00	23/06/00	CAN	Quebec	OC 2000 Optics in Computing	P. Chavel	0	0	1000
E	04/09/00	07/09/00	ROM	Bucharest	RomOpto 2000	P. Chavel	0	0	0
E	15/11/00	17/11/00	JAP	Tokyo	Int'l Conf. on Optical Design and Fabrication	R.R. Shannon	0	0	0
E	12/12/00	15/12/00	TWAH	sinchu	Int'l Photonics Conference (IPC 2000)	G. Righini	0	0	0
E	09/01/01	11/01/01	USA	Lake Tahoe, NV	OC 2001 Optics in Computing (OSA)	P. Chavel	0	0	0
E	10/05/01	13/05/01	UKR	Chernivtsy	5th Int'l Conf. on Correlation Optics	K. Macukow	1000*0		0

E 12/08/01	24/08/01	IRN Tabriz	Int'l Summer College on Optics and Photonics	A.T. Friberg	1500	0	0
C 03/09/01	07/09/01	ARG Tandil	IV RIOA / VII OPTILAS	J. Ojeda-Casta.	2000*	0	0
CT 27/11/01	30/11/01	SIN Singapore	6th Int'l Conf. on Education and Training in Optics and Photonics	Asakura/Shepp.	2000*	0	0
E 28/01/02	02/02/02	CUB Havana	Photosciences 2002	Guenther/Calvo	0	0	0
XT 18/02/02	01/03/02	ITA Trieste	ICTP/ICO Winter College on Ultrafast Nonlinear Optics	A.T. Friberg	1500	0	0
C 08/04/02	11/04/02	TWATaipei	OC 2002 Optics in Computing	H. Arsenaault	1000*	1000	
C 26/05/02	29/05/02	CZE Prague	Photonics Prague 2002	T. Tshudi	1000*	0	
E 02/06/02	06/06/02	CAN Quebec	Photonics North (ICAPT 2002)	H. Arsenaault	0	0	0
E 08/07/02	12/07/02	CAN Quebec	Int'l Laser Radar Conference (ILRC21)	A. Guenther	1000*	0	0
E 22/08/02	28/08/02	USA Hawaii	Astronomical Telescopes and Instrumentation Symposium (SPIE)	J. Breckinridge	0	0	0
G 25/08/02	31/08/02	ITA Florence	ICO 19 Optics for the Quality of Life	A. Guenther	7000*	10000	5000
CS 01/09/02	05/09/02	CHE Luzern	OWLS VII Environmental and Bio-Photonics for the New Millennium	C.C. Righini	2500*	2500	0
E 25/09/02	29/09/02	POL Wroclaw	Adv. Study Course on Optical Chemical Sensors (ASCOS 2002)	Chalasinska-M.	1000*	0	0
E 30/10/02	01/11/02	JAP Tokyo	3rd Int'l Conf. on Optics-Photonics Design and Fabrication	R.R. Shannon	0	0	0
E 21/11/02	23/11/02	ROM Bucharest	ATOM'02 Adv. Topics in Optoelectronics Micro & Nanotechnologies	H. Arsenaault	1000	0	0
C 11/12/02	17/12/02	TUN Tunis	6th LAM Workshop on Laser Physics and Applications	A. Guenther	1500	1000	0
XT 10/02/03	21/02/03	ITA Trieste	ICTP/ICO Winter College on Bio-Photonics	A.T. Friberg	1500	0	0
E 25/05/03	29/05/03	CAN Montreal	Photonics North 2003	H. Arsenaault	0	0	0
E 18/06/03	20/06/03	USA Washington, DC	OC 2003 Optics in Computing (OSA)	M. Yzuel	0	0	0
T 30/06/03	03/07/03	FIN Polvijärvi	Polarization Optics	A. Friesem	3000*	0	0
E 15/07/03	16/07/03	CUB Havana City	Tecnolaser 2003	M. L. Calvo	0	0	0
E 08/09/03	11/09/03	ROM Constanta	RomOpto 2003	G.C. Righini	1000	0	0
E 16/09/03	19/09/03	UKR Chernivtsi	6th Int'l Conf. on Correlation Optics	M. Kujawinska	1000	0	0
CT 06/10/03	08/10/03	USA Tucson, AZ	7th Int'l Conf. on Education and Training in Optics and Photonics	A. Guenther	3000*	0	0
E 19/10/03	24/10/03	DEU Münster	Int'l Workshop on Adaptive Optics (4. IWA OIM)	G. Jin	0	0	0
E 20/10/03	24/10/03	RUS St. Petersburg	Optics 2003	M. Calvo	0	0	0
E 01/12/03	04/12/03	IND New Delhi	Int'l Conf. on Laser Applications & Optical Metrology (ICLAOM'03)	Yamag./Schudi	0	0	0
XT 02/02/04	13/02/04	ITA Trieste	ICTP/ICO Winter College on Interferometry	A.T. Friberg	1500	0	0
C 21/04/04	23/04/04	CHE Engelberg	OC 2004 Optics in Computing	M. Yzuel	2000*	0	0
T 12/07/04	15/07/04	JAP Tokyo	Optics & Photonics in Technology Frontier (ICO'04)	I. Yamaguchi	0	0	0
ES 26/09/04	30/09/04	CUB Havana City	Optics, Life and Heritage	Gaggioli/Bally	1000	0	0
R 03/10/04	08/10/04	VEN Porlamar	V RIOA / VIII OPTILAS	Calvo/Gaggioli	3000*	0	0
E 18/10/04	21/10/04	RUS St. Petersburg	Basic Problems in Optics (BPO'04)	M. L. Calvo	0	0	0

C	28/11/04	01/12/04	AUS Melbourne	OWLS VIII Biophotonics Down Under	G. v. Bally	2000*	0	
C	06/12/04	10/12/04	CAMDouala	7th LAM Workshop on Physics and Mod. Applications of Lasers	A. Wahué	1500	0	0
XT	07/02/05	18/02/05	ITA Trieste	ICTP/ICO Winter College on Optics and Photonics in Nanosciences	A. Wagué	1500	0	0
E	14/02/05	18/02/05	MEXMerida, Yucatan	8th Int'l Symposium on Laser Metrology (LM-2005)	M. Kujawinska	1000*	0	
EX	26/03/05	04/04/05	TUN Monastir	Active Learning in Optics and Photonics	A. Wagué	1000	0	0
C	02/05/05	06/05/05	FRA Besancon	Int'l Conf. on Squeezed States and Uncertainty Relations (ICSSUR'05)	R. Dändliker	1250*	0	
C	08/05/05	13/05/05	ESP Granada	10th Congress of the Int'l Colour Association (AIC Colour 05)	M. L. Calvo	1500*	0	
E	06/06/05	08/06/05	USA Charlotte, NC	Information Optics 2005 (OSA)	M. Yzuel	0	0	0
C	08/06/05	11/06/05	CZE Prague	Photonics Prague 2005	T. Schudi	1500*	0	
G	21/08/05	26/08/05	CHN Changchun	ICO 20 Challenging Optics in Science and Technology	R. Dändliker	7000*	10000	5000
E	06/09/05	09/09/05	UKR Chernivtsi	7th Int'l Conf. on Correlation Optics	M. Kujawinska	1250	0	0
E	05/10/05	07/10/05	CAN Quebec	MUSCLE XIV (Multiple Scattering Lidar Exp.)	A.T. Friberg	0	0	0
CT	17/10/05	20/10/05	RUS St. Petersburg	Meeting on Optoinformatics	M. L. Calvo	1000*	0	
CT	24/10/05	26/10/05	FRA Marseille	8th Int'l Conf. on Education and Training in Optics and Photonics	A. Guenther	3000*	0	
C	12/12/05	15/12/05	IND Dehradun	Int'l Conference on Optics & Optoelectronics (ICOL-2005)	G.C. Righini	2000*	0	
X	30/01/06	10/02/06	ITA Miramare, Trieste, Italy	ICTP/ICO Winter College on Classical and Quantum Aspects of Information Optics	M. L. Calvo	2000	0	0
E	19/04/06	20/04/06	MARRabat	5th Conference Optique 06	A. Wague	1000	0	0
E	05/06/06	07/06/06	ESP Toledo	5th International Workshop on Information Optics "WIO"	M. L. Calvo	1000	0	0
E	28/08/06	31/08/06	ROMSibiu/Hermannstadt	8th International Conference in Optics: "Romopto 2006"	N. Vainos	1500	0	0
TC	04/07/06	09/07/06	RUS St. Petersburg	ICO Topical Meeting on Optoinformatics/	M. L. Calvo	2500		
C	04/07/06	09/07/06	RUS St. Petersburg	Information Photonics 2006 (jointly with ICO Topical Meeting)	M. L. Calvo	1500	0	0
E	26/10/06	29/10/06	UKR Kiev	7th International Young Scientists Conference "Optics and High Technology Material Science SPO 2006"	M. Kujawinska	1000	0	0
C	13/11/06	17/11/06	COL Santiago de Cali	I Andinean and Caribbean Conference on Optics and its Applications	G. v. Bally			
C	26/11/06	29/11/06	TWATAipei	9th International Conference on Optics Within Life Sciences (OWLS 9)	A. M. Guzman	1000	1000	0
E	12/12/06	16/12/06	IND Hyderabad	Photonics 2006: 8th International Conference on Optoelectronics, Fibre-optics and Photonics	M. Gu	2000	2000	0
X	12/02/07	23/02/07	ITA Trieste	ICTP/ICO Winter College on Fibre Optics, Fibre Lasers and Sensors	I. Yamaguchi	0	0	0
E	17/04/07	19/04/07	CUB Havanna	International Workshop Tecnolaser 2007	M. L. Calvo	2000		
C	03/06/07	05/06/07	CAN Ottawa	ETOP 2007	A. M. Guzman	1000	0	0
					A. Guenther	2500	0	0
					J. Love			

							130	
E	9/07/07	11/07/07	AUS Cairns	The 3rd Asian and Pacific Rim Symposium on Biophotonics (APBP 2007)	G. v. Bally	1000	0	0
E	05/09/07	07/09/07	IDN Yogyakarta, Indonesien	International Conference on Optics and Laser Applications ICOLA 2007	Y. Kim	1000	0	0
E	11/09/07	14/09/07	UKR Chernivtsi	The 8th International Conference on Correlation Optics	M. Kujawska	1000	0	0
E	8/10/07	12/10/07	MEX León, Guanajuato	Advanced Infrared Technology and Applications International Workshop 2007 (AITA 9)	M. L. Calvo	1000	0	0
R	21/10/07	26/10/07	BRA Campinas	Riao Optilas 2007		1500	1000	1000
T	19/11/07	24/11/07	GHA Cape Coast	ICO-Topical Meeting 2007 on Optics and Laser Applications in Medicine and Environmental Monitoring for Sustainable Development	G. v. Bally	2000	1000	0
E	12/05/08	15/05/08	RUS St. Petersburg	2nd International Topical Meeting on Optical Sensing and Artificial Vision OSAV'2008	M. L. Calvo	0	0	0
E	09/06/08	11/06/08	TW Taipei	ODF'08	T. Yatagai	0	0	0
C	02/07/08	04/07/08	SIN Singapore	OWLS 10 (satellite meeting to ICO-21)	G. v. Bally	1000	1000	0
G	07/07/08	11/07/08	AUS Sydney	ICO-21, Triennial Congress of the ICO	A. Friberg	7000	0	0
					M. L. Calvo			
C	15/09/08	20/09/08	UKR Alushta, Crimea	Fourth International Conference "Singular Optics (Optical Vortices): Fundamentals and Applications SO'2008"	O. V. Angelsky	1000	0	0
C	15/09/08	18/09/08	RUS St. Petersburg	"Optoinformatics"	M. L. Calvo	1500	0	0

## ICO-20 CONGRESS

### “CHALLENGING OPTICS IN SCIENCE & TECHNOLOGY”

#### MET IN CHANGCHUN, CHINA, 22-26 AUGUST, 2005: THE LARGEST EVENT ICO EVER HAD

ICO holds its General Congress every three years, consisting of a scientific meeting and the triennial General Assembly of the Commission. ICO-20 was held at the Changchun Institute for Optics and Fine Mechanics (CIOMP), Changchun, China, 22-26 August, 2005. Over 660 delegates, from 34 countries all over the world, met for the scientific part of the event, which consisted on eleven parallel scientific sessions: Optical Devices and Instruments, Optical Communications, Biomedical Optics, Optical Information Processing, Lasers and Laser Technologies, Materials and Nanostructures, Display Devices and Systems, Remote Sensing and IR Devices & Systems, MEMS, MOEMS and NEMS, Illumination, Radiation and Color Technologies and Optical Design and Fabrication, together with corresponding poster sessions.



*Opening ceremony of ICO-20 at the Hall of CIOMP*

More than 1000 papers were submitted for presentation at ICO-20, and the Program Committee selected around 830 of them. The congress started with 3 plenary sessions having the following lecturers: Charles H. Townes, Nobel Prize in Physics 1964, “Development of the Science and Technology of Electromagnetic Waves” in which he demonstrated that dynamism and enthusiasm is possible at the age of 90. Jianlin Cao: “The current state and progress of optics in China”, which he presented statistics showing the emergent

potentiality of optics and photonics in China (with currently 150,000 PhD students). Tingye Li, from AT&T Labs presented: “Innovations, economics and applications: revolution and evolution in optics communications”. James C. Wyant: “Advances in interferometric surface measurement”. A. W. Lohman and J. Jahns: “Diffractive optical processing of temporal signal” and H. Philip Stahl: “NASA’s challenge in optics for future space-based science missions”. The Award Ceremony and third plenary session consisted on the presentation of awards and medals and four lectures, respectively, presented by ICO prize winners, Benjamin Eggleton (ICO Prize 2003), Ashok V. Khrishnamoorthy (ICO Prize 2004), Milivoj Belic and Caesar Saloma (both Galileo Galilei Award 2004). About 483 oral communications (including more than 80 invited papers) and 345 poster contributions were presented during the week.

In that same week, an exhibit on Optics and Optoelectronics Industries was organized at the Changchun International Conference and Exhibition Center, an impressive modern building located in the new industrial area of Changchun. Under the lemma of: “Light of science leads to the future” over more than 200 enterprises in optics manufacturing, telecommunications, and related techniques were present on the Hall. To have an idea of the dynamism of the exposition,

local and national industries distributed the order of 300,000 invitations. Moreover, the banquet of the ICO Meeting took place in a magnificent park area where the most qualified tourist points are located, under an appealing Chinese atmosphere.

ICO gratefully acknowledges Guoguang MU (General Chair), Guofan Jin (Program Committee Chair), Arthur H. Guenther (International Advisory Committee Chair), Jianlin Cao (International Organizing Committee Chair), Ming Xuan (Local Organizing Committee Chair) and their colleagues of the conference committee sessions for the considerable amount of work they did, which resulted in an enjoyable and fruitful event indeed. As it is traditional, the ICO General Assembly took place in two subsequent sessions. In it the reports of the President, Secretary, Associate Secretary and Treasurer were presented. Moreover, the various committees of the ICO Bureau presented their corresponding triennial reports. Among the activities of the General Assembly are the election of the new Bureau, for the next triennial term and the approval of admittance of new members as well as designation of location for ICO-21. In the forthcoming sections of this newsletter, summaries of these aspects are reported.



*An active ambiance of discussion at the poster sessions*



*Prof. C. H. Townes (Nobel Prize in Physics 1964) and his wife (fifth and sixth to the left) surrounded by some of the organizers and invited speakers at the ICO-20 banquet.*

wavefront correctors, new wavefront sensors, wavefront reconstruction and control algorithms and hardwares, beam diagnosis, innovative systems and theory among others.

To summarize, it is remarkable that this has been the first time that an ICO General Congress was organized in a developing country and the third time in an Asian country (after those in Japan and South Korea). The hospitalities of the CIOMP, of all the organizers and the city of Changchun have been extraordinary added points for the accomplished success.





## EDUCATION AND TRAINING IN OPTICS AND PHOTONICS

### “THE CHALLENGE OF FACING A SUSTAINABLE DEVELOPING SOCIETY WITH COMPETITIVE TECHNOLOGICAL TRAINING OFFERS”

held in Marseille, France, 24-27 October, 2005

The Education and Training in Optics and Photonics conference takes place every two years. After, San Diego, USA – Leningrad, Russia – Pecs, Hungary – Delft, Netherlands – Cancún,



*Norbert Hubin*

Mexico – Singapore and Tucson, USA in 2003, the 9<sup>th</sup> ETOP conference was held last October in Marseille (France). It brought together nearly 150 educators, teachers and researchers from 23 countries and held discussions during three full days. Optics and photonics are essential fields for the development of high technologies, complex systems and for the understanding of our universe. This domain is not only useful for progress in health, in telecommunications, in transport, in astrophysics ... but, as it has been discussed throughout the ETOP conference, it is also useful for helping developing countries to have access to

high technologies and to help them progress by means of this pathway; it is also important to interest young people in science. ETOP2005 has been a wonderful time to share and exchange ideas. The world economy induces many changes. These changes are continuous and technologies are progressing rapidly. It seems that now we must teach young people to be efficient, to have an entrepreneurial spirit, an open mind, transportable skills, critical thinking and interpersonal skills, but also computer and communication skills. This is a real challenge that educators and teachers, concerned on sustainable development, are develop-ping to face. Optics and photonics have an important place in this development. The International Commission for Optics (ICO), SPIE, Optical Society of America (OSA), European Optical Society (EOS), French Optical Society (SFO) and other societies are very active while supporting this edition of the ETOP conference.



*Daniel Maystre*



*C. Cavallier*

ETOP was held jointly with the "Complex Optical Systems" conference and the plenary sessions were shared: eight top-level plenary talks were given by leading experts. A series of four presentations concerned complex systems. Norbert Hubin presented "the adaptive optics status and roadmap at EOS". Robin Barnsley shown the development of "ITER project" (World Project Control Fusion for Plasma confinement). Ed Moses talked about the "National Ignition Facility (NIF), the world's most complex laser and optics



*M.J. Soileau*

many global optics clusters". Three fruitful workshops were held each evening. The first one on "Attracting young people in the field of optics and photonics" was chaired by M.J. Soileau. Indeed, demonstrations of



*Bob Breault*

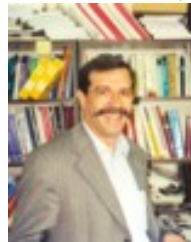
Chairman of the European Society of Optic Systems (SESO) originated quite fine discussions. More information: <http://www.etoponline.org>.

**François Flory, General Chair ETOP 2005.**

system". Christian Cavailler presented "the Megajoule laser: an optical complex system". Two talks on fundamental considerations were also given: Daniel Maestre lectured on "Metamaterials and optical resolution: the end of Rayleigh limit?" while Alain Aspect lecture was "From Einstein's intuitions to quantum bits: amazing entanglement". Two of our well known colleagues also came to share their experience acquired through two extraordinary

professional careers: M.J. Soileau explained "The genesis of the college of Optics and Photonics at the University of Central Florida" and Bob Breault described "How the formation of one company led to

optical experiments are particularly good way to attract young people thanks to the beauty of optics. These demonstrations must take place during college at the time when young people start thinking on their future. The second workshop was "BMD (Bachelor, Master and Doctorate) in Europe". Participants from Germany (Prof. Jens Bleidner, Chair), Italy, France, Spain and Romania, compared their systems of higher education. Despite the Bologna process, homogenizing the European system of higher education, each country has its own specificities. The third workshop and last session: "Requirements of Industry", chaired by Gilbert Dahan,



*Alain Aspect*



## THE INTERNATIONAL CONFERENCE "MICRO TO NANO PHOTONICS" ROMOPTO 2006

held in Sibiu, Romania, August 28-31 2006

The ROMOPTO 2006 International Conference on optics and photonics – the eighth one from the series of conferences initiated in 1982 by Acad. Professor Ioan Ursu and Academician Alexandr Michailovich Prohorov in Romania was organized by the National Institute of Laser, Plasma and Radiation Physics, Bucharest, and the Faculty of Engineering "Hermann Oberth" of the University "Lucian Blaga" from Sibiu. The chairman of the conference was Professor Valentin Vlad.

The topics of the conference were related to recent applications of modern micro-and nano-photonics in material science, information science and technology, optoelectronics, biology and environment, sensing and metrology.

These conferences have the purpose of providing to scientists and also to young scientists the opportunity to share experience, to discuss the results, to stimulate interdisciplinary research

and consider the prospects of applications. By its position Romania tries to play an active role in the promotion of scientific contacts, being partner in many international projects and developing activities in partnership with institutes and universities from neighbor countries but also from all the other countries. Collaborators became faithful friends, admiring and appreciating the culture of Romania and interested to discover the recent evolution in its recent admission at the European Union. To better know the country the organizing committee decided to host the conference in different places from Romania at Constanta at the border of the Black sea in 2003 and now in Transylvania – Sibiu, one of the best preserved Middle Age city in Romania selected to be on the side of Luxembourg, cultural capital of Europe in 2007.



*Some of the participants to ROMOPTO 2006 at the gate of the Faculty of Engineering “Hermann Oberth” of the University” Lucian Blaga”, Sibiu, where ROMOPTO 2006 was held, August 28-31, 2006.*

More than 180 papers have been submitted in the six topics, organized in 3 parallel sessions and 6 plenary presentations. The plenary sessions have been honoured by the distinguished professors: M.J. Soileau University of Central Florida, Orlando, Norbert Kroo Vice-President of Hungarian Academy of Sciences, Guenter Huber, Institut für Laser-Physik, Universität Hamburg, Reshef Tenne Weizmann Institute, Israel, Joseph Zyss, Ecôle Normale Supérieure Cachan, France. The contribution papers had been organized in 36 invited lectures, 52 oral presentations and 76 posters. The plenary sessions had a very large audience as the topics proposed by the authors were of high interest.

It was a pleasure to notice the largest participation in this edition of 72 foreigners from 18 countries and about 90 Romanians. The

participation of many young scientists was possible by the generous support of the international organizations and institutions: SPIE, PHOREMOST, ICTP and ICO. The organizing committee decided to accept oral presentations of young scientists to offer them the opportunity to select, organize and convince the auditorium about their own contributions. It is to notice, that many of the young scientists proved to develop a high level work performed in the laboratories from Romania and abroad, in the frame of the international NATO or EU projects. The conference had as well, the aim to educate the young scientists, to be in contact with the most prestigious professionals in the fields and have the opportunity to defend in poster sessions the results obtained.

Posters, magazines and leaflets have been sent by SPIE and ICO and the participants could inform themselves about the professional societies and facilities offered to the full members and especially for the young scientists. It is necessary to mention that the Romanian SPIE Chapter had been organized since 1992 and since 1994 there is an ICO Territorial Committee. The SPIE Student Chapter had been organized in 2001.

The quite large number of papers submitted imposed the presentation in 3 and even 4 parallel sessions. The workshop “Advanced photonics materials and sources” coordinated by professor V. Lupei and the panel “Photonic nonlinear devices and circuits” chaired by professor V. Vlad had been held, as well.

During the conference a trip was organized at Sighisoara the best preserved Middle Age city from the XV-th century, belonging to the world cultural heritage, UNESCO protected. The Saxon churches from the villages in Transylvania have been much appreciated by the participants.

It is to mention the excellent organization by the local committee and total disposal to offer hospitality, guides for social program- much appreciated by all participants.

**Clementina Timus**, Secretary of Organization, **Valentin Vlad**, Chair, **Nikos Vainos**, ICO Representative.



## “OPTOINFORMATICS AND INFORMATION PHOTONICS” ICO TOPICAL MEETING 2006

held in Saint Petersburg, Russia, 4-7 September 2006

The International Commission for Optics (ICO) organizes every year one Topical Meeting (out of the years coinciding with the General Assembly), dedicated to very specific topics of current interest for our global community. For the year 2006 the topics in Optoinformatics and Information Photonics have revealed the enormous activity and potentiality of this field and being somehow the continuation of a previous series of workshops on Optoinformatics held in precedent years at the Saint Petersburg State University of Information Technologies, Mechanics and Optics (ITMO).

The meeting held in September 4 to 7, 2006, was collocated with the Information Photonics 2006 series of meetings. Information Photonics is organized every two years under the ICO and OSA Steering Committee initiative. The two meetings were organized within the framework of the IV International Optical Congress "Optics - XXI Century" and were sponsored by ICO, IUPAP, OSA, EOS, INTAS and Dynasty Foundation.

The meeting was opened by Prof. Vladimir N. Vasilev, President of ITMO. A total of 500 participants from all over the world were attending the various parallel focus sessions dedicated to: “Applications of Optoinformatics”, “Bio-Optics, Bio-Photonics, High resolution imaging, Vision and Photoreceptors”, “In Memoriam of Emmet Leith



*After the last session dedicated to PHOTONICS 21 and closing ceremony.*

and Yuri Denisyuk: Enlightening the world of Holography” (to honour two of the three founders of holography, along with Denis Gabor), “Optical Microscopy and Metrology”, “Optical Transformations and their Applications in Optical Signal Processing”, “Quantum Optics and Quantum Information”, “Recent Advances in Femto-second Laser Technology”, “Signal and Image Processing and Digital Holography”.



*Immanuel Bloch, ICO Prize 2005 receiving the Ernst Abbe medal and diploma from Anna Consortini, former ICO Past-President and Yoon Kim Chair of the Award Committee.*

two awardees, Immanuel Bloch and Valentin L. Vlad delivered the Award Lectures: "Exploring Quantum Matter in Crystals of Light" and "Spatial Solitons and Soliton Waveguides in Photorefractive Crystals", respectively. The meeting was closing with a special session dedicated to PHOTONICS 21, the European Technology Platform with contributions of Chris Dainty, Georg Kelm and Malgorzata Kujawinska and followed by a quite alive discussion among the attendees.

Due to the large number of contributed papers, many had to be accommodated in the Poster Session. So a very interesting Poster Session was generated with more than 100 posters.

The social activities were dedicated to the visit of the Saint Petersburg monuments and a boat travel by night on the Neva River showing the great inspiration of this splendid city.

A special issue of Optics and Spectroscopy will appear by November 2007 with selected contributions of the communications presented in Saint Petersburg's Topical Meeting. It will reflect, at least partially, the most sounded results and subjects shown in the eight general Focus Sessions.

While writing this brief report, it is time to thank to all colleagues who have actively participated in the success of the event. Without their presence and work the scientific level of

In these sessions invited speakers specialists of the field supplied a "state-of-the-art" view of the contributed subjects: H. John Caulfield, Michael Lebby, Ventseslav Sainov, Ichirou Yamaguchi, Hans I. Bjelkhagen, Kevin Curtis, Asher Friesem, Rainer Hagen, Norbert Hampp, Dimitri Psaltis, Elena Korchemskaya, Levent Onural, Adrian Podoleanu, Arnaud Dubois, Dan Ferguson, Bahram Jalali, Yoshiaki Yasuno, Gerhard Birkel, Maria Chekhova, Claude Fabre, Serge A. Massar, Eugene Polzik, Anastasia Rodichkina, Vladimir P. Tychinsky, Brian Vohnsen, Gabriel Cristóbal, Ari T. Friberg, Kurt Bernardo Wolf, Zeev Zalevsky, Christof Debaes. In addition, the ceremonies of the ICO Prize 2005 and ICO Galileo Galilei Award 2005 took place. The



*Valentin L. Vlad, ICO Galileo Galilei Award 2005 receiving the Galileo Galilei medal from Anna Consortini, President of the SIOF and diploma from Yoon Kim, Chair of the Award Committee*

the meeting could never have been accomplished. This constitutes a very long list of talented and enthusiastic colleagues: the local organizers, the ITMO academic authorities and the great appreciative hospitality, all the Chairs of the Focus Sessions, the participants and attendees. The magnificence of the Saint Petersburg city was an added point of quality.

An important challenge for ICO is to organize international forums in which seniors and young researchers from all over the world meet and discuss by producing a fruitful and creative atmosphere. We should do our best to achieve this goal as much as possible.

**Maria L. Calvo, Jürgen Jahns, Alexander Pavlov**, Co-Chairs.



## EDUCATION AND TRAINING IN OPTICS AND PHOTONICS 10<sup>TH</sup> INTERNATIONAL TOPICAL MEETING

held in Ottawa, Canada, 3-5 June 2007



*Marc Nantel, Director of Business Development at the Ontario Centres of Excellence (OCE), and ETOP 2007 Conference Chair*

The 10th International Topical Meeting on Education and Training in Optics and Photonics (ETOP) was held on 3-5 June 2007, at the Conference Centre in beautiful Ottawa, Canada. More than 100 representatives from 24 countries and all continents (except Antarctica) met to exchange best practices in the varied field of photonics and optics education, through oral presentation sessions, a poster session, and several networking receptions. ETOP 2007 was collocated with the international scientific conference Photonics North and its industrial trade show. Dr. Marc Nantel, Director of Business Development at the Ontario Centres of Excellence (OCE), was the Conference Chair and the late Prof. Roger Lessard from Université Laval was the co-Chair of this edition of the long-standing ETOP series. The conference was sponsored by The International Society for Optics Engineering (SPIE), the Optical Society of America (OSA), the Institute for Electrical and Electronics Engineers' Laser and Electro-Optics Society (IEEE-LEOS), the International Commission for Optics (ICO), the National Academies of Science (NAS) and OCE.

The conference opened on Sunday afternoon with a plenary address by Minella Alarcon from UNESCO on the Active Learning in Optics and Photonics project, which was followed by three sets of parallel sessions on Programs, Fundamentals and Larger Issues, and K-12 Education. The first day was capped by a Welcome Reception and poster session in the evening where all could mingle and reconnect with their colleagues from around the world. SPIE's Vice-President Maria Yzuel took the opportunity to present some of the society's Education and Outreach Grants and Student Scholarships.



The next day was started in style by a plenary session shared with Photonics North featuring industry champion Stan Lumish from JDS-Uniphase; this was followed with parallel session on International Collaborations, Experiments and Instruments, and more K-12 (an obviously important and popular subject). The post-lunch keynote speaker was Stephen Pompea from the National Optical Astronomy Observatory (NOAO) on Hands-On Optics; the afternoon parallel sessions touched on Colleges, more Experiments and Instruments, and Teaching Methods. There was also a special OPTEC panel discussing progress on this program aimed at technical education in optics and photonics. In the evening, there was a joint ETOP/Photonics North reception, where all 800+ participants to both conferences could interact.

The final day was kicked off by a double-dose ETOP/Photonics North plenary by Prof. Brian Wilson from the University Health Network (Toronto) who spoke on biophotonics and Hugo Thienpont who presented on micro-optics science and technology in Europe. Parallel sessions that day were on Biophotonics, Nanotechnology, more Experiments and Instruments, Courses, Simulations and Multidisciplinary Programs. There were two special sessions: one entitled



*Prof. Brian Wilson*

“Interactive Demonstrations and Optics Magic”, anchored by David Sokoloff and Joe Lones, and the other was “A Tribute to Art Guenther and Roger Lessard”, two ETOP champions and giants who have left us in the past year.

From all feedback received, the conference was a great success. In all, 106 orals and 22 posters were featured in the 25 sessions. There were 51 papers included in the on-site ETOP Proceedings CD, but a second edition will be published to accommodate late arrivals; the ETOP 2007 Proceedings will be available online soon at the SPIE’s ETOP Proceedings page (<http://spie.org/etop/>). One of the best attribute of ETOP is that it is an international conference that strives to be as inclusive as possible, especially when it comes to worthy participants who may not have the means to attend. For ETOP 2007, more than half the conference’s budget – almost \$45,000 CDN – was made available in waived registration fees and travel grants to participants in less fortunate circumstance; this no doubt explains the wide representation from around the globe.

On a personal note, it was my privilege and honour to be given the opportunity to serve as the Conference Chair. I strongly believe in giving back to the community, and I hope that with my involvement in ETOP 2007 I have at least started to repay my colleagues for the strong inclusion, support, encouragement and friendship I have received from them since 2000 when I started



*Minella Alarcon: UNESCO responsible of the Active Learning in Optics and Photonics (ALOP) project and ETOP plenary lecturer*



*Stephen Pompea, from the National Optical Astronomy Observatory (NOAO, Tucson, Arizona, USA)*

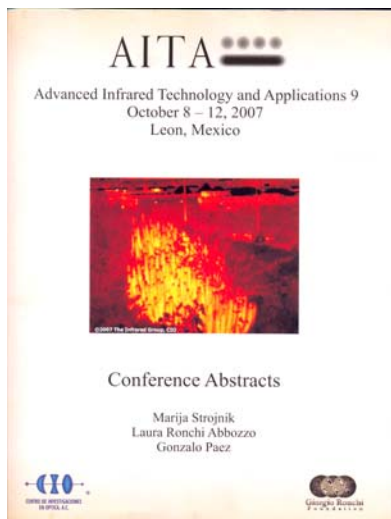
playing in this field. Thanks to all who helped organize ETOP 2007 and make it what it was, and I hope to see you all again in 2009!

**Marc Nantel, Chair of ETOP 2007**



## 9<sup>TH</sup> INTERNATIONAL WORKSHOP ON ADVANCED INFRARED TECHNOLOGY AND APPLICATIONS 9 – AITA

Held in Leon, Mexico, 8-12 October 2007



The abstracts included in this Book were part of the 9th International Workshop on Advances Infrared Technology and Applications (8-12 October, 2007). The abstracts were selected and subjects were reviewed by the editors and conference program committee. The abstracts published in this book reflect the work and thought of the authors, with a total of 113 communications in novel detecting and lasing systems, quantum-well and quantum dot-based IR detectors, technology and materials, superlattices, multi-spectral applications remote sensing and environmental monitoring, astronomy and planetary exploration, calibration and testing, non-destructive testing and evaluation, industrial systems, thermographic techniques, optical as subfield of infrared, biomedical imaging, molecular optics and bio-science.

It was edited by Centro de Investigaciones en Óptica (CIO; Center for Research in Optics), León,

Guanajuato, Mexico. The Chair of the meeting was Prof. M. Strojnik, from CIO. The meeting was supported by ICO.





# RIO/OPTILAS CONFERENCE 2007

## THE REMARKABLE WORLD PROJECTION OF IBERO-AMERICAN AND LATIN-AMERICAN SCIENCE CONTRIBUTIONS IN OPTICS AND PHOTONICS

held in Campinas-SP, Brazil, 21-26 October 2007

The last RIO/OPTILAS'07 (6th. Ibero-American Conference on Optics - RIO- and 9th. Latin-American Meeting on Optics, Lasers and Applications- OPTILAS-) Conference was held at Campinas-SP, Brazil, from 21 to 26 October 2007 and was following to the precedent of the series held in Venezuela in 2004.

This international conference is a traditional scientific meeting merging the two former



*Some of the participants at the gate of the Convention Center, State University of Campinas, Brazil, where RIO/OPTILAS'07 was held on October 21-26, 2007.*

independent conferences RIO and OPTILAS. The conference is focused on the research on Optics, Lasers and related activities mainly in Iberian and Latino-America areas. The organization was in charge of the State University of Campinas, Brazil and the chairman of the conference was Prof. Jaime Frejlich from the Gleb Wataghin Physics Institute of the same university. An International Scientific Committee - ISC was nominated and formed by relevant personalities of the world of Optics, a National Organizing Committee-NOC- formed by researchers representing the various institutions in Brazil with relevant activities in Optics and a Local Organizing Committee -LOC- formed by relevant researchers in Optics in Campinas and Sao Paulo cities to organize the conference in

details and assume the most direct organizational tasks. The organizers received 370 pre-registrations (44% students) from 23 countries all over the world among which 12 Latino-American countries and adding Spain and Portugal.

The scientific communications were collected at the "RIO/OPTILAS 2007" book of Abstracts recording 471 communications among which 160 oral and 311 poster communications on 15 different topics covering almost all subjects in Optics. The Scientific Committee accepted 160 oral communications (including plenary, invited and Contributing ones) and 311 posters. The orals were presented in 3 parallel sessions and the posters in 2 sessions in 2 different days. The Book of Abstracts was published with the help of the Brazilian Society of Physics (SBF)

and handed to all registered participant on the spot. Some full length papers (more than 250 were already received) corresponding to these abstracts were following a reviewing process and are published as a Conference Proceedings by the American Institute of Physics (AIP) on “online-only” basis. The Proceedings are offered with free access for one year for all registered participants. There were 7 plenary invited talks by high quality researchers from all over the world (USA, Germany, Italy, Israel, Ukraine, Mexico and Argentine) and 12 invited contributions from different countries (Brazil, Spain, Germany, Finland, Uruguay, Italy and UK) at the beginning of some of the parallel oral sessions.

In relation to activities addressed to young researchers and students there were nominations for Student awards sponsored by SPIE and Wiley & Sons as well as individuals for the best student posters on different areas. A Committee was formed by well-known participants from different countries (Brian Culshaw/SPIE, Ari Friberg/ICO, Joseph Niemela/ICTP, Anna Consortini/Italy, Maria Yzuel/Spain, Jose Vicente Ramos- Garcia/Spain, Cristiano Cordeiro/Brazil) and headed by Brian Culshaw to select the best student posters for receiving the awards. The selection of the best student posters for prizes awarding (a suggestion from SPIE officials) turned out to be an excellent way to highlight the relevance of the poster sessions and at the same time to stimulate students participation and encourage them to explain their posters in the best possible way. It will certainly stimulate students to be very careful with their posters for future conferences. It is time to strongly recommend that this practice be maintained in future RIAO/OPTILAS conferences.

For the financial support for students the organizers accorded a total amount of US10,000 in order to facilitate their participation. Most of this money was accorded from OSA and SPIE. For students outside Brazil, the organizers waived the conference fees (US150) plus US100 for extra expenses during the conference. For Brazilian students it was waived only the conference fees. This policy seemed to be quite successful and allowed the participation of a comparatively large percentage of students.

• Outside Brazil students: 30 (total amount: US 7,300) • Brazilian students: 19 (total amount US 2,500). In order to provide with the above referred financial support for students it was received some amount from SPIE (US\$5,000), from OSA (US\$5,000) and from ICTP (EURO 3,000) as an action of the late Gallieno Denardo. A motivated special session honouring his memory as well as honouring Art Guenther and Roger Lessard was organized at the occasion of the meeting.

As for enterprises participation, there were a total of 19 enterprises to expose their products and services in this conference mainly from the Campinas and São Paulo state but also from other regions and even from abroad.

RIAO/OPTILAS'07 AIP Conference Proceedings, volume 992, table of contents now available at: <http://proceedings.aip.org/proceedings/volume.jsp?key=APCPCS>

**Jaime Frejlich –Chairman of conference**

**Mikiya Muramatsu – Brazilian Committee for Optics**



# OPTICS AND LASER APPLICATIONS IN MEDICINE AND ENVIRONMENTAL MONITORING FOR SUSTAINABLE DEVELOPMENT

held in Cape Coast, Ghana, 19-24 November 2007



The Book of abstracts collected the papers presented at International Conference on Optics and Laser Applications in medicine and Environmental Monitoring for sustainable Development on 19-24 November 2007 and hosted by the Laser and Fiber Optics Centre at the University of Cape Coast. It was edited by the University of Cape Coast (UCC).

The African Laser Atomic and Molecular Network (LAM Network) collaboration with the University of Cape Coast and Government of Ghana are organizing the activity to expose participants on the continent of Africa to current developments of lasers in medicine and environmental monitoring as its 8<sup>th</sup> International Conference.

The International Commission for Optics (ICO) and International Society on Optics With Life Sciences (OWLS) are using the same gathering as ICO topical meeting. The Optics Society of America is sponsoring the training program as well while SPIE has

provided two (2) prizes each for best oral presentation and posters.

The Conference had 15 plenary lectures, 12 invited talks, 28 contributed papers and 5 papers form participants.

The major topics addressed were:

- Optical Spectroscopic techniques and sensors in environmental monitoring, medical diagnostics and therapeutics.
- Photonics and Optical nanotechnologies
- Laser sources and techniques in laser-matter interactions
- Laser and optical technologies in medicine, environmental monitoring and biophotonics
- Environmental forensics.

The Regional distribution of participants and lecturers were as follows:

<b>Region</b>	<b>No. of Lectures</b>	<b>Region</b>	<b>No. of Lectures</b>	<b>Region</b>	<b>No. of Lectures</b>
<b><i>Europe</i></b>		<b><i>America</i></b>		<b><i>E. Africa</i></b>	
France	3	USA	5	Rwanda	1
Germany	4			Ethiopia	3
Ireland	1	<b><i>N. Africa</i></b>		Kenya	2
Italy	2	Egypt	3	Uganda	
Russia	3	Morocco	1		
Scotland	1	Tunisia	1	<b><i>W. Africa</i></b>	
Spain	1			Nigeria	5
Sweden	6	<b><i>S. Africa</i></b>		Ghana	10
U.K.	1	South Africa	3	Cote d'Ivoire	4
		Simbabwe	2	Senegal	3
<b><i>Asia</i></b>					
Japan	1	<b><i>C. Africa</i></b>			
China	2	Cameroun	3		
India	2	Gabon	1		
Sri Lanka	1				
Vietnam	2				

The extended abstracts and programme were provided in the volume including text for posters and exhibitions.

The Chair of the meeting and local organizer Prof. P. Buah-Bassuah as well as LAM President, A. Wagué, on behalf of the Advisory Board, National Organizing Committee and Local Organizing Committee, were expressing their thanks to the International Organizations which sponsored the Conference financially: ICO, ICTP, IUPAP, OSA, OWLS, SPIE. Other institutions and entities as Tema Oil Refinery (TOR), Oil Marketing Companies of Ghana, Laser and Optical Fiber Center (LAFOC), UCC, Ghana, were providing as well financial and strategic support.

Also, the Local Organizer thanked all participants who attended the Conference in various ways contributing to its success.

A round table was chaired by P. Chavel at the afternoon of the last day of the meeting in which fruitful discussions took place to fix future activities to ensure the continuity of these meetings for supporting the research in optics and photonics as well as education programs in African countries.

At the occasion of the meeting, the ICO Bureau met in Accra, Ghana, as the 2007 Annual Meeting.



## REMARKS ON PROFESSOR GALLIENO DENARDO



*Gallieno Denardo addressing some announcement at the Winter College 2007 held at the ICTP, Trieste, Italy, February 2007*

Professor Gallieno Denardo worked for a good part of his scientific career at the University of Trieste, being a student and physics professor, doing research on problems of general relativity. He wrote his research papers for professional journals such as *Classical and Quantum Gravity* and *Nuclear Physics*.

At some point in his life, Gallieno became attached to the International Center for International Physics (ICTP), and the event seems to have changed his life. He, in turn, changed ICTP. I would like to mention a little about both aspects. My views are personal and cannot be regarded as professional in a proper historical sense: I knew Gallieno well (and he played a key role in my deciding to move to ICTP), but our interactions lasted for only four years and a few months. I believe, however, that the bond we developed was stronger than might be suggested by the duration of these interactions.

Gallieno was moved deeply by the difficulties that scientists in some developing countries face in their pursuit of scholarly work. He saw that ICTP provided the opportunity for doing something constructive about this difficult situation, and went about the process in a methodical way.

Gallieno played a key role in nurturing ICTP's Office of External Activities; in this role, he kept close and personal contacts with many scientists, especially in Africa. He gave as much attention as needed to everyone with whom he was involved. I know that many scientists from developing countries felt that he was giving each of them his full attention. He was keenly aware of their difficulties — but he also knew what measures would be appropriate to solve them. He played a key role in the process of building the ICTP Affiliate Centres and other projects in developing countries in Africa, Asia and Latin America.

In particular, Gallieno saw optics, especially its experimental aspects, as an important ingredient needed for building the research infrastructure and teaching capacity of physicists in developing countries. Even though his own field of research was not optics, he saw its relevance for several areas of basic sciences, and, through the involvement of a number of interested people over the world, created a large optics community at ICTP. In particular, he used the ICTP College on Optics as a key mechanism for promoting research as well as training and educational activities in this broad field. His mode of operation was exemplary: he co-opted most optics societies of the world in this effort and was relentless in promoting the subject without being pushy. It is amazing that he built up lasting enthusiasm for the subject at ICTP, considering that the Centre did not have much local expertise; I believe that his *modus operandi* was most effective under the circumstances.

Gallieno assumed many other roles at ICTP. For instance, he had a special interest in Eastern Europe, with strong empathy for Central European cultures, particularly Slavic (he spoke fluent



*Prof. G. Denardo*

Slovenian) — and he devoted much energy to create working links with ICTP. Naturally, he had many friends in that part of the world. He was keen to nurture ICTP's relationships with the International Atomic Energy Agency (IAEA) in Vienna, which he regarded as vital and strategic. He built up programs of Sandwich Ph.D. degrees for students whose official registration would be in a developing country but with co-supervisors either at ICTP or in one of the other collaborating institutions.

In all these instances, Gallieno's vision was not grandiose but pragmatic and practical.

Last year, ICTP celebrated "Africa Day" at the instance of the Africa Department of the Italian Ministry of Foreign Affairs. Several African scientists, young and old, spoke at the meeting. For those who knew Gallieno's involvement in Africa, it came as no surprise that the meeting turned out, unplanned, to be a celebration of his contributions to African science. Nearly everyone acknowledged the warmth and personal involvement that he evinced on ICTP's projects in Africa. In his unassuming way, he brushed off this honour simply by saying that people were exaggerating, and that he "could not have done anything without ICTP". Those who knew the details were aware that Gallieno deserved everything that was said of him that day.

Recently, ICTP organized a memorial day for Gallieno Denardo recently and released all the condolence messages and articles written about him. These messages can be found at the website: <http://portal.ictp.it/denardo> The Centre also dedicated a classroom to his memory and converted the prize jointly given with the International Commission for Optics from its former name of ICO-ICTP Prize to ICO-ICTP-Gallieno Denardo Prize. This prize is given annually to recognize outstanding and young optics researchers in developing countries.

If we at ICTP (and others elsewhere) continue to emulate the traits that Gallieno Denardo exemplified through his steady work, we will have served his memory well.

**K.R. Sreenivasan**

***Abdus Salam Research Professor, Director, ICTP***



## ICO/ICTP: WINTER COLLEGE (Period 2005/2008)

held at ICTP, Trieste, Italy

➤ **Winter College on Optics and Photonics in Nanoscience and Nanotechnology, 7-18 February 2005**

The Winter College exposed the participants to physics of new phenomena that occurred in light-matter interactions at the sub-500 nm scale. Applications to interdisciplinary fields such as biophotonics were treated. The College was organized in collaboration with ICS-UNIDO for the part relevant to optical methods for the fabrication and characterization of nanostructures. The programme consisted of lectures by international experts, group discussions and laboratory demonstrations. The aim was to provide the background needed to follow the most advanced literature.

➤ **Winter College on Quantum and Classical Aspects on Information Optics, 30 January-10 February 2006**



*Some of the attendants to the 2006 Winter College on Quantum and Classical Aspects of Information Optics.*

This year the Winter College was dedicated to quantum and classical aspects of information optics, and appeared to be quite successful -to both the Organizers and the participants. The ICTP hosted the college and received 174 applications from the five continents. Among these applications, the order of a 40.5% received support for local hospitality or in the case of young researchers from developing regions a higher rate for granting the attendance to the college was accorded. The participants from 46 countries came to listen to 15 selected lecturers and besides, to present their own research activities in the so-called LAMP (Laser, Atomic and Molecular Physics) program seminars.

The same are regularly organized every year and give the opportunity to the many participants from all over the world to expose their current lines of research, motivations and projects. This year, and for the first time was also organized a poster session that was having quite an interactive atmosphere.

➤ **Winter College 2007 on Fibre Optics, Fibre Lasers and Sensors, 12-23 February 2007**

The Winter College exposed the participants to the scientific issues that are driving the progress of fibre lasers and modern fibre optics. The program consisted of lectures by

international experts, group discussions and laboratory demonstrations. The aim was to provide the background needed to follow the most advanced literature on these subjects.

The main topics were quite broadened and focused on: Fundamentals of fibre lasers and amplifiers. Spectroscopy of rare-earth-doped glasses. High power fibre lasers and amplifiers. Ultrashort pulse generated in fibre lasers. Fibre sensors. Optical fibre communications. Photonics crystals. Non-linear effects on optical fibres and applications and fibre Bragg gratings.

Also, and by continuing with the tradition initiated last year, an ICTP Preparatory School on Mathematics organized before the College (from 5 to 9 February 2006), with the purpose to recollect some basic scientific elements that are relevant to the contents of the College lectures. Also, the LAMP (Laser, Atomic and Molecular Physics) programme included group discussions and internal seminars by participants.

➤ **Winter College 2008 on Micro and Nano Photonics for Life Sciences, 11-22 February 2008**

The Winter College exposed the participants to the recent achievements of the theory and applications of micro-optics and nano-photonics techniques for the study of Life Sciences. The scientific programme consisted of lectures by international experts, internal seminars and group discussions, some laboratory demonstrations. Also, the LAMP (Laser, Atomic and Molecular Physics) programme included group discussions and internal seminars by participants.





# MINUTES OF THE TRIESTE SYSTEM OPTICAL SCIENCES AND APPLICATIONS ADVISORY GROUP (TSOSA) ANNUAL MEETING 2006

ICTP, Trieste, Italy, February 1, 2006

**List of Participants:** E.G. Arthurs (The International Society for Optical Engineering, SPIE, Executive Director), M. Bertolo (Elettra Sinchrotron Trieste), M. Bertolotti (European Optical Society, EOS representative), J. Braat (EOS, President), M.L. Calvo (International Commission for Optics, ICO, Secretary General), P. Chavel (ICO, TSOSA Chair), A. Consortini (Italian Society of Optics and Photonics, SIOF representative), M. Danailov (Elettra Sinchrotron Trieste), G. Denardo (The Abdus Salam Center for Theoretical Physics, ICTP representative) A.T. Friberg (ICO, President), A.M. Guzmán (ICO representative at TSOSA), A.M. Johnson (Optical Society of America, OSA representative), H. Lefèvre (French Optical Society, SFO, President), Y. Petroff (The International Union for Pure and Applied Physics, IUPAP representative), K.R. Sreenivasan (ICTP, Director), G. Von Bally (Optics within Life Science, OWLS representative), A. Wagué (African Laser, Atomic, Molecular and Optical Sciences Network, LAM representative), M.J. Yzuel (SPIE representative).

## 1. Introduction:

P. Chavel, opened the session, introduced himself and addressed a welcome all the attendees. He started by reviewing the points of the Agenda previously provided to all the participants. Then he asked Prof. K.R. Sreenivasan, Director of ICTP to speak. Prof. Sreenivasan expressed his thanks to all the organizations that are representing optics and that were attending the TSOSA meeting hosted by ICTP. There is an obvious fact that nowadays all activities developed in the field of physics are very important, not only to the physicists community but by their social projection. These days much discussion and exchange of ideas are required to assure improvement for these activities in the future. Although called a theoretical institute, ICTP benefits from the current developments inside the Applied Physics community.. It now can be viewed as an umbrella for many related subjects so diversified that they cannot be properly defined inside theoretical physics. The current responsible ICTP members for the definition and development of such activities are G. Denardo and M. Danailov. One of the key points for assuring the success and projection of the Applied Physics section initiatives concerned the financial resources. To these days, various national and international organizations and bodies such as UNESCO, Italian Government, International Atomic Energy Agency (IAEA), European Commission (EU), the Swedish Agency for Research Cooperation with Developing Countries (SIDA) and the Kuwait Foundation for the Advancement of Sciences (KFAS), are supporting and assisting in the implementation of programs directed at scientists from developing countries. However, additional rather diversified efforts are required as well as new suggestions and advice. ICTP is now considering the definition and development of a new initiative that would involve a scientist working in the area of optics or related, to develop research programs in ICTP during a certain period of the year and under an annual

scheme. To secure the success of this new program TSOSA members are requested to provide contacts with scientists in various areas such as, for example, Bose-Einstein condensation and possible related experiments.

A second remark was made for the organization of forthcoming Winter Colleges in which there would be participation of persons working in the optics and photonics industries be assured. For this task stronger and efficient contacts with industry are needed. The activities inside the LAM Network are always very important and the growing of the same is desirable by providing a core for a number of young researchers to focus on their future careers and to design new programs useful for these objectives. A. Wagué, LAM representative has been very active for these purposes. We need to have more realistic information on the current local situations in Africa and to have a clear picture on all the problems arising for an efficient work.

Prof. Sreenivasan is now searching for new financial resources. Additionally, there is a general interest in meeting persons and to check the human capability and mobility for affording this task and to concentrate on specific number of activities, among which optics will be present as well.

There was some discussion after the presentation by Prof. Sreenivasan. E. Arthurs indicated that SPIE strongly supports ICTP activities and recognized the many ICTP efforts while specifically thanking G. Denardo. A. Johnson mentioned the importance of these activities and the performance of a successful plan having a projection in the future is expected. A. Friberg stressed as well the support of ICO to all the ICTP activities, a support that will continue in the future.

## **2. Briefing on 2005 activities:**

G. Denardo started by reviewing the activities accomplished during the year 2005. Regarding the Winter College 2005, the number of received applications was 230 among which 120 were selected. Participants were coming from all over the world with particular emphasis on Asian, African, Latin-America and Eastern countries. The support and cooperation of the International Center for Science and High Technology – United Nations Industrial Development Organization (ICS-UNIDO) is highly appreciated. G. Denardo continued to review the main activities:

a) STEP Program: The Sandwich Training and Education Program. Through this program the PhD students from developing countries are participating in research activities in centres located in countries other than the country of origin and hosted by the home institution. To this point G. Denardo thanked to M. Danailov for the development of various research visits inside the Elettra activities. It has to be considered as well the so-called Central European Initiative (CEI) located in Trieste with the participation of Italy, Austria and countries from Eastern Europe. CIE is developing nowadays similar programs and the students are having a supervisor at their institute of origin. The difficulty in finding mentors for the program was discussed. The eventual proposed programs should complement the STEP program to extend the length of visits of the mentoring professors to Trieste. Last June 2005, during the meeting in Munich, OSA agreed to offer support for this program. One of the main difficulties to be considered concerned

the proper selection of the subjects for the thesis and to maintain contacts with the local supervisor. There is currently an interest in launching a new program to promote the use of the infrastructures in Elettra with the financial support of ICTP. A similar program was funded by the EU, with a 25% of participation from Elettra. M. Danailov added comments on the optimal way of organizing the work. Definition of the subjects needs sometimes to be reviewed since high level students are usually involved in these programs. The number of students finishing per year is the order of four or five. For the year 2006 there are participants from Benin, Iran and Romania.. This year two supervisors were coming from Bulgaria and Belarus. To assure the proper background, the students are required on some occasions to pass an exam at the time of initiating their work. A. Wagué added that three students from Senegal have been graduated inside the STEP program. K.R. Sreenivasan pointed out that the students need to have a supervisor in their country of origin and that essentially the quality of work done is a high one.

After these discussions the special attention was requested from the participants to help define the involvement of students and supervisors. As a possible issue A. Johnson proposed another possibility for students to spend six months in Italy and adding a visit in a different laboratory. P. Chavel indicated that this aspect was discussed as well in the meeting of last year 2005. An adding remark was mentioned by A. Consortini so that there must be a special program for following the students' progress once back in their country of origin. The issue of the native language has to be considered as well (A. Wagué). K.R. Sreenivasan summarized the comments indicating that there are many problems to solve for proper operation of the current research programs. In any case, close coordination is always required and the whole scientific community has to be involved in these activities. M. Yzuel added that these discussions have to progress from previous years and that it is desirable that a flexibility can exists to extend offers to various places in various countries and regions. K.R. Sreenivasan added that the flexibility is agreed and that the general statement would be to support students for accomplishing their degrees in their country of origin. A. Guzmán pointed out that it has to be considered that there can be countries participating in the training programs not always with the same degree of underdevelopment and that this unbalance has to be treated. Currently, countries such as Brazil, India, Mexico, and China, among others are considered undeveloped but have quite diversified local situations. G. Denardo responded that an important fact should be that Associate Researchers at ICTP participate actively in this program. E. Arthurs said that in any case the obligations have to be more specified for a clear mentor definition. J. Braat proposed a six months activity per year to be specified. P. Chavel asked for the use of the existing resources in ICTP for extending the program, and assuming that changes in the subject orientation may be plausible. K. R. Sreenivasan indicated that the key is that the initiative should come from interested persons looking to build up the initiative, so that a minimum initial proposal may exist. A.Wagué explained that this is the situation occurred for example in some African countries that are benefiting from ICTP affiliated centres. But additional initiatives toward the creation of a regional centres have to be studied. In relation with the selection of candidates G. Denardo added that there is a main policy for giving priority to less developed countries. A. Wagué commented that in developing countries experts on new subjects are requested nowadays and that for this training the STEP program is a positive activity. M. Yzuel indicated that there must be a priority regional area located in Trieste and to work on very specific optics projects. For example, publicity needed to be well disseminated including the subjects in the call. K. R. Sreenivasan pointed out that it is advisable not to impose strict rules and that new subjects may

need to be in new places. M. Danailov informed that currently in the Elettra there are new subjects under development concerning laser technologies and that these subjects could be eventually expanded. The new proposed laboratories could be as well inserted on the advertisements. M. L. Calvo reminded that for a good efficiency the advertisements have to be clearly edited and disseminated. In order to perform a resume including the main points treated in the discussion M. Yzuel proposed that ICTP could perform a list of proposals to be later sent by e-mail to all TSOSA representatives. K. R. Sreenivasan agreed with this action. G. Denardo added that a preliminary proposal was already available and that the problem is to find suitable mentors and supervisors. Another possible action is to establish an official cooperation with ICS.

At this point K. R. Sreenivasan excuses his leaving from the meeting room and thanked all the attendees for their positive discussions. The meeting reassumed with the forthcoming points of the Agenda.

c) For simplifying discussions this Point was informed prior to section b): Gordon Research conference on “Photoacoustic and photothermal phenomena” (June 26-July 1, 2005), G. Denardo informed on the very successful activities running for the first time in this conference and assuming that the series will continue and will be publicized conveniently as agreed.

b) ICTP Winter College 2006 and ICS Training Course. G. Denardo, local organizer reported. This year there have been a total of 200 applications for the participation at the Winter College. It is indeed an interesting topic resulting in a very high level course. A comment to be considered was that there was some geographical unbalance in the applications. However, the fact that some countries were not represented did not mean that the considered scientific subjects were not quite developed in the particular regions. One aspect mentioned as well related the participation of ICS, not having a clear presence this year. A new activity offered in 2006 was a preparatory school on Mathematics for Optics, which had very capable lecturers and offered a tutorial type of school. The number of participants needed to be small for financial and operational reasons. However, the validity of this school was checked at the end of the activity with a high evaluation. The activity was supported by SPIE and the SIOF. The positive results suggested that this activity could be considered in the near future in order to organize a preparatory school when the college may require a strong mathematical background.

This year the three Co-directors of the Winter School were: Maria L. Calvo (Spain), Peter Knight (UK) and Paolo Tombesi (Italy), with the local support of Gallieno Denardo. The administrative support from ICTP staff was greatly appreciated as well.

E. Arthurs added that the activity on the school of mathematics was considered very positive by SPIE and that it seemed very convenient when the courses offered in the Winter School were at a level requiring sophisticated mathematics, and that not all participants may be familiar with the mathematics used. All the documents related to the Winter College were as usual linked at the ICTP website for free download.

### 3. Suggestions and topics for future colleges and training courses:

Discussions arisen regarding the possible future topics for the 2007 winter college and beyond. P. Chavel reviewed all the topics offered up to the actual date for the last three years. Say: in 2004 interferometry, in 2005: Nano-photonics and 2006: Quantum and classical aspects of information optics. Various possible subjects were mentioned by some of the representatives. Regarding the topic on micro and nano-photonics for the life science it was reminded that the topic was already proposed in previous years. Other local aspects considered were the important developments in the European scheme, the topics offered in the new frame for 2007. It was unanimously decided that the topic on nano-photonics for the life science be kept for 2008 and to consider to apply for the European support.

Other proposals were mentioned as modern microscopy techniques, image processing in 3-D, light and energy resources and optics, with possible co-directors as C. Sheppard (G. Von Bally). M. Danailov proposed a topic related to fibre optics, fibre lasers, microstructured fibre technology for fibre devices and sensors applications.

J. Braat remarked that the topic on optical standards might have an influence on developing countries local technologies. Other topics mentioned: New material systems for optics, negative materials, super-resolution, connected with plasmon optics in metals, evanescent waves, photonic crystals, non-linear optics (M. Bertolotti). Earth optics. Remote sensing. Spectroscopic techniques. Lidar, sonar and atmospheric optics (M.L. Calvo). The same topic could be complemented with astronomical optics (A. Consortini). Propagation, remote sensing, is a top problem not yet completely explored. The theoretical activities on this subject are not yet well known and the basic background established thirty years ago seemed to be forgotten. All the mentioned topics might be complemented with an introductory course on mathematical modelling. All these proposals were discussed taking into account previous colleges. Also, the applicability to developing countries participants was taken into account as a factor.

P. Chavel presented a list summarizing all the proposals. Discussions continued with the participation of all the attendees, regarding the convenience or not of selecting the various topics, some overlaps with previous colleges and among proposed topics themselves. Financial limitations have also to be considered, especially for the introductory course in mathematical methods. It is desirable that it should be a systematic course always offered together with the winter college as an introductory course related with the offered subjects. The financial requirements that this offer might represent together with the additional third week on experimental training needed to be studied as well. A review was then made considering the reliability for developing countries.

After some interactive discussions and comments considering the most appropriate topic and addressed to the developing country the agreement was on: Fibre Optics, Fibre Lasers and Applications. Possible Co-directors: Fragnito (Brazil), Taylor, Popov (Imperial College). The Italian co-director had to be decided, i.e. Svelto, Mignani. Also Ursula Keller (Zurich) was mentioned as a possible co-director.

The introductory course might contain less advanced subjects and would be coordinated by the Co-directors. Regarding the experimental laboratory, there was no doubt on its suitability for this topic. The recommendation of IUPAP to enhance the presence of minorities and to balance gender issues for the co-directors and the invited speakers in the forthcoming colleges was reminded. (Motion: M. Yzuel). Motion unanimously approved.

Other considerations were put forward by from attendees, such as the suggestion on organizing the schedule with fewer lectures and more discussions, personal work and tutorials. Unfortunately, the priority on the week dedicated to experimental work would be constrained by the financial resources. It is agreed that this preparatory school has great importance (G. Denardo). Other problems remarked concerned the fact that most of the lecturers had only a brief stay at the college and this created difficulties for enhancing the hoped for interaction with the attendees.

#### **4. The ICO-ICTP Prize:**

G. Denardo, member of the ICO-ICTP Prize Committee representing ICTP, reported. The recipient for 2006 has been Héctor Moya-Cessa from Mexico. This Mexican scientist is having fruitful collaborations with P. Knight (Imperial College) and V. Bužek (Slovak Academy of Sciences), on subjects related to quantum optics and quantum information. His nomination was strongly supported by colleagues in the area in view of his merits. The ICO-ICTP Prize Committee, constituted by: A. Wagué (Chair, ICO), A. Consortini (ICO), G. Denardo (ICTP) and M. Danailov (ICTP) selected this candidate. It was mentioned the current difficulties that the Committee is having in finding good candidates external from the winter college. The award ceremony took place at the occasion of the Winter College (February 1, 2006).

P. Chavel informed on the scheduled ICO celebration of this year. Last October 2005 ICO was admitted as an International Scientific Associate in the International Council for Science (ICSU). He presented a slide show with the major points regarding this new ICO status that represented an increasing in the presence of optics as a discipline in the world of science. This fact considered quite positive could create more motivations and expectations inside the optics and photonics community. He thanked G. Denardo and ICTP for hosting this celebration together with the subsequent offered party. He mentioned as well the great importance of the support received from IUPAP and thanked to Y. Petroff, as IUPAP representative in ICO and TSOSA. He cordially invited all the participants to be present in these celebrations. Thanks were also addressed to the current EOS and SFO Presidents, J. Braat and H. Lefèvre, respectively, for their presence in the event.

#### **5. Any other business:**

A. Guzmán commented on the LAMP seminars currently organized at the Winter College with great success and thanked A. Wagué for this initiative. She added the importance in introducing interactive sessions. Also, this year for the first time there was a poster session organized providing to college participants a better choice and more interactive for presenting their current results.

P. Chavel mentioned that it would be good to send the minutes of the previous year's meeting along with the agenda for the next meeting. It is good practice to have the minutes written a short time after the meeting and to have them approved by the participants by the same shot, but the participants need a reminder after almost one year has lapsed.

No other business to be discussed. Meeting end at 1:00 PM



## MINUTES OF THE TRIESTE SYSTEM OPTICAL SCIENCE AND APPLICATIONS ADVISORY GROUP (TSOSA) ANNUAL MEETING 2007

ICTP, Trieste, Italy, February 14, 2007

**List of participants:** Z. Ben Ladhkar (Tunisian Optical Society, observer), M. Bertolo (Elettra Synchrotron Trieste), M. Bertolotti (EOS representative), M.L. Calvo (ICO Secretary), A. Consortini (Italian Society of Optics and Photonics, SIOF representative), M. Danailov (Elettra Synchrotron Trieste), G. Denardo (The Abdus Salam Center for Theoretical Physics, ICTP representative), A.T. Friberg (ICO President), A. Guzmán (ICO representative at TSOSA), V. Lakshminarayanan (OSA representative), R. Ramponi (EOS President), G. Von Bally (OWLS representative), A. Wagué (LAM representative), M. J. Yzuel (SPIE representative).

**Apologies for absence:** P. Chavel (TSOSA Chair 2006), A. Johnson (OSA representative). K. R. Sreenivasan (ICTP Director).

### 1.- Welcome and Briefing on 2006 activities

G. Denardo, ICTP local organizer and hosting the meeting addressed the welcome to all the participants on behalf of ICTP Director Sreenivasan who due to other commitments was unable to attend the meeting. There was a particular welcome to Z. Ben Lakhkar and to R. Ramponi who were attending the TSOSA meeting for the first time. All participants introduced themselves. G. Denardo reviewed all the documents previously distributed on due time for the further discussions. Also, additional documents were distributed: Minutes of the 2006 meeting and a proposal addressed to TSOSA from A. Guzmán and the Associate Researchers at ICTP in the area of optics and photonics.

G. Denardo regretted the absence of P. Chavel who was sending apologies for absence due to other commitments and was chairing the meeting in 2006. G. Denardo proposed A. Friberg as Chair of the meeting with unanimously approval.

A. Friberg took over and started to review the points of the Agenda. This Agenda was previously sent by electronic mail to all the participants.

He reminded that at the 2006 Meeting there was a Point of the Agenda (Point 7) that was not completely discussed due to lack of time. The subject was related to the election of a new Chair

that needed to be reviewed in the present year meeting. Also, the addition of some more subjects of discussion at the end of the meeting could be considered as required.

A. Friberg mentioned that there were two Points of particular importance (Points 5 and 6 of the Agenda) that needed deep discussion and some practical conclusions. It was expected that all these aspects be conveniently discussed and solved as well as to have specific actions plans. G. Denardo was informing that he was ready to present proposals from ICTP. Additionally A. Guzmán was presenting another proposal also to be discussed. In the Point 7 of the Agenda the nomination of the TSOSA Chair for the period February 2007 - February 2008 needed to be considered as well.

G. Denardo reported the activities developed during the period February 2006 February 2007. The previous TSOSA Meeting was held during the Winter College on Quantum and Classical Aspects of Information Optics, February 2006. The College was having a great success with a very good number of participants. As in previous Colleges the LAM seminars were benefiting from a high participation so that almost 50% of the participants delivered a seminar. For the first time it was organized a Preparatory School on Mathematical Methods in Optics, with the main proposal of helping those attendees requiring additional training. This Preparatory School was having very good results. For the year 2007 it was organized as well a Preparatory School oriented to the training of fundamental of electromagnetic theory for optical waveguides. The subject was oriented according to the contents of the Winter College 2007. The number of applications received to participate in this Preparatory School was the order of forty, representing an increase with respect to the application received for 2006. In the present year there was additional training by including activities dedicated to exercises and practical work. It was commented that in any case this type of School cannot have high number of students (V. Lakshminarayanan). The plan for continuing the similar training for the Winter College 2008 was widely accepted. The 2007 Winter College on Fiber Optics, Fiber Lasers and Sensors was on progress. For the year 2007 it was received more than three hundred applications representing an increase of a 30% with respect to the previous College. There was needed to apply a policy restricting the participation to those students working in applied research subjects, in view of the large number of applications received.

ICTP was organizing as well other activities in various fields of science with an overall of applications of the order of five hundred. Another activity related to optics was the program of fellowship under the STEP program supported by IAEA, the CEI and Japanese Government through UNESCO. The ICTP currently supports this fellowship program. The Sandwich Training Educational Program (STEP) offers annually Fellowship opportunities in various fields in physics and mathematics for PhD students enrolled at their own University. The Fellowships have duration of three to six months a year for a total of three years. The supervisors attached to the program are acting as respective tutors of the students. There are currently offering programs on nuclear physics, material sciences, synchrotron radiation, optics and mathematics.

One of the main persistent problems was the difficulty for identifying appropriate supervisors in relation to the topics under study. To other concern the ICTP offers facilities available from the laboratories infrastructure in order that students working in experimental physics be under the capacity of affording their work on an equal basis as those developing theoretical physics topics.

The Elettra installations have a program addressed to potential users in order to facilitate the availability with well defined projects.



After the presentation of the resume of activities some discussions arisen regarding the preparatory school of mathematics and with the aim to assure good results. There were antecedents of similar activities offered by the International Center for Science and High Technology (ICS) along with collaboration of the United Nations Industrial Development Organization (UNIDO) and oriented to developing countries for industrial applications. There was an initiative for organizing training activities in the Laser laboratory installations at Elettra (M. Danailov). At the present state ICS is suffering from some internal changes and there has been a reduction in activities. However, the idea of maintaining these experimental works is still valuable for conceptual reasons assuming support from Elettra. This support is obviously related to the corresponding considered subject.

M. Yzuel mentioned that we should consider the possibility of reestablishing one week of laboratory experiments after the school with a reduced number of students selected from their applications. If the subject of the school can not be covered with the presently existing laboratory then a general laboratory in Optics could be organized as it was done some years ago. However, it was clearly stated that both subjects: the preparatory School for mathematics and the laboratory might be treated separately. One pertinent aspect was to consider the background of the participants since there would be always difficulties in assuring homogeneity of knowledge.

A. Friberg was requesting information on the current list of STEP Fellows working in the field of optics. Attached to the documents of the meeting a first list was provided for the year 2006 with a total of seventeen fellows. Subjects are related to: Lasers, molecular modelling, semiconductor lasers, photonics, synchrotron radiation, spectroscopy, optics and atomic physics, and others.

## **2).- Mentorship program**

G. Denardo reported on the current activities of the Mentorship program. The Fellows associated to this program are visiting the ICTP with the aim of specializing in areas of physics and to organize future activities in these areas later on in their countries of origin. The main difficulty, already reported in previous meetings was the finding and definition of proper supervisors at the country of origin. At the time of proposing this program last year OSA was also offering funding to support supervisors. Another difficulty arisen for identifying mentors. At the present situation the activities are oriented toward a most modest target, by inviting the supervisor of the student to ICTP coinciding with the stage of the student in order to facilitate the coordination with the co-supervisor and to plan joint activities and to stimulate new collaboration between the supervisors. This fashion of affording the program was giving interesting results with Eastern European countries such as Bulgaria and Byelorussia. Therefore, the program is now focussed on these activities. There are currently other collaborations previewed with institutions in Ljubljana (Slovenia).

After the resume discussions arisen regarding the mentorship program. In previous years there was recommended that students visited the laboratory of the supervisor in order to have experimental training. Otherwise the benefits were not that completely well defined (A. Wagué). G. Denardo added that these activities are also done at the present moment mainly by the ICTP programme TRIL. G. Denardo clarified that the STEP has to be done under the coordination of supervisors at ICTP. In previous years other programs were offered for European Fellowships but with the counterpart that the activities were more expensive.

### 3) ICO/ICTP Prize

G. Denardo reported on the 2007 Prize. For this year the Committee for the ICO/ICTP Prize selected Dr. Svetlana V. Boriskina from the School of Radiophysics, V. Karazin Kharkov National University, Ukraine. The Committee highly recognized the scientific merits and commitments for expanding optics in her country of origin. S. Boriskina is having great merits regarding these activities. She was actively participating as well in organizing SPIE and OSA Chapters in Ukraine. It is expected that she will deliver an invited lecture at the time of the Award ceremony, February 14, 2007.

It was discussed that the information of the activities of ICTP, for example: Winter College, ICO-ICTP prize etc. do not arrive properly to the students in many countries. M. Yzuel suggested that SPIE and OSA Students Chapters could distribute the ICTP activities in their countries.

G. Denardo informed that for the year 2007 only one nomination was received. M.L. Calvo indicated that as in previous years it needed to be mentioned that the distribution of posters is important for assuring an efficient publicity of the Prize. The same is still in connection with attendees at the Winter College. At the present state electronic format of posters are available at the ICO website and International Societies are highly encouraged to distribute as well this information. Other aspects to be commented were the usual difficulties in identifying candidates (M. Yzuel). The distribution of publicity in major meetings and through ICO representatives of the countries needed also to be stressed. The characteristics of the Prize have to be well explained according to the current very little information arriving to various countries. Websites are useful but are not the only procedure for more effective publicity (A. Wagué). Additionally, there are problems to be solved regarding language difficulties in African countries (i.e., Francophone countries versus English language should be considered for additional posters editions) and also regarding the proposed subjects (Z. Ben Lakhdar). It has to be taken into account that optics is a rather new field in Africa. To this concern optics needs to be publicized in other departments more than Physics departments, for example, also considering Engineering and through local chapters (V. Lakshminarayanan).

A. Consortini noted that certainly all attendees to the Winter College are informed about the announcement and that receiving one or more nomination is already a selection over the large number of applicants to the College.

As a resume of the ICO/ICTP Prize up to the present year the Prize has been quite successful with very high profile of the candidates. The Committee consists of A. Wagué Chair and A. Consortini, both representing ICO and G. Denardo and M. Danailov both representing ICTP.

### 4) Suggestions and Topics for Future Colleges and Training Courses

A. Friberg informed that a previous document was sent by electronic mail from P. Chavel providing a list of the topics of the Winter College up to 2007.<sup>1</sup> The list then is reviewed by the TSOSA members.

It was reminded that there was an agreement at the last year meeting 2006 in which it was unanimously decided that the topic for 2008 should be nano-photonics for biosciences and bio-

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<sup>1</sup> Electronic mail sent by January 20, 2007 to all TSOSA members.

applications<sup>2</sup> and that applications for founding support should be requested to the EU on due time.

This year another proposal was received from M.L. Calvo<sup>3</sup>. The proposal concerned the topic optics in environmental sciences and the presumably increasing of activities in this topic in relation to UN projects for studying climate change. Additionally other topics as reflected on the resume provided by P. Chavel were reviewed. A main concern regarding the procedure for the selection of topics should be that overlapping from other previous years be avoided.

G. Von Bally gave a resume on the necessity of offering new subjects on bio-nano-photonics. This is a very large subject needing some splitting into Life Science and Technical Applications. The topic was discussed last year and was unanimously accepted to delay up to the present year meeting. The topic is an interesting one for a founding program from EU Frame Program (the Seventh Frame Program for research and technological development, FP7, for the period 2007-2013). To this concern advisory groups of EU arrived to this subject recommendation with the inclusion of a new section at EU Directorate General “Information Society and Media”, Directorate G: “Components and Systems”, Unit 5 “Photonics”.

There was an additional factor mentioned by G. Denardo and it was that ICTP cannot apply on its own for the EC funding because of its status as an international organization. However, ICTP can partner with another European organization that is eligible on its own for the EU funding, and the Italian Government has expressed its support for such efforts on the part of ICTP.

For the nano-photonics subject ICTP has the proper infrastructure and applications to be offered for developing countries is also plausible. Besides, the EU offers support to third countries partners and future Directors should take care on this issue.

Various discussions and comments took place.

V. Lakshminarayanan added that nano-photonics is a very important topic nowadays that needs to be supported and also because of the connections with medical companies. Besides, the topics proposed this year can be considered for the next year 2008 as well.

A. Wagué introduced some comments. As revising the list of subjects it was found that there were some similar ones in 2003 and optics in environmental science is important for students and researchers from developing countries. It was to mention the need of a particular program for the nano-photonics proposal that should be addressed by future Co-Directors.

M. Bertolotti mentioned that last year was also proposed the topic on plasmon optics that could be included in some of the future schools. He agreed with the interest in the optics in environmental science proposal. He mentioned that the Winter College needs some publicity in optics so that a general subject on modern optics could be also interesting in order to focus the topics in optics to be introduced in academic programs in countries where optics is less developed.

A. Guzmán added that it is necessary to have some contents of the programs to define the activities.

M. Danailov commented that having in mind the activities in Trieste and in Elettra, for example on optical tweezers; it could be possible to take advantages for demonstrations on these experiments. He proposed to include the mentioned subject for the next year College. Also, in

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<sup>2</sup> See Minutes TSOSA meeting 2006.

<sup>3</sup> Copies of M.L. Calvo's proposal were provided at the time of the meeting.

view of the general contents the consideration of Nano-photonics for Life Science could be useful for the proposal of M. Bertolotti for modern optics.

G. Denardo informed that there are current activities at ICTP as imaging in medicine that could be connected with the topic of the Winter College 2008.

M. Yzuel considered that high technical subjects to be addressed to students in developing countries be less useful. She supported the proposal: Optics in Environmental Sciences

A. Wagué mentioned that in Africa there are many programs concerning pollution monitoring. Good monitoring processes required as well high technology and there is important to understand the fundamentals of the possible applied techniques.

V. Lakshminarayanan added that there are obvious difficulties in following the activities developed in many academic centres and consequently it is not easy to focus subjects regarding potential future activities.

The main idea is to expose to the attendees current topics and related techniques to be developed later in their country of origin. Thus, it is important to consider future topics useful for developing countries.

Z. Ben Lakhdar indicated that to afford the “state of the art” of a topic and to give ideas it could be useful to define primarily the kind of equipment that could be used later in certain countries as well as regarding teaching programs.

G. Von Bally added that he will not directly be involved in the future college but that it could be possible to look for not very expensive techniques also in the field of Nano-photonics in Life Science. The topics for optics in environmental science could be delayed for the next year. It was rather important to have topics discussed largely to arrive to good conclusions.

A. Consortini reminded the decision taken last year on which there was consistently a previous agreement. However she also considers Optics in Environmental Science a very appropriate subject for the College. The action needed is to confirm the agreements of the previous year meeting and to strongly recommend Optics in the Environmental Science for the subsequent year 2009.

In response, A. T. Friberg added that there was not a necessarily engagement for taking a certain agreement and it could be positive to review the proposed topics. An important fact was to identify directors and to have some proposal. For example, for Nano-photonics in Life Sciences, G. Von Bally proposed Stefan Hell (Germany), Oscar Martínez (Argentina) and an Italian Co-director.

The final unanimously decision was on the title for the Winter College 2008: *Nano-photonics for Life Sciences*.

Z. Ban Lakhdar recommended proposing lecturers that could offer simple techniques to be carried out in developing countries with not expensive infrastructure requirements.

M. Yzuel reminded the recommendation made in previous years for having a percentage of women lecturers. To this concern, there were a high number of applicants for the 2007 College representing women students. Also, it could be interesting if ICTP could provide on time pertinent statistics on this issue.

It was discussed on the proposal of a preparatory school as offered in precedent years. To this concern support from ICS and Elettra could be of interest. The preparatory school could be defined once the complete program of the College is finalized. Additional founding will be searched by ICTP (G. Denardo) and keeping as well the policy of not having a high number of attendees.

## 5) Involvement of other organizations to support Optics at the ICTP

M. Danailov reported. Elettra has been strongly involved on the activities of Optics these last years at ICTP. There are current plans for specific activities towards laser beams diagnosis, not yet quite developed and with the concern that it be applicable in developing countries.

## 6) The quest of long term activities on Optics at the ICTP

G. Denardo reported on the actual proposals from ICTP. According to a previous document<sup>4</sup>, ICTP proposed an optics staff associate (on the basis of 6 months/year and two of three consecutive years). The long term activity affordable at the present state should be mainly six months. He mentioned that was not recommendable to entering into the problem of choosing subjects. But tools to be used to set up the activities needed to be defined. The activity could be oriented through the STEP Fellowship Program and another applicable program could be the Associateship program (3 months/year of activity, 3 successive years). There were current possibilities for offering “staff” contract in connection with some special or already existing activity and there was the important support of ICTP Director for these activities. The possible offered contract addressed to a senior scientist, could be an interesting one addressed to leaders of research groups and to be compensated with some financial support. Generally speaking, it could be a very flexible contract (for 3 years). Other idea could be that a specific group might identify STEP students working in a similar field to stimulate them to work together in a common project at ICTP. A recommended issue should be the contact with ICTP Associate in order that they procure issues toward these activities and to apply for STEP Fellowship for their students. This could facilitate to organize research activities in Optics.

A. Guzmán presented an alternative proposal regarding the involvement of ICTP Associate<sup>5</sup>. She reported on the previous document she prepared and sent to all TSOSA members by electronic mail. In her presentation she shown the current subjects developed at ICTP: Applied physics, high energy physics, condensed matter, multidisciplinary fields (having as well laboratories and experimental laboratory on mass Spectroscopy) and optics and laser physics. The current offer could be enlarged. To enlarge the program there would be a need for enlarging the current number of ICTP Associated Scientists. Currently, Associates are linked to lasers and atomic physics research. There is a reduced number for example in fibre optics programs (currently three Associates). She presented statistics in relation to the age issue. For example, in atomic physics the number of junior scientists was actually very low comparing to other fields. She presented as well statistic on the geographical distribution of origin of the current Associates. For example, through the presented data there was a clear demonstration that Latin-America was loosing participation in the current programs and needed to be enhanced. Optics and photonics program should need a permanent coordinator inside the ICTP staff scheme. It was noticed the importance of making the planning for future decades (not on the basis of a short term program) and to search for hot topics. The students of the Associate ICTP members could be trained as well in the proposed principal areas of research. There would be an interest in searching for collaboration with other partners be in Italy or in other countries. So, she stated to make a proposal for a permanent scientific staff and allowing the responsible

<sup>4</sup> See electronic mail sent to all TSOSA members by January 20, 2007.

<sup>5</sup> A Power Point Presentation was prepared by A. Guzmán.

person to bring their students to ICTP while the activity is being developed. A procedure could be to have an open Call to search for the responsible and to hire from independent expert evaluators. TSOSA will be on charge to vote for the possible candidate. The ICO Newsletter could publicize the call and may be other publications of SPIE, OSA and similar ones. The recommendation should be addressed to ICTP Director. Other strategies were presented concerning the renewal of Associates in the optics program. An issue could be to study the possibility of offering a Diploma in Optics through ICTP training courses.

After the presentation some discussions arisen. It was resumed that two proposals needed to be discussed. There was also the possibility to have both proposals (A. Friberg).

M. Bertolotti noticed that EOS was involved as well on the program. He added that G. Denardo's proposal seemed flexible while a long term proposal should be more rigid.

G. Denardo thanked A. Guzman for her work done to put the entire basis for a long term program. The point was that a public Call could create some misunderstanding. Proposals of any type could be received interpreting that ICTP is on the position to offer various positions for various extended programs. TSOSA members have to be sure that the program will be properly leaded to a success. It was important as well to define at the actual moment the specific program for not creating this misunderstanding. Otherwise there will be a risk for a large procedure.

A. Wagué requested information on the available budget since this aspect was a key for affording the program. He considered G. Denardo's proposal as a realistic one. A. Guzmán stated that ICTP already runs similar programs as the one she proposed.

A. Consortini indicated that too large procedures could not be of interest. She needed to consider that TSOSA was a consultant body and therefore there are limitations for affording the program. ICTP has its own rules for recruiting and supporting researchers. G. Denardo's proposal seems in a near term reliable to guaranty a success.

A. Friberg noticed that a long term action should be considered as well to be afforded in coordination with international societies. G. Denardo stated that both proposals were inside the same frame and that facilitated a future action.

After some additional discussions there was a general agreement on starting by the G. Denardo's proposal to identify the Associate and STEP Fellows. The subjects will be circulating among TSOSA members to discuss contents. The list of subjects should be firstly approved for continuing with the identification of Fellows.

For practical matters a calendar needed to be fixed. G. Denardo offered his support to take care on this aspect within the forthcoming month (March 15, 2007). Exchanging of opinions by electronic mail would be expected to be done within the mentioned period. Regarding the potential subjects to be proposed there will be a consideration on the current work done by the ICTP senior and staff associates.

As a resume there will be information sent by G. Denardo on the forthcoming month (March 2007).

Other matter regarding the document sent by P. Chavel and A. Friberg for establishing a procedure to elect the Chair of the TSOSA for future period was discussed. P. Chavel informed on the mentioned document that he was not able to continue on the task for the year 2007. Therefore a Chair was needed for the period February 2007-February 2008.

A. Friberg proposed A. Guzmán as ICO representative to be Chair of the TSOSA for the forthcoming period. M. Yzuel said that it was not written anywhere that the ICO representative is the Chair of TSOSA Committee. The representatives of the other societies are also eligible.

G. Denardo commented the importance and relevance given to the organizations for the task to be afforded by TSOSA. TSOSA operates as a group of experts under high coordination.

The proposal of A. Guzman to be Chair of TSOSA was unanimously approved.

## 7) Any other business

A. Friberg informed on a new Erasmus Mundus program in Optics and Photonics organized by various European universities and research centres. The details of the program were available in the documentation provided for the actual TSOSA meeting.

Meeting ending at 12:45.



## GALLIENO DENARDO AND THE DEVELOPMENT OF OPTICS IN LATIN AMERICA



*Gallieno Denardo and the development of  
Optics in Latin America*

I received word of Gallieno Denardo's death with a profound feeling of loss and grief. He had tremendous influence on my development as a scientist and professional and had also, over a twenty-year period, grown to be a good friend. I know that he had similar influence on many other researchers and students from developing countries who benefited from his gentle guidance and from the programs in optics that he fashioned.

My memories of Gallieno's many achievements centres largely on the great influence he had on the development and growth of research in optics in Latin America. What has become RIAO/OPTILAS, the principal international conference on optics in the Iberian-American region, was conceived in

the early 1980s at ICTP, where Latin-American physicists had the opportunity to meet and learn of the work of colleagues from their neighbouring countries. Long before the now-international optical societies were pursuing international out reach, the ICTP was supportive of their initiative and helped fund the first Latin American Meeting on Lasers (later OPTILAS), held in Medellin, Colombia, in 1984.

After assuming in 1986 responsibility for ICTP's activities in optics, Gallieno became a strong advocate of Latin-American initiatives and strongly supportive of OPTILAS. Through his involvement in the organization of a series of Conferences on Fiber Optics at ICTP, he established contact with leading Brazilian scientists involved in the successful development of the communication industry in Brazil, along with Italian and other European industries and research institutes, to prepare scientists and engineers from developing countries for optical fibre

research and, at a minimum, to be educated consumers of the technology. He also organized workshops on lasers at ICTP, where attendees had the opportunity to do experiments in the ICTP Laser Lab that he built with donations and support from prestigious European Labs. Gallieno supported an Argentinean initiative that created the Multipurpose Optical Network (MON), which through travel grants from the Third World Academy of Sciences (TWAS) favours scientific collaboration between Latin-American researchers. On the occasion of the merging of OPTILAS with RIAO (the Ibero-American Meeting on Optics, created by the Spanish in 1992), Gallieno again played a decisive role by introducing me to Anna Consortini, then ICO's Past President and, in Gallieno's words, his "good friend." She advised me on the intricacies of international conferences schedules, international support, and diplomacy. Gallieno's long-term support of the development of optics in Latin America was recognized formally by the Latin-American optics community at the General Assembly of RIAO/OPTILAS in Margarita, Venezuela, in 2004. It was at that meeting that the conference series also welcomed its first Nobel Prize Laureate Lecturer, Claude Cohen-Tanoudji.

It is difficult to imagine now the scientific isolation that researchers in developing countries felt before the Internet age, but for many of us the ICTP and the Winter Colleges presented the only possibilities to remain updated and to establish international collaborations, since our home institutions could not pay for our attendance at international conferences or for scientific journal subscriptions. The ICTP library was an invaluable resource for our research and teaching activities, and I still remember Gallieno's happiness not so long ago when the OSA offered free access to OSA journals for ICTP Winter School participants for the duration of the School.

Many of us appreciated both the understanding and encouragement he gave us when we experienced difficult family situations, as well as his warm congratulations when we achieved professional success or celebrated happy family events. Many of the participants in Gallieno's early programs became senior researchers and internationally recognized scientists. Helped by his efforts and those of the ICTP, many of us feel like members of a large international family of optics researchers, sharing a common reference point rather than operating as isolated individuals.

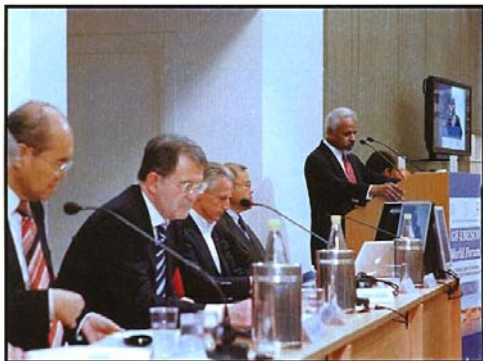
The Trieste System Optical Sciences and Applications (TSOSA) Advisory Group was established in 2003 with the aim of advising the ICTP in the area of optics activities. The members of that group, many of whom represent the major international scientific and technical societies and organizations concerned with optics, care deeply about what Gallieno achieved on behalf of optics and are committed to seeing that his achievements survive him and that generations to come can benefit from his legacy.

**Angela M. Guzman**, Chair of TSOSA, Vice President of ICO.





## NEWS FROM ICTP: WORLD FORUM ON “EDUCATION, RESEARCH AND INNOVATION”, NEW PARTNERSHIP FOR SUSTAINABLE DEVELOPMENT



*Opening session of the G8 UNESCO Forum on “Education, Research and Innovation”, held in Trieste, 10-12 May 2007. From left to right: K. Matsuura, Director of UNESCO, R. Prodi, Prime Minister and President of the Council of Ministers of the Italian Government, U. Calzolari, Rector of the University of Bologna, P. Supachai, Secretary General of UNCTAD, K. R. Sreenivasan, Director of ICTP.*

The Abdus Salam International Centre for Theoretical Physics (ICTP) has hosted the G8 – UNESCO Forum in Trieste (10 to 12 May, 2007). The Forum has a main focus: “Education, Research and Innovation: New Partnership for Sustainable Development”. This forum has received the attendance of 600 experts in science, policy and industry scope from 60 countries. Among them two Nobel Prizes in Physics (M. Perl and C. Rubbia), three Italian Ministers (G. Fioroni, Minister of Education; F. Mussi, Minister of the University and Research; L. Nicolais, Minister for Reform and Innovation) and six African Ministers of Education from Democratic Republic of Congo, Egypt, Ghana, Rwanda, South Africa and Uganda.

The opening ceremony was chaired by Prof. K. R. Sreenivasan, ICTP Director and it was honoured with the presence of Romano Prodi, Prime Minister and President of the Council of Ministers of Italy and Koïchiro Matsuura, Director-

General of UNESCO:

On his introductory speech R. Prodi urged to K. Matsuura to start up with precise actions directed to materializing strategic programs for education in those parts of the world where enormous difficulties are now creating a tremendous gap, and giving rise to a great challenge for development.

The origin of the forum organization took place at the 2006 G8 Summit in Saint Petersburg, and it is mainly focused on three main aspects: Education, scientific research and technological innovation.

During the three days meeting a total of ten sessions took place dedicated to various burning points: University, research, institutions and industry; What partnership to develop in global innovation society?; Education in the knowledge-based society; Environment: Global challenges; Innovation and society; Sustainable development and health; Sustainable development and energy; Knowledge and sustainable development. In particular, in the session dedicated to university, research institutions and industry there was a general agreement that universities are still applying the old fashioned model (a rather medieval concept) for their

internal organizations. Universities need to overcome obsolete systems and afford new updated disciplines for a modern training.

Universities are nowadays requiring high budgets for an efficient functioning (as expressed by U. Calzalari, Rector, University of Bologna). Moreover, the results obtained from fundamental research have to be freely disseminated for the universal knowledge (as proposed by D. V. Livanov, Rector, State Technological University of Moscow). Also, Z. Xinsheng, of the UNESCO Executive Board of Directors noticed the importance of the forthcoming Chinese impact on science and technology in the coming years as it is expected in India according to the indicators for high growth of young population in these countries.

Regarding the current educational status in Africa, a special session devoted to science, technology and innovation in African regions was organized, with particular emphasis on the Sub-Saharan situation. One of the conclusions was the forthcoming launching of a network of Centres of Excellence for sustainable development. This determinant conclusion clearly followed after various African ministers of science and technology intervened, then by stating that the current conditions to develop new programs for science at the universities in many African countries are quite unfavourable.

Two ICO representatives were attending the forum (M.L. Calvo, Secretary and G. Von Bally, Associate Secretary). ICO is ready to enhance the tights with ICTP initiatives toward a support of activities in optics and photonics oriented to identify urgent programs to be developed in pertinent geographical areas and key subjects. These emerging actions should be part of the building of a bridge between the many areas of nowadays society and in which education may lead the humankind progress.

More information can be found in: <http://g8forum.ictp.it/>

**Maria L. Calvo, ICO Secretary.**



*A view of the conference room during the speech of U. Calzalari, Rector of the University of Bologna*



## **ICO AND ICTP: THE IMPORTANT FEATURES OF SIXTEEN YEARS OF COOPERATION**

The contacts between ICO and ICTP started in 1991 for collaboration "on Schools" and on "Information 'on and to' optical scientists in the third world". (Item of the ICO Bureau Meeting, 1991). Chris Dainty, the actual ICO President, was invited by Gallieno Denardo to serve as one Director in the 1992 ICTP Training College.

The official collaboration started with the joint organization of the "Winter College on Optics" 8-26 February 1993, where ICO took care of the scientific organization. The importance

that ICO devoted to this initiative was very high, with involvement of the ICO President and two Vice Presidents (P. Hariharan and myself) as Directors, and a number of ICO Bureau members or past-members as teachers.



*Gallieno Denardo (left) and Gert Von Bally (right), at the ICTP, Trieste, Italy, in one of probably his latest pictures in June 29, 2007.*

A set of "hands-on" experiments for the students was also planned in the Laboratory, at that time located at the ICTP. The organization of the experiments deserves some detail. As the Laboratory was mainly equipped with instruments donated by different institutions for laser measurements, the teachers were asked to organize the experiments of interest by borrowing the needed material from their home laboratories for the duration of the College.

I had first the opportunity to work several days with Denardo, in Trieste, selecting the students for the College in the summer 1992, and realized the kind of organizer and hard worker he was, but also how big his humanity was. The valuable applicants were many times more than the available places and he was much concerned about this. Without doubt the College was very much appreciated and he immediately started thinking of a Second Winter College to allow others to attend. The Second Winter College took place in 1995, including the Laboratory experiments, and was the second one of the series still going on.

Since 2000, during the College the ICO/ICTP Award was delivered. Here is a short story of the award. In previous years Denardo established and personally funded the "Sarwar Razmi Prize", to honour the memory of an ICTP Associate, who was also his personal friend. He worried that the prize could not last for many years. On the side of the ICO, I was involved with the problem of the ICO Awards; there were the two well known ICO Prize and Galileo Galilei Award, but I filled the need of also thinking of young people from developing countries. Discussing together we considered that a good solution could be a proposal to both ICO and ICTP authorities for a joint award. I presented the idea to the actual ICO Bureau Meeting, in San Francisco, 1999, speaking of a formal proposal for the subsequent year. The Bureau considered the idea of immediate interest and solicited the proposal for the Meeting of the Old and New Bureau, few days later. The subsequent days were very productive as Gallieno and I, working by telephone, prepared it, by establishing in detail the contribution of the two institutions. The story ended the same week when the ICO Bureau and the ICTP approved "a proposal by Gallieno Denardo and Anna Consortini" to establish a joint prize, the ICO/ICTP Award, devoted "to young researchers from developing countries who conduct their research in a developing country". The award has been delivered up to the present to a total of nine young scientists from eight countries all over the world. It could be may be the moment to start with an official proposal for this award to be turned into ICO/ICTP "Gallieno Denardo" Award. This would be an action of the optics community to promote the permanent dissemination of his legacy.

**Anna Consortini**, ICO Past-President (1997 - 1999)



# **PART II: MEETINGS PROCEDURES**

# ICO CONGRESSES AND OTHER MAJOR ICO EVENTS

(Topical Meetings, Regional Meetings, Schools)

## Information and Guidelines

### A - General conditions:

1 - "Event" here refers to a scientific meeting or school. As opposed to other events with ICO participation, ICO Congresses and other major ICO events are generated from the very beginning by ICO or in close relation with ICO. A companion document to this one gives the information and guidelines for ICO Cosponsorship and Endorsement of Conferences and Schools, where ICO is not the primary organiser.

2 - The following rules apply in all cases to ICO General Meetings and other major ICO events

- the event should be international - typically, at least 30 % of the expected attendance and at least 50 % of the Programme Committee should be from outside the host territory;
- the ICO Bureau should perceive clearly that the meeting will be of a good scientific quality and that the timing and venue are appropriate;
- the ICO Territorial Committee of the territory where the event is to be held should approve the project;
- in agreement with the organisers, the ICO Secretariat applies for the formal sponsorship of the ICO General and Topical Meetings by IUPAP;
- the event organisers should confirm adherence to the general principle of "free movement of scientists" as defined by the International Council of Scientific Unions (ICSU) in the booklet "Advice to Organisers of International Scientific Conferences". In essence, the host territory must guarantee that a bona fide scientist or engineer of any nationality or citizenship may attend. It is not sufficient to make a guarantee only for persons from territories recognised by the host territory. Any failure to honour a guarantee is reported by ICO to ICSU through the International Union of Pure and Applied Physics (IUPAP) ; following a decision by IUPAP, the organisers are requested to publish the following sentence in any circular, announcement and in the proceedings of the conference : "To secure IUPAP sponsorship, the organisers have provided assurance that ... (Conference name) will be conducted in accordance with IUPAP principles as stated in the ICSU Document "Universality of Science" (sixth edition, 1989) regarding the free circulation of scientists for international purposes. In particular, no bona fide scientist will be excluded from participation on the grounds of national origin, nationality, or political considerations unrelated to science."
- the registration fees for meetings should follow IUPAP's policy on conference fees. In accordance with the directive of the 2002 General Assembly, the limit on conference registration fees had been raised to 425 Euros for conferences to be held in 2006. In accordance with the directive of the 2005 General Assembly, the limit on conference registration fees had been raised to 450 Euros for conferences to be held in 2008 and 2009. Proceedings are included and "substantially lower" otherwise (the figure is increased periodically in line with inflation); in addition, the ICO Bureau recommends to have substantially discounted fees for full time students;

- ICO should approve the composition of the Programme Committee and be in a position to appoint part of it ; the ICO Associate Secretary in charge of meetings should be ex officio a member of the Organising Committee ;
- the ICO logo should be used in all documents related to the meeting that are made public;
- the event should be publicised in the ICO Newsletter; the texts are usually prepared in cooperation by the local Organisers and the ICO Secretary;
- the announcements, calls for communications and registration forms should be distributed, among others, through the channel of the ICO Territorial Committees;
- the organisers should accept to send free proceedings of the conference to countries where optics development requires special support ; a list of some addresses appropriate for that purpose selected by ICO will be provided by ICO. At present, the number of copies required is of the order of 20.

3 - ICO encourages meetings in all new areas of optics and meetings designed to fill specific needs, including regional development of optics. At the same time, ICO would like to avoid the unnecessary proliferation of conferences; section 6 of the Questionnaire should therefore be answered carefully, explaining why this particular conference should be held.

4 - Industrial participation in the Programme Committee and in the Organising Committee is usually required.

5 - There may be ICO financial participation in ICO Events, in the form of a grant, a loan, or a participation in the risks. ICO participation is an ICO Bureau decision. There is usually no ICO financial participation in ICO Endorsed Events.

Notes:

- participation in the financial risks means an immediate loan that can be converted in part or in totality into a grant if the event runs a deficit ; ICO accepts to take the first risk ; in case of a surplus, however, ICO receives a share of the surplus.
- in the 29 events held between ICO-20 and ICO-21 (both inclusive) with ICO participation, ICO was financially involved in 25 cases and assumed a risk six times. A typical amount of an ICO grant for a major ICO event is US\$ 1500-5000, and for an ICO Co-sponsored event US\$ 1000-2500. In most of the recent cases, the ICO grant was specifically awarded for the purpose of helping identified registrants from less favoured countries.

## **B - Special conditions for ICO Congresses**

6 - ICO Congresses are held every three years; they include the General Business Meeting as requested by the statutes and a Scientific Meeting that should cover most of optics.

7 - For Congresses, calls for bids are issued by the ICO Associate Secretary with a deadline typically 4 years before the Meeting. The ICO Bureau in that year examines the bids and issues a proposition that is then submitted to the ICO Congress the following year. The ICO Congress makes the final decision. For ICO-22, to be held in 2011, the deadline was April 15, 2007 and the decision will be taken at ICO-21. For ICO-23, it is likely that similar dates, shifted by three

years, will apply, with the deadline being April 15, 2010. Advance notice is always appreciated. Bids should be sent to the ICO Associate Secretary in charge of meetings and schools.

8 - The vast majority of the recent Congresses were held in August or early in September. However, according to the increase of activities meetings were also held in spring and fall seasons.

9 - The budget should provide for some financial help for invited speakers, the usual minimum being free registration. Special support is requested for invited speakers from countries where the development of optics is comparatively difficult. In recent ICO Congresses, the number of invited speakers has ranged between 30 and 40. The winners of the recent ICO Prizes and Galileo Galilei Awards are invited speakers at the next possible ICO Congress. Because there is usually one ICO Prize and one Galileo Galilei Award every year and one General Meeting every three years, this typically means that 6 invited speakers will be the winners of the recent ICO awards.

10 - The 2008 Congress, ICO-21, will be held in Sydney, Australia, in July 2008, under the title "Optics for the 21<sup>st</sup> Century". Previous ICO Congresses were held in the following countries:

ICO-20, 2005, China  
 ICO-19, 2002, Italy  
 ICO-18, 1999, the United States of America  
 ICO-17, 1996, Korea  
 ICO-16, 1993, Hungary  
 ICO-15, 1990, F.R. Germany  
 ICO-14, 1987, Canada  
 ICO-13, 1984, Japan  
 ICO-12, 1981, Austria  
 ICO-11, 1978, Spain  
 ICO-10, 1975, Czechoslovakia  
 ICO-9, 1972, the United States of America  
 ICO-8, 1969, the United Kingdom  
 ICO-7, 1966, France  
 ICO-6, 1962, F.R. Germany  
 ICO-5, 1959, Sweden  
 ICO-4, 1956, the United States of America  
 ICO-3, 1953, Spain  
 ICO-2, 1950, the United Kingdom  
 ICO-1, 1948, the Netherlands  
 (Preliminary meetings had been held in Czechoslovakia and France).





*In green, countries that have hosted ICO General Meeting and General Assembly*

### **C - Other major ICO events:**

11 - ICO usually organises Schools, Topical Meetings or Regional Meetings between the Congresses. During the period 1997-2008, the list is as follows:

August 1997, ICO 50th Anniversary, Education and Training in Optics, Delft (Netherlands)  
 February 1998, ICTP/ICO Winter College on Optics, Trieste (Italy)  
 August 1998, ICO Topical Meeting on Optics for Information Infrastructure, Tianjin (China)  
 February 2000 ICTP/ICO/OSA Winter College on Optics and Photonics, Trieste (Italy)  
 April 2000, ICO Topical Meeting on Optical Science and Applications for Sustainable Development, Dakar (Senegal)  
 (August 2001, ICO Topical Meeting on Information Optics, Caesarea (Israel), postponed)  
 February 2002, ICTP/ICO/OSA Winter College on Ultrafast Nonlinear Optics, Trieste (Italy)  
 February 2003, ICTP/ICO/OSA/OWLS/SPIE, Winter College on Biophotonics, Trieste (Italy)  
 July 2003, ICO Topical Meeting on Polarization Optics, Joensuu (Finland)  
 February 2004, ICTP/ICO/OSA/OWLS/SPIE, Winter College on Interferometry and Applications in Modern Physics, Trieste (Italy)  
 July 2004, ICO Topical Meeting on Optics and Photonics in Technology Frontiers, Chiba (Japan)  
 February 2005, ICTP/ICO/OSA/OWLS/SPIE, Winter College on Optics and Photonics in Nanoscience and Nanotechnology, Trieste (Italy)  
 January/February 2006, ICTP/ICO/OSA/OWLS/SPIE/CEI, Winter College on Quantum and Classical Aspects of Information Optics, Trieste (Italy)  
 September 2006, ICO Topical Meeting on Optoinformatics 2006/Information Photonics 2006, Saint Petersburg (Russia)

February 2007, ICTP/ICO/OSA/SPIE/EOS/OWLS/CEI, Winter College on Fibre Optics, Fibre Lasers and Sensors, Trieste (Italy)

November 2007, ICO Topical Meeting 2007 on Optics and Laser Applications in Medicine and Environmental Monitoring for Sustainable Development, Accra (Ghana)

February 2008, ICTP/ICO/OSA/SPIE/EOS/OWLS/CEI, Winter College on Micro and Nano Photonics for Life Sciences Trieste (Italy)

12 - ICO Meetings should correspond to a clear need in a given subfield of optics or in a given geographical area.

13 - Although it never happened up to now, it is in principle possible to have more than one ICO major meeting in a given year or to have one in the same year as a Congress.

14 - Bids for all major ICO events to be held prior to December 31, 2010 are now welcome and should be sent to the ICO Secretariat. A deadline of April 15, 2008 applies to major ICO events to be held before December 31, 2009 and similarly for the rest of the term 2008-2011.

15 - Opportunities to organise schools are welcome; ICO Schools should normally be specialised to some area of optics and should last between one and three weeks; geographical areas with special needs for the development of optics are particularly welcome.



# ICO COSPONSORSHIP AND ENDORSEMENT OF CONFERENCES AND SCHOOLS

## Information and Guidelines

### A - General conditions

1 - ICO provides sponsorship and endorsement to international conferences and schools - typically, those with at least 30 % of the attendees and at least 50 % of the Programme Committee from outside the host territory. "Event" in the forthcoming refers to conference or school. A companion document to this one gives the information and guidelines for events directly generated by ICO or in particularly close cooperation with ICO (i.e., ICO Congresses, ICO Topical Meetings, ICO Regional Meetings, ICO Schools).

2 - ICO participation implies in all cases

- that the ICO Bureau perceives that the meeting will be of a good scientific quality and that the timing and venue are appropriate;
- that the ICO Territorial Committee of the territory where the event is to be held approves the project;
- that the event organisers confirm adherence to the general principle of "free movement of scientists" as defined by the International Council of Scientific Unions (ICSU) in the booklet "Advice to Organisers of International Scientific Conferences". In essence, the host territory must guarantee that a bona fide scientist or engineer of any nationality or citizenship may attend. It is not sufficient to make a guarantee only for persons from territories recognised by the host territory. Any failure to honour a guarantee is reported by ICO to ICSU through the International Union of Pure and Applied Physics (IUPAP).

3 - ICO encourages meetings in all new areas of optics and meetings designed to fill specific needs, including regional development of optics. At the same time, ICO would like to avoid the unnecessary proliferation of conferences; section 6 of the Questionnaire should therefore be answered carefully, explaining why this particular conference should be held.

4 - Industrial participation in the Programme Committee and in the Organizing Committee is usually required.

### B - Special conditions for ICO Cosponsored Events and for ICO Endorsed Events:

5 - The distinction between the two categories "ICO Cosponsored Event" and "ICO Endorsed Event" is outlined in the following points. The ICO Bureau makes the decision but organizers are welcome to propose a category.

6 - ICO Cosponsored Conferences must follow IUPAP's policy on conference fees. For conferences held in 2008 and 2009, the upper limit is Euro 450 where proceedings are included and "substantially lower" otherwise (the figure is increased periodically in line with inflation). For ICO Endorsed Events, exceptions to that rule may be made.

7 - In ICO Cosponsored Events, ICO must be associated from the beginning, and usually no later than 18 months in advance.

8 - In ICO Cosponsored events, the ICO Associate Secretary (in charge of meetings) is ex officio a member of the Organizing Committee and should be kept regularly informed of the progress of the organization.

9 - In ICO Cosponsored events, the ICO Bureau designates one member to represent it in the Programme Committee. For ICO Endorsed Events, exception to that rule may be made.

10 - For ICO Cosponsored Events, the organizers are always welcome to use the channel of the ICO Territorial Committee mailing list to distribute information.

11 - For ICO Cosponsored Events, the organizers are requested to send free proceedings of the conference to countries where optics development requires special support; a list of some addresses appropriate for that purpose selected by ICO will be provided by ICO; for ICO Endorsed Events, the same action is recommended. The number of copies requested is of the order of 20.

12 - All ICO Cosponsored and ICO Endorsed Events are listed in the column "Forthcoming events with ICO participation" in the ICO Newsletter. In addition, organizers of ICO Cosponsored Events are welcome to provide the ICO Secretariat with a 1000 to 2000 words article, if possible with an illustration, for further publicity in the ICO Newsletter. Because the responsibility for the publication rests on it, ICO has the liberty to slightly edit the text to adapt it to the general style and to the space available.

13 - The use of the ICO logo in documents concerning ICO Cosponsored Events is desired; it is permitted in ICO Endorsed Events.

14 - There may be ICO financial participation in ICO Cosponsored Events, in the form of a grant, a loan, or a participation in the risks. ICO participation is an ICO Bureau decision. There is usually no ICO financial participation in ICO Endorsed Events.

#### Notes:

- participation in the financial risks means an immediate loan that can be converted in part or in totality into a grant if the event runs a deficit ; ICO accepts to take the first risk ; in case of a surplus, however, ICO receives a share of the surplus.
- in the 29 events held between ICO-20 and ICO-21 (both inclusive) with ICO participation, ICO was financially involved in 25 cases and assumed a risk six times. A typical amount of an ICO grant for a major ICO event is US\$ 1500-5000, and for an ICO Cosponsored event US\$ 1000-2500. In most of the recent cases, the ICO grant was specifically awarded for the purpose of helping identified registrants from less favoured countries.



## Steering Committees

ICO is involved with OSA, SPIE, other organizations such as its International Organization Members, and EOS in two international meeting series: Education and Training in Optics and Photonics (ETOP), and Optics and Computing, later designated as Information Photonics.

Information about the ETOP series, including the Long-Range Guidance, Sponsorship, and Management of ETOP series and instructions for hosting ETOP meetings, can be found from the ICO home pages <http://www.ico-optics.org/> under Activities (meeting series)

Information about the Optics in Computing/Information Photonics series, including the Bylaws of the Steering Committee, are available on the ICO home pages <http://www.ico-optics.org/> under Activities (meeting series)



## **PART III: THE ORGANISATION OF ICO**

## ICO STATUTES

New statutes have been adopted in 1999, the motivation was to obtain a good representation of the whole optical community within ICO through the addition of the new membership category "International Organisation Member". The European Optical Society, the Institute of Electrical and Electronic Engineer's Laser and Electro-Optic Society, the Optical Society of America, and SPIE – the International Society for Optical Engineering have been accepted for membership in the new category as early as 1999.

*Original statutes adopted at Delft, 1948. Amended at Cambridge - 1956, Santa Monica - 1972, Sapporo - 1984, Garmisch Partenkirchen - 1990, Taejon- 1996.*

*New version adopted by ICO General Meeting, San Francisco, August 2, 1999. Approved by IUPAP, October 1999.*

*Modifications to be submitted to the ICO-21 General Meeting, Sydney, July 2008, are italicized.*

### **Article 1 Objective**

The objective of the International Commission for Optics (ICO) is to contribute, on an international basis, to the progress of the science of Optics and its applications. It emphasises the unity of the crossdisciplinary field of Optics.

Optics is defined as the field of science and engineering encompassing the physical phenomena and technologies associated with the generation, transmission, manipulation, detection, and utilisation of light. It extends on both sides of the visible part of the electromagnetic spectrum as far as the same concepts apply.

In particular, the ICO promotes international co-operation and facilitates the rapid exchange of information, by encouraging and furthering the organisation, on an international basis, of scientific meetings and summer schools. It emphasises actions for the education and training in Optics internationally. It undertakes special actions for the development of optics in regions where particular support is needed. It strives to improve the recognition of Optics as a field of science with a significant impact on economy. It works also for the promotion of international agreements on nomenclature, units, symbols and standards.

### **Article 2 Affiliation**

*The International Commission for Optics is an Affiliated Commission of the Union for Pure and Applied Physics (IUPAP) and a Scientific Associate of the International Council for Science (ICSU).*

### **Article 3 Membership**

The Commission has three categories of Members.



3a) Territorial Committee Members, that represent identified optics communities in a set of non overlapping geographical areas. A Territorial Committee Member should be listed under a name that avoids any misunderstanding about the area represented. The word "territory" does not imply any political position on the part of the Commission, which seeks to assist scientists in optics everywhere in the world to co-operate on an international level. Each Territorial Committee should receive endorsement of the appropriate authority representing science in its territory, such as an Academy of Science. In addition, it should either (a) be a subcommittee of the body representing the Member in IUPAP, (b) be recognised by the body representing the Member in IUPAP, or (c) if no such body exists be recognised by the council of IUPAP.

3b) International Organisation members. Such members are membership organisations active in the field of Optics on an international level.

3c) The Commission may also accept organisations active in optics as Associate Members. Associate Members pay no dues and have no voting privileges.

Application for all categories of membership shall be made to the Secretary of the Commission and submitted to the next General Meeting for approval. Applications in the Territorial Committee Member and Associate Member categories may be approved by the Bureau, subject to ratification at the next General Meeting of the Commission.

#### **Article 4 Shares and votes**

Each member of ICO has a specified number of shares, which determines its financial contribution as well as its number of votes at the General Meeting.

4a) Each Territorial Committee member whose territory is also a member of IUPAP has the same number of shares,  $N_{s1}$ , in ICO as it has in IUPAP. The number of votes  $N_{v1}$ , which is also the maximum number of voting delegates of the Territorial Committee Member, is determined according to the IUPAP scale, which presently reads as follows:

Category	number of shares	number of official delegates and votes
I	1	1
II	2 or 3	2
III	4 to 6	3
IV	7 to 9	4
V	10 to 15	5
VI	Over 15	6

4b) The number of shares  $N_{s2}$  of an International Organisation Member is determined in agreement with ICO during the Membership admission procedure; it may be changed following the same procedures as for membership admission. The International Organisation Members are represented by one voting representative carrying a number of votes  $N_{v2}$  proportional to the number of shares  $N_{s2}$  of the member determined in such a way that the total number of votes of all International Organisation Members cannot exceed that of all Territorial Committee Members. The exact method for determining  $N_{v2}$  is included in the Rules and Codes of Practice.

## **Article 5 The Bureau**

The Bureau of ICO consists of the following.

- the Executive Committee, consisting of the President, the immediate Past-President, the Secretary, the Associate Secretary and the Treasurer. All members of the Executive Committee, except for the Immediate Past-President, are elected by ICO at the General Meeting.
- The IUPAP representative appointed by the Executive Council of IUPAP under Article 7b of the statutes of the Union, and any Associate Members from IUPAP Commissions.
- The other Bureau members, who are traditionally known as Vice-Presidents. Eight Vice-Presidents (at least two of whom are from industry) are elected at the General Meeting by the Territorial Committee Members; in addition, also at the General Meeting, every International Organisation Member appoints one Vice-President up to the limit of eight; if there are more than eight International Organisation Members, eight Vice-Presidents are elected at the General Meeting by the International Organisation Members.

The Bureau is responsible for the conduct of the Commission's business between General Meetings. The term of office of the Bureau is three years from October 1st in the year of the election.

The President will be elected for a term of 3 years, normally after having served 3 years as a Bureau Member. In the event the President is unable to continue his/her duties for the elected term, the Past-President (or in case he/she is unable, the Secretary) will act as interim President, or, with the concurrence of the majority of the Bureau, will appoint one of the Bureau Members as interim President.

The Secretary, Associate Secretary and Treasurer will be elected for a term of three years and will be eligible for a second and usually final term of three more years. If either is unable to continue his/her duties for the elected term, the President will, with the concurrence of the majority of the Bureau, appoint a substitute from among the current Bureau Members.

Other Bureau Members will be elected for 3 years and will be eligible for not more than one further term of three years, except as described in the above two paragraphs.

The Bureau may fill vacancies occurring in its membership during the interval period between General Meetings, except for the position of Immediate Past President.

## **Article 6 Finance**

In addition to money that may be granted by IUPAP, the International Commission for Optics may possess funds of its own consisting of subscriptions from the Members and special donations or grants. Each member pays a number of shares. Dues are payable on the first day of

each year. Certain specific projects may be financed independently of the general resources of the Commission. The unit subscription per share is decided by the General Meeting.

### **Article 7 Withdrawal and Resignation**

A member whose subscription is more than six years in arrears is to be regarded as having withdrawn. Any Member which has resigned is liable for the unpaid subscriptions up to the end of the year of resignation. Any Member ceasing to belong to the Commission forfeits its rights to ICO assets.

### **Article 8 General Meeting**

The ICO is governed by its General Meeting, which consists of the Bureau (non voting) and the official delegates appointed by the Members.

The General Meeting of ICO is held every third year. The following business will be carried out at each of these General Meetings:

- (a) election of the Bureau;
- (b) examination of a Financial Statement presented by the Bureau;
- (c) agreement on a provisional budget for future years;
- (d) discussion of questions submitted by the ICO Members, the Bureau or the Executive Council of IUPAP.

Any Member, including Associate Members, as well as the ICO President can invite delegates at the General Meeting with no restriction of number. The number of voting delegates is restricted as per article 4.

The President may, with the approval of the Bureau, convene an Extraordinary General Meeting, and shall call such Meetings upon the request of one-third of all ICO Members.

The Draft Agenda for the General Meeting is circulated by the Secretary at least three months before the opening of the General Meeting. Subjects not on the Draft Agenda may be added at the Meeting with the consent of a single majority of the votes of Members represented at the Meeting.

A Member who is unable to send a delegate at a given General Meeting but wishes to vote on appropriate matters appearing on the Agenda may send its vote in writing to the President.

Alternately, it may give a proxy to another member of the same category. To be valid, votes made in writing and proxies must be received prior to the General Meeting.

### **Article 9 Other Meetings**

The International Commission for Optics may sponsor or co-sponsor international conferences and give financial support (grants or guarantees), as a grant to organising committees or as a travelling grant directly to participants.

### **Article 10 Relation with the International Union of Pure and Applied Physics**

(See also Articles 2 and 3)

The Commission will report concerning its work and its financial position to each General Assembly of the International Union for Pure and Applied Physics and will receive directives from that Assembly. Affiliation of the Commission to the Union can be terminated only by the Union at its General Assembly. In the event of disaffiliation, the special funds of the Commission are to remain its own property, but any unexpected balance of money received from IUPAP shall be returned to that body.

### **Article 11 Duration of the Commission**

The life of the International Commission for Optics is not limited. The dissolution of the Commission may be decided by a majority of two-thirds of the votes of the Members voting at a General Meeting. In this event, the assets of ICO will be allocated by the General Meeting to one or more not-profit organisations of closely similar purposes serving the optical sciences.

### **Article 12 Alterations to the Statutes**

Alterations in the Statutes may be proposed by the Bureau of the Commission, by one of the members, or by IUPAP. Such proposals must be received by the Secretary of the Commission at least three months before the date of the General Meeting.

Amendments or modifications may be adopted only at a General Meeting by a two-thirds majority of the Members taking part in the vote. Alterations of Statutes must be approved by IUPAP, which shall also constitute the final authority in regard to interpretation of Statutes.

### **Article 13 Rules and Codes of Practice**

Rules for the conduct of business determine procedures for dealing with matters not specifically laid down in these Statutes. They are meant to give guidance in general terms to the Bureau and to the Members in matters such as, for example, the provision of grants from the funds of the International Commission for Optics for Symposia and Schools.

The rules and codes of practice may not contravene the Statutes of the ICO. They are proposed by the Bureau. The adoption, modification, or abolition of any rule or code of practice shall require either a majority of two-thirds of the members voting at a General Meeting of the Commission, or alternatively a majority of two-thirds of the total number of votes of all Members in a postal vote on a proposal unanimously approved by the Bureau.



## RULES AND CODE OF PRACTICE OF THE INTERNATIONAL COMMISSION FOR OPTICS

Adopted by the ICO–16 General Meeting, Budapest, August 1993.

Modified by the ICO–17 General Meeting, Tajeon, August 1996.

Modified by the ICO–18 General Meeting, San Francisco, August 1999.

Modified by the ICO General Meeting, Florence, August 2002.

Modified by the ICO-20 General Meeting, Changchun, August 2005.

Modifications to be submitted to the ICO-21 General Meeting, Sydney, July 2008, are italicized.

Article 13 of the statutes of the International Commission for Optics mentions the possibility of establishing rules and codes of practice for ICO. In its meeting in Garmisch Partenkirchen on August 5, 1990, the ICO Bureau decided to setup such rules. These rules replace those adopted earlier and published in previous ICO Green Books such as "Towards ICO-XII", May 1982, pp 69-70.

### **Article 13 of the ICO statutes:** "Rules and Codes of Practice.

Rules for the conduct of business determine procedures for dealing with matters not specifically laid down in these Statutes. They are meant to give guidance in general terms to the Bureau and to the Members in matters such as, for example, the provision of grants from the funds of the International Commission for Optics for Symposia and Schools.

The rules and codes of practice may not contravene the Statutes of the ICO. They are proposed by the Bureau. The adoption, modification, or abolition of any rule or code of practice shall require either a majority of two-thirds of the members voting at a General Meeting of the Commission, or alternatively a majority of two-thirds of the total number of votes of all Members in a postal vote on a proposal unanimously approved by the Bureau."

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- 12 - ICO Proceedings Donation Programme.
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Changes and additions decided by the Bureau, but not yet submitted to the General Assembly for approval, are italicised; the previous version, if there is one, is indicated in parentheses and barred. At the end of section 3, because of significant changes, a two column presentation has been used.

### **1 - Free Circulation of Scientists:**

ICO adheres to the principles established by the International Council of Science (ICSU) concerning the free circulation of scientists. In particular, organisers of ICO meetings and of meetings cosponsored by ICO are requested to follow the "advice to organisers of international scientific meetings" issued by the ICSU Standing Committee on the free circulation of scientists. Note: the address of ICSU is 51, boulevard de Montmorency, 75016 Paris, France - Telephone: +33 1 45 25 03 29 - fax: +33 1 42 88 94 31, [icsu@lmcp.jussieu.fr](mailto:icsu@lmcp.jussieu.fr), <http://www.icsu.org>

### **2 - Membership:**

#### **Application**

This section complements article 3 of the statutes.

The following are normally provided by a Territorial Committee applying for full membership:

- a) if the Territory is represented in IUPAP, a statement from the president of the body representing the Territory in IUPAP, that the Territorial Committee is authorised by that body to represent optical scientists and engineers of that Territory within ICO; if it is not, a motion to the same effect from a local scientific authority (Ministry, Academy, Council of Research,...);
- b) a letter of application signed by the chair person or representative of the applicant Territorial Committee, including a statement of adherence of the Territorial Committee to the ICO Statutes;
- c) a description of the organisation of the Territorial Committee, including the number of members, their designation procedure, their term of office, and the procedures that are set up to ensure a good representation of the optics community within the territory. If the Territory is not a member of IUPAP, the Territorial Committee and the ICO Secretary or Associate Secretary shall jointly take the necessary steps to request approval of the Territorial Committee by the council of IUPAP.

The application of a Territory for Associate Membership in ICO shall be made to the Secretary. It may be considered and approved by the Bureau. At the next General Meeting, the decision shall be made

- \* either, subject to the desire of the applicant, to transform the associate membership into regular membership,
- \* or to extend the associate membership until the next General Meeting,
- \* or to terminate the associate membership.

In the case of a Territorial Committee applying for Associate Membership, item a) is required if the Territory is represented in IUPAP; item b) is always required.

The following are normally provided by an International Organisation Member applying for membership (whether as full member or as associate member, except for the number of shares, that applies only to full members):

a) a letter of application signed by the President or its duly appointed representative, mentioning approval by the appropriate bodies in the Organisation, expressing adherence to the ICO Statutes, and including a proposition for the number of shares;

b) a description of the operation of the Organisation, as provided for example by its bylaws, statutes, rules and codes of practice, and showing indication of its international character. This includes the requirement that at least 20% of the members are from outside the most represented country. The advice of the Territorial Committee (if any) in the most represented country will be considered.

### **Organisation and duties of Territorial Committees**

The Territorial Committees normally have members elected or designated by some agreed procedure, with a well defined term of office; it is usually convenient for them to have a bureau or at least a chairperson; their organisation secures in all cases:

- a fair representation of the optics community in the Territory;
- approval and support of the scientific authorities of the Territory (Ministry, Academy, council of Research,...).

The ICO Bureau may at any time request information from the Territorial Committees about their organisation as described above.

Territorial committees maintain mailing lists of at least an extensive representative subset of the optics community in the territory. They will include in the mailing list any bona fide scientist with an address in their Territory and requesting to be included. They distribute at no charge to ICO any document sent to them in an appropriate quantity either by the ICO bureau or on its behalf. This applies in particular to the ICO Newsletter and to the Meetings and Schools with ICO participation.

### **Number of votes of International Organisation Members:**

The number of votes  $N_{v2}$  of an International Organisation Member is determined according to its number of shares  $N_{s2}$  according to the following formula, rounded to the nearest integer but with a minimum of 1:

$$N_{v2} = N_{s2} \frac{\sum N_{v1}}{\max(\sum N_{s1}; \sum N_{s2})}.$$

[Explanation note: e.g., assume the Territorial Committee members together have 200 shares and 100 votes (as is approximately the case in 1999). If the International Organisation Members (IOMs) together have 100 shares, they will have 50 votes (apart from round off errors). If the IOM have 200 shares, they will have 100 votes. If the IOM have 250 shares, they will still have 100 votes and no more. In fact, this is unlikely to happen in the near future, but this rule has been established in response to the concern about the Territorial Committee Members being dominated by the International Organisation Members and loosing control of the ICO.]

### **3 - General Meetings, votes and elections:**

This section complements articles 4 and 8 of the statutes, that provide for a General Meeting of ICO every three years. ICO holds a Congress every three years. The ICO Congress consists of a business part, known as the ICO General Meeting, and an International Scientific Conference part.

#### **Sessions:**

Tradition holds that General Meetings are held in two sessions with more than 24 hours between the end of the first session and the beginning of the second session.

#### **Attendance in the General Meeting**

During any session of the General Meeting, the Secretary circulates a list of attendance. Each attendant signs the attendance list, indicating

- \* their capacity of ICO Bureau member, official delegate an ICO Territorial Committee, representative of an associate member, member of an ICO Committee, or observer (more than one category may apply);
- \* their country or ICO territory.

According to article 4 of the statutes, the number of official delegates of ICO Territorial Committees is equal to their respective numbers of votes. The number of official delegates may in no case exceed the number of votes, but if the actual number of official delegates at a General Meeting is smaller than the number of votes, the Territorial Committee still keeps the same number of votes.

#### **Voting procedure:**



Except as indicated in articles 8 (agenda of the General Meeting), 11 (duration of the commission), 12 (alterations to statutes) and 13 (alterations of the Rules and Codes of Practice) of the statutes, decisions of the General Meeting, including elections, are by a majority of the votes of the members present and taking part.

Except for the ICO Bureau election, where secret ballot is the rule, the ICO President decides whether votes need to be made by secret ballot. A member having N votes is provided with N ballot forms; this applies to both the Territorial Committee members and the International Organisation members. The member may decide to cast identical ballots or not.

### **Nomination procedure:**

Candidates for the ICO Bureau may be nominated by the ICO nominating Committee (see section 6 below) and/or by the Territorial Committees. No other nomination may be received. The Nominating Committee writes to the Territorial Committees at least one year before the election to request nominations for all positions in the ICO Bureau.

Endorsement of all candidates by their respective Territorial Committees is requested in all cases. In addition, Territorial Committees may endorse candidates from any Territory. At the time of the General Meeting, the delegation of the Territorial Committee to the General Assembly makes endorsements in its name.

Endorsement means that the person is considered by the endorsing Territorial Committee as a good person to stand for an ICO election and is to be understood as an intention, not an obligation, to support this candidate at the election, given the list of candidates at the time the endorsement is made.

The Nominating Committee establishes a first list of candidates that is sent to the territorial Committees along with the agenda of the General Meeting.

Nominations may be received until 24 hours before the election. After the closure of nominations, the Nominating Committee establishes a final list of candidates. In addition, each candidate provides the Nominating Committee with a short curriculum vitae and a statement on his/her policy if elected for distribution to the General Meeting.

Except as provided in this and in the next subsection, there is no official campaign for the ICO Bureau.

### **Elections for the ICO Bureau:**

Bureau Elections are by secret ballot in all cases.

Tradition holds that:

- \* during the first session of the General Meeting, the Nominating Committee presents its report and indicates the current list of candidates for the ICO Bureau offices;
- \* elections are held during the second session of the General Meeting;
- \* for the offices of President, Treasurer, Secretary and Associate Secretary, each candidate is given, immediately before the vote, a short prescribed time (typically between 5 and 10 minutes) to present himself and his/her policy to the General Meeting. If there is only one candidate, that procedure is optional.

The elections are conducted by the chairperson of the Nominating Committee. After each vote, the Nominating Committee counts the votes and during that time, the General Meeting may treat agenda items other than the elections.

In the case of a tie for any vote, the elder candidate is declared elected.

For any vote, if the number of candidates is equal to the number of seats, the Nominating Committee Chairperson may decide that there is no vote and declare the candidate(s) elected.

Concerning the Vice-Presidents, the idea is that eight Vice-Presidents represent the Territorial Committee Members and are elected only by the Territorial Committee Members, while a number of Vice-Presidents represent the International Organisation Members and are elected only by the International Organisation Members. Since it is not advisable to have too many members on the Bureau, the number of Vice-Presidents representing Territorial Committee Members has been set to eight, and the maximum number of Vice-Presidents representing International Organisation Members has also been set to eight.<sup>1</sup>

The votes are held in the following order:

Executive Committee (elected by all members):

- \* one vote for the President;
- \* one vote for the Treasurer;
- \* one vote for the Secretary;
- \* one vote for the Associate Secretary.
- \* Vice-Presidents elected by Territorial Committee Members (only the Territorial Committee Members vote):

- in a first vote, members vote on four (4) names; all candidates are eligible, whether they come from industry or not; if, among the first four (4) candidates ranked by

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<sup>1</sup> The whole point of having an International Organisation Member category is to give them close contact with the ICO and therefore they are well represented in the Bureau. Nevertheless, their representation in the Bureau cannot exceed that of the Territorial Committee Members. Just like it is impossible for all Territorial Committee Members to have someone on the Bureau, it will also be impossible for all International Organization Members to have someone on the Bureau if their number exceeds eight. While this is a fair rule, it may generate difficulties and frustration if the number of International Organization Members happens to be just slightly larger than eight. If that happens, one option open to the ICO President will be to invite those International Organization Members that have no Vice-President to attend part or all of the Bureau meetings as observers.

number of votes, no one is from industry, the first three (3) are declared elected; if at least one is from industry, the first four (4) are declared elected;

- if the first vote did not lead to the election of two (2) candidates from industry, a second vote is made, where only candidates from industry are eligible; as a result of this vote, the number of candidates from industry elected is brought to two (2); in that vote, members vote on one (1) or two (2) names, depending on how many candidates should be elected;
- in a last vote, all candidates are eligible, whether they come from industry or not, and the total number of Vice-Presidents is brought to eight; in that vote, members vote on three (3) to four (4) names, depending on how many candidates should be elected.

In every vote, the ballots forms given to the voting members should indicate the number of seats to be assigned by this vote; nevertheless, ballots with a smaller number of votes are valid. On one given ballot form, no name should be written more than once and the ballot form must be explicit about that rule. If nevertheless one name is duplicated, it is counted only once. Ballots containing a number of different names larger than the number of seats to be assigned are not valid.

Tradition holds that for ICO elections, the detail of votes are not made public but are kept by the Nominating Committee Chairperson. Consequently, it is not sensible to repeat votes in order to reach an absolute majority and the applicable majority rule is always the relative majority, i.e. the candidates that have more votes are elected, whether they have reached the absolute majority or not.

Old version	Proposed new version
<p>* Vice-Presidents representing International Organisation Members:</p> <p>For the Vice-Presidents appointed by the International Organisation Members, prior to the General Meeting, every International Organisation Member appoints one representative. If the representative is elected on the Executive Committee or as one of the eight elected Vice-Presidents, the International Organisation Member appoints another representative at its earliest convenience.</p> <ul style="list-style-type: none"> <li>• If there are less than eight International Organisation members, their representatives automatically become Vice-Presidents.</li> <li>• If there are more than eight International Organisation Members, unless a consensus</li> </ul>	<p>*Vice-Presidents representing International Organisation Members (IOM):</p> <p>For the Vice-Presidents appointed by the International Organisation Members, prior to the General Meeting, every International Organisation Member appoints one representative. If the representative is elected on the Executive Committee or as one of the eight elected Vice-Presidents, the International Organisation Member appoints another representative at its earliest convenience <i>but no later than September 30th</i>.</p> <ul style="list-style-type: none"> <li>• If there are less than eight International Organisation members, their representatives automatically become Vice-Presidents.</li> <li>• If there are more than eight</li> </ul>

<p>agreement is found among the International Organisation Members, the election of their eight Vice-Presidents takes place last and the candidates are automatically the appointed representatives of the International Organisation Members.</p>	<p>International Organisation Members, unless a consensus agreement is found among the International Organisation Members, the election of their eight Vice-Presidents takes place last and the candidates are automatically the appointed representatives of the International Organisation Members.</p> <p><i>The Nominating Committee contacts the International Organization Members at least six months before the GA to request the appointments.</i></p>
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#### **4 - Classification for the participation of ICO in Meetings and Schools:**

There are four categories for ICO participation in meetings and in summer (or fall, or winter, or spring) schools:

- 1 - ICO General Meetings
- 2 -Other major ICO events "; whenever appropriate, these events may receive the designation "ICO Special Meeting", "ICO Topical Meeting", "ICO School", "ICO Regional Meeting"
- 3 - ICO Cosponsored Meetings and Schools
- 4 - ICO Endorsed Meetings and Schools.

The applicable rules are given in the table on the next page.

Caption:                      SR: strictly required  
                                      UR: usually required  
                                      NR: not required  
                                      PO: possible  
                                      NO: usually not

Any meeting with ICO participation, classified in category 2,3 or 4 may be given by the Bureau the name of ICO Satellite Meetings if it is scheduled to take place within 15 days of an ICO General Meeting or other major ICO event..

#### **Note on registration fees:**

As a rule, ICO adheres to the IUPAP upper limit on registration fees. Even though the participation of scientists from disadvantaged areas usually requires special measures independently of the cost of registration, high registration fees tends to limit participation, in particular from students and to be a form of discrimination between scientists.

Specifically, ICO conferences submitted to IUPAP sponsorship must necessarily to follow the IUPAP limit in all cases. These are the General Meetings, Topical Meetings and other major ICO events — usually one per year. For the other events with ICO participation, registration fees higher than the limit can occasionally be accepted provided that an option exists for any scientist to request, at least six weeks in advance, application of the IUPAP limit and still be fully registered, perhaps with the exception of some social events. That option must be known to registrants.

### **Decision procedure:**

The ICO Bureau approves all forms of ICO participation in international conferences, and authorizes the related grants:

- \* the meeting and school applications are processed twice annually, with the deadlines of applications on April 15 and October 15 of each year
- \* the applications must be received by ICO Secretariat by a deadline that is at least 12 months prior to the event and before the first announcement
- \* when the applications are received, the ICO President, Treasurer, and Secretary or Associate Secretary get in touch by some fast procedure and issue a memo including the background information relevant to the meeting. The memo may include a proposition concerning the category of ICO meeting applicable, the opportunity to grant the sponsorship requested, and the opportunity to grant financial support
- \* reply form is sent to the Bureau members; it includes the proposition
- \* in any event, if the approval by the relevant Territorial Committee is not clear from the application form, the Territorial Committee is contacted at the same time as the Bureau members and it has a right of veto for 45 days after the letter has been sent; the default is that there is no veto
- \* no later than one month after application deadline, the decisions are made on the basis of the replies obtained so far from the Bureau members. Only the votes received are counted, the votes not received are not considered as approvals of the proposition of the subcommittee.

<b><u>ICO CATEGORY</u></b>	<b><u>1-ICO General 2- Other major ICO events</u></b>	<b><u>3-ICO Cosponsored</u></b>	<b><u>4-ICO Endorsed</u></b>
<b><u>REQUIREMENTS</u></b>			
a) ICSU rules on free movement of scientists	SR	SR	SR
b) good scientific quality as perceived by the ICO Bureau	SR	SR	SR
c) international character (typically > 30% participants and > 50% program Committee members from outside territory)	SR	SR	SR
d) industrial participation in Committees	UR	UR	UR
e) registration fee to follow IUPAP rules	SR	UR (see text)	UR (see text)
f) timeliness very clear, novelty	SR	UR	UR

g) participation in the ICO Proceedings Donation Programme	UR	UR	NR
h) approval by Territorial Committee (if there is one)	SR	SR	SR
<b>ICO PARTICIPATION</b>			
h) ICO Secretary or Associate Secretary in Organising Committee	SR	UR	NR
i) ICO designates one member of Programme Committee	SR	SR	UR
j) ICO associated from the beginning (usually at least 18 months in advance)	SR	SR	NR
k) use of ICO logo	SR	UR	PO
l) grant	PO	PO	NO
m) loan (reimbursable whether deficit or benefit)	PO	PO	NO
n) participation in budget, risk and benefits	PO	PO	NO
o) support for participation of scientists from regions of the world requiring special support	PO	PO	PO
p) announcements in Newsletter	SR	SR	PO
q) distribution of documents through ICO channels	SR	PO	NO

### Financial participation of ICO:

According to the table above, ICO may give a grant or a loan to meetings and schools of categories 1, 2 and 3. A special form of a grant, that can apply to all categories, is the financial support for the participation of scientists from regions of the world requiring special support. In that case, the amount is usually sent to the organisers with the instruction that they should spend it on financial support to identified scientists from such regions, inform the recipients of the support from ICO and send the list of recipients to ICO; whenever possible, the organisers should be requested to complement the ICO grant, for example by waiving the registration fees for the recipients.

Alternatively, ICO may also wish to take part where practicable in the risks or benefits of meetings and schools of categories 1, 2 and 3. That is possible, if the local law permits, in the following conditions:

- \* ICO accepts a financial responsibility up to an amount of X;
- \* the amount X is paid by ICO to the meeting organisers in the form of a treasury advance; it is made available to the organisers by the ICO Treasurer as soon as they request it;
- \* at the closing of the account and in no case later than one year after the meeting is finished, if there is a deficit:
  - if the deficit is smaller than X, ICO will cover it in its entirety, i.e. the organisers will only have to reimburse ICO the difference;

- if the deficit is larger than X, then ICO will cover it for an amount X, i.e. no money will be reimbursed to ICO;
  - if there is a surplus:
    - if the surplus is smaller than 4X, ICO will receive 25 % of the surplus, i.e. the organisers will reimburse ICO the amount X plus a quarter of the surplus;
    - if the surplus is larger than 4X, the organisers will reimburse ICO two times X.
- Depending on circumstances, slight modifications to this scheme may be made by the Bureau.

Any given Bureau may approve meeting support up to the triennial Meeting Support budget for the triennium of its term, augmented with any return from previously granted participation in risk. Loans are not counted and are limited only by the approval of the Treasurer based on the account balance. There is continuity in the ICO Bureau, therefore the Bureau may approve meetings to be held after the next Bureau elections.

### **5 - Relations with IUPAP:**

IUPAP, at each of its General Meetings designates one Representative to ICO. The IUPAP Representative takes part in the ICO General Meeting.

ICO will normally request sponsorship by IUPAP of its General and Topical Meetings.

ICO will normally request to have associate members in some IUPAP Commissions, as appropriate to maintain close relations.

### **6 - ICO Committees:**

#### **List of ICO Committees:**

In order to assist the General Meeting and the Bureau in their activities, ICO has established the following committees:

- \* Nominating Committee
- \* Long Range Planning Committee
- \* Committee for the Regional Development of Optics
- \* Education Committee
- \* Travelling Lecturer Committee
- \* ICO Prize Committee
- \* ICO Galileo Galilei Award Committee
- \* ICO/ICTP Gallieno Denardo Award Committee

#### **Duties of the committees:**

The specific purpose of each committee is indicated below. Committees report on their activity at each General Meeting and, as appropriate, at each meeting of the Bureau.

- \* The purpose of the Nominating Committee is *to coordinate the elections of the Bureau.*

- \* The purpose of the Long Range Planning Committee is to propose suitable new actions for ICO, with suitable attention for the inclusion of industrial optics in ICO's activities.
- \* The purpose of the Committee for the Regional Development of Optics is to find and implement actions whereby ICO can promote the transfer of optical knowledge and provide practical help to optical scientists and engineers in Developing Nations and in general, geographical areas where optics is not well developed.
- \* The purpose of the Education Committee is to promote education in Optics worldwide.
- \* The purpose of the Travelling Lecturer Programme Committee is indicated in section 7 below.
- \* The purpose of the Standards Committee is to serve as a channel of communication for work on standards in optics, in relation with ISO.
- \* The purpose of the ICO Prize Committee is indicated in section 9 below.
- \* The purpose of the ICO Galileo Galilei Award Committee is indicated in section 10 below.
- \* The purpose of the ICO/ICTP Gallieno Denardo Award Committee is indicated in section 11 below.

### **Membership of the Committees:**

Each committee has a chairperson and members. The following rules apply:

- a) The chairperson of all ICO committees is always a member of the ICO Bureau.
- b) The ICO past-President is ex officio the chairperson of the Nominating Committee and the members are appointed by the chairperson.
- c) The ICO President is ex officio the chairperson of the long range planning Committee and the members are appointed by the chairperson.
- d) The ICO Treasurer is ex officio the chairperson of the Travelling Lecturer Committee.
- e) The ICO Secretary or Associate Secretary is ex officio member of all Committees except the Nominating Committee, the Long Range Planning Committee and the ICO Prize Committee.
- f) Except for the cases of rules b, c, and e above, the members are proposed by the chairperson and appointed by the Bureau. To avoid delays in the operation of Committees, the appointment of members by the Bureau can be made by mail.

### **7 - ICO Travelling Lecturer Programme:**

ICO has established in 1988 a Travelling Lecturer Programme to promote lectures on modern aspects of optics in interested territories by scientists of international reputation with good lecturing skills. The program is aimed specially at developing nations, but is not necessarily restricted to them. As a rule, it is expected that the lecturer's local expenses will be met by the host institution and that ICO's contribution will be towards the travel costs. Scientists or host groups interested in participating in this program should write to the Treasurer of ICO with details of the proposed lecture program and ICO support requested.

Within the financial limits of the budget, an ICO Committee, with the ICO Treasurer as chairperson, decides for the ICO Travelling Lecturer grants. This Committee in principle does not meet, but works by mail and telecommunication facilities so as to secure the fastest response compatible with good operation.



## **8 - ICO Book:**

ICO has established in 1990 a series of books: the title "International Trends in Optics" has been chosen for the series. There is one volume every three years. The ICO President, the ICO past-President or one of the ICO former Presidents acts as the editor.

The books are intended to provide an authoritative overview of research that is underway in the field of optics throughout the world. The articles should be suitable for the specialist and non-specialist alike and should provide general, readable overviews of many different aspects of optical science and engineering. They should tend to be less formal than the standard technical reviews found in journals. In addition to examining their designated topics, the authors should also discuss unsolved research problems and speculate on future directions in their fields.

The royalties typically paid to the editor and the authors are instead paid to ICO.

## **9 - ICO Prize:**

ICO has established in 1982 the ICO Prize, to be given each year to an individual who has made a noteworthy contribution to optics, published or submitted for publication before he or she has reached the age of 40. (Specifically, the Prize winner must not have reached the age of 40 before December 31 of the year for which the Prize is awarded). The character of the work of successive Prize recipients should preferably alternate between predominantly experimental or technological and predominantly theoretical. The "noteworthy" contribution in optics is measured chiefly by its impact (past or possibly future) on the field of optics generally, opening a new subfield or significantly expanding an established subfield in research or technology.

The ICO Prize involves:

- a citation,
- a cash award of an amount established in the triennial budget of the ICO and indicated every year in the call for nominations
- travel support to attend said meeting to an amount to be determined by the Bureau<sup>2</sup>,
- waiver of registration fees at said meeting
- and the invitation to present an invited paper and receive the award at the next ICO Congress or another ICO meeting mutually agreed to by the Bureau and the award winner.<sup>3</sup>

Every year, the ICO Prize Committee issues a call for nominations that is published in the ICO Newsletter, receives the nominations and selects the recipients for approval by the Bureau at its next meeting. The award needs not be made each year if the Prize Committee so chooses. The Prize is preferably given to an individual, but it can be shared by two persons. Eligibility for the Prize is not excluded by previous prizes awarded to the individual. The selected Prize winner is

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<sup>2</sup> For 2005-2008, these amounts are a cash award of US\$2000 and up to US\$1000 towards travel expenses.

<sup>3</sup> In addition, the Carl Zeiss foundation has generously agreed to donate an Ernst Abbe medal.

then announced in the ICO Newsletter and, if possible, in one or more optics journals. The prizes are presented at each ICO General Meeting.

### **10 - ICO Galileo Galilei Medal:**

- 10.1 - The Galileo Galilei medal of ICO is awarded for outstanding contributions to the field of optics which are achieved under comparatively unfavourable circumstances.
- 10.2.1 - The outstanding contributions in the field of optics should refer to:
  - fundamental scientific questions or problems, or
  - research or development of optical methods or devices, or
  - scientific or technical leadership in the establishment of regional optical centres.
- 10.2.2 - "Comparatively unfavourable circumstances" refers to difficult economic or social conditions or lack of access to scientific or technical facilities or sources of information.
- 10.2.3 - The outstanding contributions must be documented, if applicable, by internationally acknowledged publications. Exceptionally, reports can be considered, provided that they are made available to the Award Committee.
- 10.3 - The award is normally given to one person. Exceptionally, however, if a collective contribution is judged to be worthy of the award a team of several persons may be selected.
- 10.4 - Every year, the ICO Galileo Galilei Award Committee issues a call for nominations that is published in the ICO Newsletter, receives the nominations and selects the winner for approval by the Bureau at its next meeting. The award need not be given every year if the Bureau so chooses.
- 10.5 - The award consists of:
  - a) the Galileo Galilei Medal offered by the Italian Society for Optics and Photonics
  - b) a cash award of an amount determined by the Bureau
  - c) assistance in travel as determine by the Bureau<sup>4</sup> to present an invited paper and receive the award at the next ICO Congress or another ICO meeting mutually agreed to by the Bureau and the award winner<sup>5</sup>,
  - d) waiver of registration fees at said meeting
  - e) special attention and appropriate measures of ICO to support the future activities of the award winner.

### **11 – ICO/ICTP Gallieno Denardo Award for Young Researchers from Developing Countries:**

*Approved by ICTP, August 1999. New agreement approved by ICO and ICTP, November 2007.*

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<sup>4</sup> For 2005-2008, these amounts are a cash award of US\$1000 and up to US\$1000 towards travel expenses.

<sup>5</sup> The Società Italiana di Ottica y Fotonica (SIOF) has generously agreed to donate the Medal for a number of years.

ICO, the International Commission for Optics, and ICTP, the Abdus Salam International Centre for Theoretical Physics, Trieste, have agreed to establish a joint prize, called the ICO/ICTP Award. It is reserved for young researchers from developing countries<sup>6</sup>, who conduct their research in a developing country.

The award will be given to scientists less than 40 years old<sup>7</sup> who are active in research in Optics and have contributed to the promotion of research activities in Optics in their own or another developing country.

The award consists of the following:

1) the ICO gives a cash amount<sup>8</sup> and a diploma.

2) The ICTP invites the winner to attend a three weeks College<sup>9</sup> at Trieste at the next appropriate opportunity, and to give a seminar on his/her work when appropriate. ICTP will pay for travel and living expenses.

The award will be delivered to the winner at Trieste in the presence of representatives of ICO and ICTP.

The award is given to one person every year. The winner is selected on the basis of nominations received by the Award Committee in response to a call published by both ICO and ICTP. The Award Committee consists of four members, of which two are appointed by ICO and two by ICTP for a period of three years. Among the four members, ICO appoints the Committee Chair.

The nominations must be documented by a complete curriculum vitae including a list of publications and selected reprints (no more than three) as well as a complete employment history and a description of the nominee's achievements for the promotion of research activity in developing countries.

*Since February 2008 the award has the new definitions as ICO/ICTP Gallieno Denardo Award honouring the memory of the late Prof. Gallieno Denardo.*

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<sup>6</sup> Developing Countries are defined by the list of Developing Countries of the United Nations Organisation.

<sup>7</sup> Specifically, the winner must not have reached the age of 40 on December 31st of the year for which the award is given.

<sup>8</sup> For 2005-2008, the amount is US\$1000.

<sup>9</sup> The ICTP in Trieste organises a Winter College on Optics, or Laser Physics, or Photonics, or Quantum Optics once a year, normally three weeks in February. In the past already, several of these Winter Colleges were organised in cooperation with the ICO, while the ones in February 2006 and 2007 are being organised in cooperation with the ICO, OSA (Optical Society of America), SPIE and OWLS.

### **12 - ICO Proceedings Donation Programme:**

Territorial Committees and scientists from countries that are preparing for ICO membership may request to receive copies of the Proceedings volumes issued on the occasion of meetings participating in the ICO Proceedings Donation Programme. At least all ICO General, Topical, Regional and Cosponsored Meetings participate in the Programme. These proceedings will be kept in a scientific library open to all researchers and engineers working in optics. The cost of printing and shipping will be born by the organisers of the meetings. The ICO Secretariat will keep the mailing list and send the appropriate mailing labels in due time to the meeting organisers. In view of the expenses involved, there will be a limit of one address per ICO Member Territory and one address per country preparing for ICO membership. In addition, it is expected that Member Territories and countries where the access to scientific literature is relatively satisfactory will refrain from requesting to benefit from the Programme.

### **13 - ICO Bureau Meetings:**

The ICO Bureau meets typically one time per year in the years without a General Meeting, and in addition once immediately before and once immediately after every General Meeting.

## THE ICO TERRITORIAL COMMITTEES ICO MEMBERSHIP LIST, MAY 1, 2008

### The ICO Territorial Committees

#### **Argentina**

*Units: 2, votes: 2, member since 1981*  
Prof. Héctor Jorge Rabal  
Centro de Investigaciones Ópticas  
(CONICET-CIC)  
13 y 506, 1897 La Plata, Argentina  
Tel: 221 484 2957 / 471 5249 (212),  
Fax: 221 471 2771  
e-mail: hrabal@ing.unlp.edu.ar

#### **Australia**

*Units: 6, votes: 3, member since 1959*  
Dr John Holdsworth  
University of Newcastle  
Faculty of Science and Information  
Technology  
School of Mathematical and Physical  
Sciences  
Room P104 , Physics Building  
Callaghan NSW 2308 Australia  
Telephone: +61 2 4921 5436  
Facsimile: +61 2 4921 6898  
Email:  
John.Holdsworth@newcastle.edu.au

#### **Belgium**

*Units: 4, votes: 3, member since 1948*  
Dr. Yvon Renotte  
CBO/BCO, President  
c/o Hololab Université de Liège, Institut de  
Physique, B5 Sart Tilman, B-4000 LIEGE,  
Belgium  
Tel.: 41.66.37.72, Fax: 41.66.23.55,  
e-mail: y.renotte@ulg.ac.be  
http://www.phg.ulg.ac.be/Cbo-Bco/

#### **Belorussia**

*Units: 2, votes: 2, member since 1993*  
Prof. Andrey M. Goncharenko  
Territorial Committee for Optics

Optical Territorial Committee  
Republic of Belarus, Prospekt Francis  
Sokorina 66  
220072 MINSK, Bielorrussia  
Tel.: 39 58 16, Fax: 39 31 63,  
e-mail: dopit@adonis.msk.su

#### **Brazil**

*Units: 4, votes: 3, member since 1984*  
Dr. Mikiya Muramatsu  
Brazilian Committee for Optics (BCO),  
President  
Rua do Matao, Travessa R, 187  
05508 900 - Sao Paulo - Brazil  
Tel.: + 55 11 3091 6772, Fax +55 11 3813  
4334, e-mail: mmuramat@if.usp.br

#### **Canada**

*Units: 8, votes: 4, member since 1956*  
Prof. Tigran Galstian  
Ph.D., Eng.  
Professeur Titulaire.  
Universite Laval  
Departement de physique, de genie  
physique et d optique  
Centre d optique, photonique et laser  
Pavillon d Optique-Photonique,  
2375 Rue de la Terrasse,  
Quebec, Canada G1V 0A6  
Tel: (418) 656-2025, Fax: (418) 656-2623,  
e-mail: galstian@phy.ulaval.ca

#### **Chinese Optical Society**

*Units: 8, votes: 4, member since 1987*  
Prof. Guoguang Mu  
ICO Territorial Committee, President  
Institute of Modern Optics  
Nankai University  
94 Weijin Rd  
Tianjin 300071, P.R. China

Tel.: +86 22 2350 3690, Fax: +86 22 2350 3118, e-mail: mugg@nankai.edu.cn  
 express mail address: Bldg 57 Room 401,  
 Xi nan cun, Nankai University, Tianjin  
 300071. P.R.China  
 express mail address: Bldg 21-301, Bei Cu,  
 Nankai University, Tianjin 300071

### **Colombia**

*Units: 1, votes: 1, member since 1990*  
 Prof. Roman Castaneda  
 School of Physics  
 Universidad Nacional de Colombia -  
 Medellín  
 A.A. 3840, Bloque 21, Oficina 427  
 Medellín, Colombia  
 Tel.: +574 430 98 91, Fax: +574 260 44  
 89, e-mail: rcastane@unalmed.edu.co

### **Cuba**

*Units: 1, votes: 1, member since 1993*  
 Dr Angel Augier Calderin  
 Instituto Superior de Tecnologías y  
 Ciencias Aplicadas (InSTEC)  
 Avenida Salvador Allende S/N  
 Quinta de los Molinos  
 La Habana, Cuba, CP 10 600  
 Tel.: (537) 878-5018, (537) 879-7858  
 e-mail: augier@instec.cu

### **Czech Republic**

*Units: 2, votes: 2, member since 1948*  
 Dr. Miroslav Hrabovsky  
 Territorial Committee of ICO, secretary  
 SLO UP and FZU AV CR  
 17. Listopadu 50  
 772 07 Olomouc, Czech Republic  
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## **International Society Members**

For the definition of the units and votes, refer to article 4 of the ICO Statutes in this document. The total International Society membership is 6. These 6 members together represent 15 units and 11 votes.

### **African Laser, Atomic and Molecular Physics Network**

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**International Society on  
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**Optical Society of America**

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**SPIE - the International Society  
for Optical Engineering**

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### *Treasurer:*

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740-4449  
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### *Secretary:*

#### **Prof. Maria L. CALVO**

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### *IUPAP Executive Council Delegate:*

#### **Prof. Yves PETROFF**

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### *Senior Adviser (ad personam):*

#### **Dr. Pierre CHAVEL**

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***Vice-Presidents, appointed:***

**Prof. Min GU**

*(appointed by OWLS)*

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*(appointed by IEEE/LEOS)*

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*(appointed by OSA)*

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**Dr. H. Philip STAHL**

*(appointed by SPIE)*

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**Prof. Ahmadou WAGUÉ**

*(appointed by LAM Network)*

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## ICO COMMITTEES, 2005 – 2008

### ICO Nominating Committee:

Chair: R. Dändliker (*ex-officio*)  
 Members: A. Consortini  
 A. Friesem  
 A. Guenther (†)  
 R. Sirohi

### ICO Long Range Planning Committee:

Chair: A. T. Friberg (*ex-officio*)  
 Members: R. Dändliker  
 M.L. Calvo  
 G. Sincerbox  
 B.Y. Kim  
 G. Jin

### ICO Committee for the Regional Development of Optics:

Chair: A. M. Guzmán  
 Members: M.L. Calvo (*ex-officio*)  
 G. von Bally (*ex-officio*)  
 G. C. Righini

#### Latin American Subcommittee:

Members: M. Tebaldi (Argentina)  
 H. Kalinowski (Brazil)  
 C. Treviño (Mexico)

#### Asian Subcommittee:

Members: A. Sharma (India)  
 I. Ashraf Zahid (Pakistan)  
 S. Sumriddetchkajorn

#### African Subcommittee:

Members: Z. Ben Lakhdar (Tunisia)  
 P. Buah-Bashuah (Ghana)  
 S. Diomande (Côte d'Ivoire)  
 M. Semlali (Morocco)

### ICO Education Committee:

Chair: M. Kujawinska  
 Members: S. Bagayev  
 M. L. Calvo (*ex-officio*)  
 P. Chavel  
 P. Stahl  
 A. Wagué

### ICO Prize Committee:

Chair: B.Y. Kim  
 Members: A. Friesem  
 J. Love  
 G. Jin  
 S. Bagayev

### ICO/ICTP Award Committee:

Chair: A. Wagué  
 Members: A. Consortini (ICO)  
 M. Danailov (ICTP)  
 G. Denardo (ICTP) (†)

### Galileo Galilei Award Committee:

Chair: I. Yamaguchi  
 Members: S. Bagayev  
 Z. Ben Lakhdar  
 A. Consortini  
 N. G. Gaggioli  
 V. Vlad

### ICO Travelling Lecturer Program Committee:

Chair: A. Sawchuk (*ex-officio*)  
 Members: M.L. Calvo (*ex-officio*)  
 A.T. Friberg  
 G. Sincerbox

(†) A. Guenther passed away on April 21, 2007. G. Denardo passed away on July 23, 2007.

## **Miscellaneous:**

ICO Associate Member in IUPAP Commissions (term 2003-2006):

C13, Physics on Development: Prof. Ahmadou Wagué

C15, Atomic and Molecular Physics and Optical Physics: Prof. A. Guzmán

C17, Quantum Electronics: Prof. S. Bagayev

ICO representative in the OiC/IP Steering Committee: Prof. A. Sawchuk

## **ICO representative in the ETOP Long Range Planning Committee: Prof. Ari T. Friberg**

Special mission for ICSU membership: Dr. Pierre Chavel

Special mission for African Laser Centre (ALC): Prof. Arthur H. Guenther (†)

## **Addresses of ICO Committees members who are not presently ICO Bureau members:**

**Prof. I. Ashraf Zahid**, Department of Physics, Quaid-i-Azam University, Islamabad, 45320, Pakistan, iashraf@qau.edu.pk

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**Prof. Asher A. Friesem**, Department of Physics of Complex Systems, the Weizmann Institute of Science, P.O. Box 26, Rehovot 76100 Israel, phone +972 8 934 3963, fax +972 8 934 4109, e-mail friesem@wicc.weizmann.ac.il

(†) On April 21, 2007, Arthur H. Guenther passed away.

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## FORMER MEMBERS OF THE ICO BUREAU

### 1947-1950

<b>T. Smith</b>	Great Britain	President
A. Arnulf	France	Treasurer
P. Fleury	France	Secretary
J. Hrdlicka	Czechoslovakia	Vice-President
S. S. Ballard	U.S.A.	Vice-President
A. C. S. van Heel	The Netherlands	Vice-President

### 1950-1953

<b>A. C. S. van Heel</b>	The Netherlands	President
A. Arnulf	France	Treasurer
P. Fleury	France	Secretary
S. S. Ballard	U.S.A.	Vice-President
L. C. Martin	Great Britain	Vice-President
J. M. Otero	Spain	Vice President

### 1953-1956

<b>A. C. S. van Heel</b>	The Netherlands	President
A. Arnulf	France	Treasurer
W. D. Wright	Great Britain	Secretary
S. S. Ballard	U.S.A.	Vice-President
E. Ingelstam	Sweden	Vice-President
J. M. Otero	Spain	Vice-President

### 1956-1959

<b>S. S. Ballard</b>	U.S.A.	President
W. D. Wright	Great Britain	Secretary-Treasurer
E. Ingelstam	Sweden	Vice-President
G. Hansen	Germany	Vice-President
A. Maréchal	France	Vice-President
G. Toraldo di Francia	Italy	Vice-President

### 1959-1962

<b>E. Ingelstam</b>	Sweden	President
W. D. Wright	Great Britain	Secretary-Treasurer
J. G. Baker	U.S.A.	Vice-President
A. Maréchal	France	Vice-President
P. Mollet	Belgium	Vice-President
G. Toraldo di Francia	Italy	Vice-President

**1962-1965 (Postponed to 1966)**

<b>A. Maréchal</b>	France	President
W. D. Wright	Great Britain	Secretary-Treasurer
G. Cario	Germany	Vice-President
W. L. Hyde	U.S.A.	Vice-President
H. Kubota	Japan	Vice-President
P. Mollet	Belgium	Vice-President

**1966-1969**

<b>G. Toraldo di Francia</b>	Italy	President
W. L. Hyde	USA	Secretary-Treasurer
L. E. Howlett	Canada	Vice-President
H. H. Hopkins	Great Britain	Vice-President
H. Kubota	Japan	Vice-President
T. Skalinski	Poland	Vice President

**1969-1972**

<b>H. H. Hopkins</b>	Great Britain	President
J.-Ch. Viénot	France	Secretary Gen & Treasurer
B. Havelka	Czechoslovakia	Vice-President
R. M. Scott	U.S.A.	Vice-President
K. Kinosita	Japan	Vice-President
W. H. Steel	Australia	Vice-President

**1972-1975**

<b>W. H. Steel</b>	Australia	President
J.-Ch. Viénot	France	Secretary Gen. & Treasurer
K. M. Baird	Canada	Vice President
B. Billings	U.S.A.	Vice President
A. Fiorentini	Italy	Vice President
B. Havelka	Czechoslovakia	Vice-President
K. Kinosita	Japan	Vice-President
H. Koehler	Germany	Vice-President

**1975-1978**

<b>K. M. Baird</b>	Canada	President
W. H. Steel	Australia	Past President
J.-Ch. Viénot	France	Secretary General
F. D. Smith	U.S.A.	Vice President & Treasurer
B. Karczewski	Poland	Vice President
A. W. Lohmann	Germany	Vice President
L. Plaza	Spain	Vice President
J. Tsujiuchi	Japan	Vice President
W. T. Welford	Great Britain	Vice President

**1978-1981**

<b>A. W. Lohmann</b>	FRG	President
K. M. Baird	Canada	Past-President
H. J. Frankena	The Netherlands	Secretary-General
F. D. Smith	USA	Treasurer & Vice-President
E. Marom	Israel	Vice-President
K. Schindl	Austria	Vice-President
T. Skalinski	Poland	Vice-President
J. Tsujiuchi	Japan	Vice-President
W. T. Welford	Great Britain	Vice-President

**1981-1984**

<b>J. Tsujiuchi</b>	Japan	President
A. W. Lohmann	FRG	Past-President
H. J. Frankena	The Netherlands	Secretary-General
J. N. Howard	USA	Vice President & Treasurer
F. T. Arecchi	Italy	Vice President
K. Biedermann	Sweden	Vice President
S. Lowenthal	France	Vice President
T. Skalinski	Poland	Vice President
P. Varga	Hungary	Vice President

**1984-1987**

<b>S. Lowenthal</b>	France	President
J. Tsujiuchi	Japan	Past-President
H. J. Frankena	The Netherlands	Secretary-General
J. N. Howard	USA	Treasurer
H. H. Arsenault	Canada	Vice-President
K. Biedermann	Sweden	Vice-President
E. Byckling	Finland	Vice-President
J. W. Goodman	USA	Vice-President
P. Hariharan	Australia	Vice-President
M. P. Petrov	USSR	Vice-President

**1987-1990**

<b>J. W. Goodman</b>	USA	President
S. Lowenthal	France	Past-President
J. C. Dainty	Great Britain	Secretary-General
P. Hariharan	Australia	Treasurer
H. H. Arsenault	Canada	Vice-President
M-W Chang	O.E. Soc. Taipei	Vice President
A. Consortini	Italy	Vice-President
F. Lanzl	FRG	Vice-President
D. Malacara	Mexico	Vice-President

J. Perina	Czechoslovakia	Vice-President
-----------	----------------	----------------

### 1990-1993

<b>J. C. Dainty</b>	Great Britain	President
J. W. Goodman	USA	Past-President
P. Chavel	France	Secretary-General
P. Hariharan	Australia	Treasurer
T. Asakura	Japan	Vice-President
A. Consortini	Italy	Vice-President
F. Lanzl	FRG	Vice-President
G. Lupkovics	Hungary	Vice-President
K. Rebane	former USSR	Vice-President
G. Sincerbox	USA	Vice-President
C.H.F. Velzel	The Netherlands	Vice-President
M.J. Yzuel	Spain	Vice-President

### 1993-1996

<b>A. Consortini</b>	Italy	President
J.C. Dainty	Great Britain	Past-President
P. Chavel	France	Secretary-General
R.R. Shannon	USA	Treasurer
T. Asakura	Japan	Vice-President
K. Chalasinska-Macukov	Poland	Vice-President
S.S. Lee	Korea (Republic of)	Vice-President
F. Merkle	FRG	Vice-President
G.G. Mu	Chinese Opt. Soc.	Vice-President
G. Sincerbox	USA	Vice-President
C.H.F. Velzel	The Netherlands	Vice-President
M.J. Yzuel	Spain	Vice-President

### 1996-1999

<b>T. Asakura</b>	Japan	President
A. Consortini	Italy	Past-President
P. Chavel	France	Secretary-General
A.T. Friberg	Finland	Associate Secretary
R.R. Shannon	U.S.A	Treasurer
K. Chalasinska-Macukov	Poland	Vice-President
R. Dândikler	Switzerland	Vice-President
A.H. Guenther	U.S.A	Vice-President
M.C. Hutley	U.K.	Vice-President
S.S. Lee	Korea (Republic of)	Vice-President
F. Merkle	Germany	Vice-President
G.G. Mu	Chinese Opt. Soc.	Vice-President
J. Ojeda-Castañeda	Mexico	Vice-President

**1999-2002**

<b>A.H. Guenther</b>	USA	President
T. Asakura	Japan	Past-President
P. Chavel	France	Secretary-General
A.T. Friberg	Sweden	Associate Secretary
G.T. Sincerbox	USA	Treasurer
H.H. Arsenaault	Canada	Vice-President appointed
R. Dändliker	Switzerland	Vice-President
U. Kim	Korea (Republic of)	Vice-President
J. Ojeda-Castañeda	México	Vice-President
G. C. Righini	Italy	Vice-President
C- Sheppard	Australia	Vice-President
L.L. Wang	Netherlands	Vice-President
M.L. Calvo	Spain	Vice-President
A.A.Friesem	Israel	Vice-President
D.A.B.Miller	USA	Vice-President appointed
Y. Petroff	France	Vice-President appointed
B.E.A. Saleh	USA	Vice-President appointed
T. Tschudi	Germany	Vice-President appointed

**2002-2005**

<b>R. Dändliker</b>	Switzerland	President
A. H. Guenther	USA	Past-President
M. L. Calvo	Spain	Secretary-General
A.T. Friberg	Sweden	Associate Secretary
G.T. Sincerbox	USA	Treasurer
H.H. Arsenaault	Canada	Vice-President appointed
A. A. Friesem	Israel	Vice-President
N. G. Gaggioli	Argentina	Vice-President
G. Jin	China	Vice-President
B. Y. Kim	Korea	Vice-President
M. Kujawinska	Poland	Vice-President
G. C. Righini	Italy	Vice-President
A. A. Sawchuk	USA	Vice-President appointed
T. Tschudi	Germany	Vice-President appointed
G. von Bally	Germany	Vice-President appointed
A. Wagué	Senegal	Vice-President appointed
L. Wang	The Netherlands	Vice-President
A. M. Weiner	USA	Vice-President appointed
I. Yamaguchi	Japan	Vice-President
P. Chavel	France	Senior Adviser (ad personam)
Y. Petroff	France	IUPAP Executive Council Delegate

This list was compiled from ICO records but may contain inaccuracies and omissions: please send any corrections to the Secretary-General



## **PART IV: THE 2008 GENERAL MEETING**

# MINUTES OF THE 20TH GENERAL MEETING OF THE INTERNATIONAL COMMISSION FOR OPTICS

held on August 22nd and 25th, 2005 in Changchun, China



The President of the Commission, Prof. R. Dändliker, was in the chair and the following were present:

## ICO Bureau:

Secretary	M.L. Calvo
Associate Secretary	A.T. Friberg
Treasurer	G.T. Sincerbox
Vice-Presidents	H.H. Arsenault, A.A. Friesem, N.G. Gaggioli, G. Jin, M. Kujawinska, B.Y. Kim, G.C. Righini, A.A. Sawchuk, T. Tschudi, G. Von Bally, A. Wagué, I. Yamaguchi
Senior Adviser	P. Chavel

Apologies for absence have been received from A.H. Guenther, L.L. Wang, A. Weiner.

## Delegates and Observers:

Argentina	N. Gaggioli
Australia	J. Love, M. Gu (1)
Belgium	<i>No delegate attended</i>
Belorussia	<i>No delegate attended</i>
Brazil	<i>No delegate attended</i>
Canada	R.A. Lessard, P. Wizinowich (2), Y. Sheng (2)
Chinese Optical Society	Mu Guoguang, Jin Guofan, Cao Jianlin, Ming Xuan
Columbia	A. Guzman, E. Solarte (o-1)
Cuba	<i>No delegate attended</i>
Czech Republic	M. Hrabovsky, P. Horvath
Denmark	<i>No delegate attended</i>
Ecuador (a)	<i>No delegate attended</i>

Estonia*	<i>No delegate attended</i>
Finland	A.T. Friberg, T. Jääskeläinen
France	P. Chavel, J.L. Meyzonnette, Mane-Si-Laure Lee, C. Montes
Germany	G. Von Bally
Ghana / West Africa	A. Wagué
Greece* (a)	<i>No delegate attended</i>
Hungary	<i>No delegate attended</i>
India	Chetan .J. Panchal
Indonesia	S. Jutamulia
Ireland	<i>No delegate attended</i>
Islamic Republic of Iran	M.T. Tavassoli
Israel	A.A. Friesem
Italy	G. Righini, A. Consortini
Japan	I. Yamaguchi, M. Yokota, H. Yoshikawa (2), K. Hibino (2), O. Sasaki (2), T. Yataga (o-2)
Korea	B.Y. Kim, Chang Kwon Hwangbo
Latvia*	<i>No delegate attended</i>
Lithuania*	<i>No delegate attended</i>
Mexico	Rufino Díaz-Uribe, Fermín Granados
Moldova (a)	<i>Not delegate attended</i>
Morocco*(a)	<i>No delegate attended</i>
Netherlands	M.J. Bastiaans (o)
New Zealand	J.D. Harvey (1)
Norway	<i>No delegate attended</i>
Optical Engineering Society in Taipei, China	Arthur Chiou
Poland	M. Kujawinska
Romania	<i>No delegate attended</i>
Russia	N.D. Kundikova, V. Trofimov (2)
Singapore	Shun Ping (1), X. Yuan (2)
Slovak Republic	Represented by Czech Committee
Spain	S. Vallmitjana, M.L. Calvo, M.J. Yzuel
Sweden	<i>No delegate attended</i>
Switzerland	R. Dändliker
Tunisia* (a)	<i>No delegate attended</i>
Turkey	Represented by Committee of Mexico
Ukraine	V. Lysiuk (1), Represented by Committee of Poland (2)
United Kingdom	C.J.R. Sheppard
United States of America	V. Lakshminarayanan, A.A. Sawchuk, G. Sincerbox
Venezuela	Represented by Committee of Columbia
EOS	T. Tschudi
IEEE LEOS	<i>No delegate attended</i>

LAM Network*	A. Wagué
OSA	A. Sawchuk
OWLS*	G. Von Bally, Min Gu (2)
SPIE	H.H. Arsenaault
(1) First session only	
(2) Second session only	
(o) Observer	
(*) Conditioned to designation of new representative	

The items were distributed between the first and second sessions as follows:

First Session, Monday, August 22nd, 4:00 PM – 6:00 PM

- 1 Minutes of the 19th General Meeting
- 2 Matters arising from the 19th General Meeting
- 3 Report of the President for 2002-2005
- 4 Report of the Secretary-General for 2002-2005
- 5 Finance (a) Treasurer's Report  
(b) Proposed budget 2005-2008  
(c) Unit subscription in 2005-2008
- 6 Changes in the ICO Rules and Code of Practice
- 7 Admittance of new members
- 8 Reports of ICO Committees (a) Nominating Committee

Second Session, Thursday, August 25th, 4:30 PM- 6:30 PM

- 10 Date and venue of the General Meeting ICO XXI
- 8 Reports of ICO Committees, continued
  - (b) Committee for the Regional Development of Optics
  - (c) Traveling Lecturers Committee
  - (d) ICO Prize Committee
  - (e) ICO/ICTP Award Committee
  - (f) ICO Galileo Galilei Award Committee
  - (g) ICO Education Committee
  - (h) ICO Standards Committee
- 9 Conferences with ICO participation
- 11 Late nominations for the ICO Bureau Elections
- 12 ICO Bureau Elections for the term 2005-2008
- 13 Other business

Opening Session

R. Dändliker, President, welcomes the participants and expresses thanks to the organizers of the ICO XX Congress. It is remarkable that this is the first time that an ICO General Meeting and General Assembly take place in a developing country and the third time in an Asian country after Japan and South Korea. This is an indication that ICO is focusing its role on the promotion

of optics and photonics all over the world and to maintain its lemma: "ICO, the place where the optics world meets". Speaking on behalf on the entire ICO Bureau, Prof. Dändliker thanks to the members who have now completed their two terms and will be therefore leaving the Bureau: A.H. Guenther, Past President and Chair of the Nominating Committee, G.C. Righini, Chair of the Committee for Regional Development, G. Sincerbox, Treasurer and Chair of the Traveling Lecture Program, L.L. Wang, Chair of the Committee for Standards. Moreover, it is expected that their contributions will continue as an appreciate collaboration.

### **First Session**

#### **1 Minutes of the ICO-19 General Assembly**

The minutes were approved unanimously.

#### **2 Matters arising from the ICO-19 General Assembly**

None

#### **3 Report of the President for 2002-2005 and report of the Long Range Planning Committee**

R. Dändliker, President, reviews the main ICO activities during the triennium (an extensive report can be found in the Green Book on pp. 2-9):

ICO has set a firm basis for its role in impacting the explosive growth of optics and photonics as a major technical field positively influencing both our quality of life as well as being an economic stimulus for the 21st Century.

##### **Developing countries:**

ICO continues to focus many of its activities on developing nations. It has participated in initiatives in Latin America, having a Bureau meeting in Venezuela and being involved in the establishment of new activities in these geographical regions. ICO is very much concerned on Africa, and the various African regions to participate in future actions for the promotion of Optics in addition to the existing series of ICO cosponsored conferences. ICO has continued its close cooperation with the ICTP (The International Center for Theoretical Physics) optics programs in Trieste, initiated and promoted by Gallieno Denardo, who received as recognition for this achievement the SPIE Education Award 2005.

##### **Global promotion of Optics:**

The ICO has improved its global coverage by increasing its member basis by 3 Territorial Committees, 2 International Societies, and 4 Associate TCs. ICO appreciates the participation of International Society Member, and this has proved a fruitful initiative initiated in 1999.

The ICO has also applied its traditional policy of recognizing optics related achievements on an international basis through several awards including the ICO Prize, the Galileo Galilei Award and the ICO/ICTP Award.

ICO has launched a series of books entitled "Trends in Optics". For the term 2002-2005 there was no technical possibility for developing this activity that remains as a future action for the forthcoming term.

##### **ICO supported conferences and schools:**

ICO cosponsored or endorsed during the last 3 years period more than 30 conferences and schools. ICO supports, in collaboration with the SPIE and OSA, the Conference on Education and Training in Optics and Photonics, most recently convened during 2003 in Tucson.

*Sanctions introduced by the US Government:*

The ICO was alerted by an official letter of the Iranian Territorial Committee to the impact of the sanctions introduced by US, concerning restrictions on membership to US based international societies, travelling, visa and scientific publications. Copies of this letter were sent to the representatives of our US based international society members OSA, SPIE and IEEE/LEOS, as well as to the IUPAP representative.

*The World Year of Physics 2005:*

The United Nations has declared 2005 the World Year of Physics. ICO has been involved along with other international organizations in the activities for this unique opportunity to increase visibility and presence of optics and physics. A special ICO logo was launched. Moreover, contacts with Territorial Committees have been addressed to encourage local actions.

*ICO membership in ICSU:*

The General Assembly of the ICO in Florence has appointed its Bureau to apply for the status of an ICSU International Scientific Associate. The ICO Bureau has now finalized the application, prepared essentially by Pierre Chavel, and it has been deposited and received by ICSU in February 2005, supported by an extensive document describing optics as a branch of science and engineering with interactions both within physics and outside physics.

*Future tasks:*

- Improve efficiency (reduce costs) of ICO Newsletter distribution with the help of the TCs
- Improve interaction with the Territorial Committees (special activities)
- Develop and improve the efficiency of Regional Development activities (main task of ICO)
- Dissolve Committee on Standards (integrate some activities into Regional Development)
- Revitalize ICO Book (content rather topical than general)

#### **4 Report of the Secretary-General for 2002-2005**

ICO Secretariat is the common house for all the members and associated ones. It is having as a main objective to focus on the vision statement: “ICO, the place where the optics world meets” and thus to contribute to the progress and spread of knowledge of optics. ICO Secretariat considers that it has to focus many of its activities on two priority areas: a) developing countries, and b) education and training in optics.

The long-standing collaboration with the ICTP, the Abdus Salam International Centre for Theoretical Physics in Trieste results in common activities, including the annual “Winter College on Optics” in Trieste. ICO Secretary also contributes to the dissemination of information of the three awards: ICO Prize, ICO Galileo Galilei Award and ICO/ICTP Prize, specially aimed at recognising noteworthy achievements of researchers in parts of the world where the development of optics and photonics requires special support, and to young researchers. Posters with information of these three awards have been edited and sent to Territorial Committees and are available from ICO web site. There is an interest in the participation in the optics activities in Africa.

The Secretariat is also playing a role in establishing a unified series of international optics meetings in Spanish and Portuguese speaking countries. It is contributing as well in International

topical meetings on Education and Training in Optics and Photonics (ETOP), whose eighth edition was held in 2003 in Tucson (USA).

The secretary maintains the information database on members. The initiative of creating the new membership category “International Organization Member” in 1999 has proved quite useful and good and close contacts exist with the six first members in that category. There are currently 45 Member Territories and 3 more applications have been received from 3 of the 5 Associate Members. The bureau has approved 2 of them (see section 6). It is mentioned that some of the Territorial Committee members sometimes overlook to update the composition of their Committee or board when elections for a new term are held. Also, the ICO would like to have a copy of the operating rules (statutes, bylaws, etc.) used by its members. This is now a requirement for all new membership applications, but some of the more faithful members of ICO apparently never provided the information. The basic rules of Territorial Committees are that they must be representative of and maintain contacts with the Optics and Photonics community in their geographical Territory, they must be acknowledged by science authorities in their country.

Because of the close contacts between ICO and IUPAP (the International Union of Pure and Applied Physics), they should also have well defined working relations with the Physics community in their territory. The duties of Territorial Committees include the distribution of the Newsletter to their mailing list inside their territory, providing electronic links to web site if existing, the distribution of ICO meeting announcements, and the communication about Optics, its growth, and its importance. ICO website has been hosted and altruistically maintained by SPIE since 1996. The site is updated regularly with the latest newsletters, new events, and other pertinent information.

The Newsletter, the ICO periodical publication is edited by ICO Secretariat, with four issues/year: January, April, July and October. It consists of two pages edition containing news on ICO sponsoring of meetings, schools, etc. News on Territorial Committees and ICO activities: Traveling Lecturer Program, ICO Prize, ICO Galileo Galilei Award, ICO/ICTP Award, and other relevant events. Started in March 1989 it has been published and distributed by OSA up to 2004, under Black & White edition. In 2004 a new bid was received from IoPP for new design and color edition for the year 2005 at a lower cost. Currently, the distribution task to ICO Territorial Committee Members has been assumed by ICO Secretariat to reduce mailing costs. The electronic files of all issues are available at the ICO web site. Publicizing of ICO NL is assured through OSA that maintains its link to ICO website. SPIE inserts publicity on ICO NL contents in OE magazine. IEEE/LEOS includes resumed version of ICO NL on its own Magazine. Local Optical Societies (LOS), are requested to link the ICO NL at their websites, but certainly improvements in coordinating this activity need to be enhanced. Other link is at the Institute of Physics (IoPP).

ICO Secretariat has had a direct participation as a member of the World Year of Physics 2005 (WYP2005) organization. Various Institutional activities have been developed as information of ICO website, design of a special logo, edition of posters published by IoPP and available as well electronically. Moreover, ICO Secretary participated at the celebration of the 25th Anniversary of the Prince of Asturias Awards, Oviedo, Spain, April 2005.

Edited and distributed by ICO Secretariat every three years prior to the General Assembly, the so-called “Green Book” is the ICO publication of reference including the activities developed in the determined period. Copies are mailed by July of the year of issue to all Territorial Committees and ICO Bureau members. The book: “*Towards ICO-20*” was published

in 2005, for the first time, by the Institute of Physics Publishing (IoPP) with a good edition, quality and design results.

During the period 2002-2005 ICO Secretariat has various institutional relationships: CYTED (Ciencia y Tecnología para el Desarrollo; *Science and Technology for Development*), to create an Ibero-American network on optics. The ICTP, International Center for Theoretical Physics, Institute of Physics Publishing (IoPP), International Color Association (ACI), European Physical Society (EPS), Association of Asia Pacific Physical Society (AAPPS). Adding to the regular contacts with OSA, SPIE, EOS, LAM, IEEE/LEOS, OWLS and IUPAP inside ICO Bureau. His Royal Highness Prince of Asturias Foundation (Spain), Carl Zeiss Inc., Germany, for free donation of Ernst Abbe's medals, Italian Optical Society, for free donation of Galileo Galilei medal.

Other action in which ICO Secretariat has been partially involved has been the consideration of optics and photonics as an own discipline. The proposal was earlier prepared by Pierre Chavel, Past-Secretary and currently Senior Adviser and submitted to ICSU Board by May 2005. ICO is having the support of IUPAP and other relevant international organizations to secure support toward the official consideration of Optics and Photonics as a discipline. There are major reasons for this initiative: i) Amount of research published in high-level international journals and periodicals. ii) Impact on new technological resources with strong connection with industry and improvement of the quality of life. iii) Education in areas of Applied Physics and Engineering currently involving Colleges, Schools, Faculties, pre-doctoral, post-doctoral and Young Researchers training and highly interdisciplinary. Resume on Secretariat budget is also presented.

The Secretary concludes her report by reminding attendees, and in particular candidates for the election of the future ICO Bureau, that ICO does not operate like its larger International Organization Members: expected and compulsory help to the secretary, while appreciated, is very small, and all Bureau members are not only encouraged to provide guidance and advice, but also to act themselves on specific issues assigned to them.

## **5 Finance**

### ***(a) Treasurer's Report***

G.T. Sincerbox, Treasurer, reports on the financial situation with a balance sheet as of August 1, 2005 and an income and expenditure report amended and approved at ICO-19 for the period October 1, 2002 through October 1, 2005 (see appendix 1). He also gives the status of cumulative dues arrears as August 1, 2005. The total arrears amount to some US\$12,900, representing a 57% of the total amount at the end of the previous triennium. The President calls for a vote on the approbation of the income, expenditure and balance. Motion: Chavel, Kujawinska. The General Meeting approves unanimously.

### ***(b) Proposed budget 2002-2005***

The Treasurer proposes a budget for the triennium 2005-2008 (see appendix 2).

### ***(c) Unit subscription in 2005-2008***



The Treasurer proposes to leave the unit subscription at the present level of US\$150 per unit during the coming triennium. The President calls for a vote on the approbation of the proposed budget in this realistic form and on the unit subscription in 2006, 2007 and 2008. Motion: Arsenault, Von Bally. The General Meeting approves unanimously.

## **6 Changes in the ICO Rules and Code of Practice**

Amendments to the new Rules and Codes of Practice are presented to reflect recent changes in the operation of ICO, such as the discontinuation of the Standards Committee and the decision procedure for the participation of ICO meetings and schools (Green Book p. 139). Motion to approve changes as recommended by the Bureau: Chavel, Ojeda-Castañeda. Approved unanimously.

## **7 Admittance of new members**

For the last three years, 3 Territorial Committees, Ecuador, Greece and Moldova, have applied as ICO Members and the Bureau has examined their applications and recommends the General Meeting to discuss on its acceptance. The Bureau has approved the 3 Territories for Associate Members. Greece in 2002, Moldova in 2004 and Ecuador in 2005. Greece being Associate Member, there is now a national authority identified representing science in Greece that is the Hellenic Optical Society (HELIOS). The membership of Ecuador needs to be reviewed and some discussions arose. The documents presented are seriously prepared and the presence of Ecuador as a Territorial Committee is having an intrinsic interest for the benefit of optics in Latin America. Unfortunately, no national authority representing science in Ecuador has been identified yet and there is a general indication to Ecuador in relation to improve its internal organization toward a national optical society. The new 2 remaining members, Greece and Moldova are proposed to the General Assembly for full Membership. Also, the Bureau is being authorized to transform associate membership into full membership during the triennium if conditions are fulfilled. Motion: Righini, Sincerbox. The vote takes place, and the motion is approved by a majority of votes.

## **8 Reports of ICO Committees**

### *(a) Nominating Committee*

In the absence of A. H. Guenther, Chair of the Committee, G. Sincerbox has been designated by the Bureau to act on his behalf. He presents the current list of candidates received by the Nominating Committee. Nominations and endorsements will be closed at 4:30 pm on Wednesday, August 24th. The first session of the General Meeting closed at 6:00 PM.

## **Second Session**

## **11 Date and venue of the General Meeting ICO XX**

A bid for ICO-21 has been received from Australia. John Love on behalf of the Australian Optical Society presents the application to the General Meeting. The Congress would be held in

Sydney, at the Convention Center in Darlington Harbour, July 7-11, 2008. The Bureau recommends to approve the application. The president proposes to vote on this recommendation. Motion: Friberg, Arsenault. Vote: accepted unanimously.

## **8 Reports of ICO Committees, continued**

### ***(b) Committee for the Regional Development of Optics***

Prof. G. C. Righini reports. In addition to the previous report of the Committee, appearing in page 72 of the "ICO Green Book", he mentions the following progress:

Most activities have been focused on two priority areas: developing nations, and education and training in optics.

The longstanding collaboration with the ICTP, the Abdus Salam International Center for Theoretical Physics in Trieste, was continued and even intensified by participation in the newly founded TSOSA Advisory Group, (TSOSA stands for "Trieste System for Optical Sciences and Applications"). The possibility of increasing the cooperation between ICTP and Latin American countries is being explored. A standing problem concerns the actions to promote and coordinate a program for donation of equipment. Different problems (even on the legal side) exist in different countries. The current goal is to define the procedure in the next months, so to transfer a ready "roadmap" to the new Bureau. It was decided to collect information on the organization and activities of optics in the Territories affiliated to ICO, in order to allow all of us to have a better understanding of the regional status of optics and to help to have clearer ideas of strengths, weaknesses, opportunities and threats of optical activities in the different Territories. This analysis may help to take decisions on the best ways to support activities and organizations in the less favored countries. Percentage of responses from TC was not totally satisfactory. Collaboration with the ICO Education Committee will have to be strengthened in order to better support regional educational programs.

### ***(c) Traveling Lecturers Committee***

See report in ICO Green Book "Towards ICO-20", page 74.

### ***(d) ICO Prize Committee***

A. Friesem, Chair of the Committee, reports (see report in ICO Green Book "Towards ICO-20", pages 76-79). He mentions the ICO Prize winners for 2003 and 2004, B. Eggleton and A. Krishnamoorthy, respectively. For 2005, the winner was announced: I. Bloch.

### ***(e) ICO/ICTP Prize***

A. Friesem also informs on the ICO/ICTP Award Winners, as Chair of the Committee (see pp 86-89 of the Green Book "Towards ICO-20"), for 2003, R. Szipöcs (Hungary), for 2004 I. A. Zahid (Pakistan) and R. N. Kulkarni (India) and S. Sumriddetchkajorn (Thailand) for 2005.

### ***(f) ICO Galileo Galilei Award Committee***

G. Von Bally, Chair of the Galileo Galilei award Committee, reports on this program (see pp 80-85 of the Green Book "Towards ICO-20"). He mentions the Galileo Galilei Medal winners for 2003 and 2004: C. B. de Araujo (Brazil), and shared by M. Belic (Serbia and Montenegro) and C. Saloma (Philippines), respectively.

*(g) ICO Education Committee*

A. Sawchuck, Chair of the Committee, reports. The main ICO activity related to education has been its participation in the ETOP (Education and Training in Optics and Photonics) meetings series. A new section at the ICO website is now dedicated to Education activities. Territorial Committees are encouraged to make sure that existing programs in their territories are conveniently publicized.

*(h) Standards Committee*

In the absence of L.L. Wang, chair of the Committee, I. Yamaguchi reports. The ICO Bureau has considered the difficulties in defining concrete activities for this Committee. Links with industry needs to be analyzed and strengthen searching for convenient forums. It has been approved that this Committee be relieved. The forthcoming activities will be directly coordinated inside the Committee for Regional Developments. Motion: Dändliker, Kujawinska, unanimously approved. The web links about standards in Optics, will be maintaining following the current indications.

## **9 Conferences with ICO participation**

A.T. Friberg, Associate Secretary reports. As can be seen on pp. 90-96 of the ICO Green Book "Towards ICO-20", between the end of ICO-19 and ICO-20, ICO participated in 31 meetings and schools, in addition to ICO-20 itself: 1 Regional Meeting, 2 Topical Meetings, 8 Cosponsored Meetings, 17 Endorsed Meetings, and 3 ICO Schools. The number of ICO meetings and schools had remained relative stable, around 21-24, over past several three-year periods, but in this triennium it jumped to 32. For this triennium (including ICO-20), there were US\$ 41,250 in grants, US\$ 13,500 in risk and US\$ 5,000 in loan. Additionally, US\$ 7,250 for grants to conferences in the next triennium have already been allocated.

An improvement in ICO meetings processes was that the forms of applications can now be found, in MS Word format, for downloading on the ICO website: [www.ico-optics.org](http://www.ico-optics.org). There are two kinds of forms, one for ICO General Meetings and Other Major Events, and one for ICO Co-sponsorship and Endorsement of Conference and Schools. Both forms contain two parts, an Information and Guidelines part, and a Questionnaire. The completed Questionnaire is to be returned, electronically (by email), to ICO Associate Secretary.

Another important change in meetings processing during this triennium was that two deadlines, April 15th and October 15th of each year, were set annually for receiving applications of ICO participation in conferences and schools. Additionally, the applications should be received by ICO by a deadline that is at least one year before the event, and before the first announcement.

The rationale behind these changes was improved coordination of international optics conferences.

Some forthcoming meetings in the next triennium, including the annual Winter Colleges at ICTP in Trieste and ICO-21 in Sydney in 2008, were reviewed. It was also pointed out that ICO is involved in two international meetings series: the Education and Training in Optics and Photonics (ETOP) conferences, jointly with SPIE and OSA, and the Optics in Computing / Information Photonics (OiC/IP) meetings, together with OSA.

Finally, it was pointed out that the bids for ICO-22 in 2011 are now open and that the deadline for proposals is April 15th, 2007.

## **11 Late nominations for the ICO Bureau Elections**

No late nomination was received. G. Sincerbox reviews late endorsements that have been received.

## **12 ICO Bureau Elections for the term 2005-2008:**

The elections were held following the Rules and Codes of Practice. For all positions in the Executive Committee, no vote was necessary as there was only one candidate for each position. Three votes were necessary for the Vice-Presidents. In the first vote, four Vice-Presidents, including one from industry, were elected. In the second vote, the second Vice-President from industry was elected. In the third vote, the other three Territorial Committee elected Vice-Presidents were elected. In addition, the appointment of the Vice-Presidents of the International Organization Members was announced. The results were:

President:	A. T. Friberg (Finland)
Past President:	R. Dändliker (Switzerland)
Secretary:	M.L. Calvo (Spain)
Associate Secretary:	G. Von Bally (Germany)
Treasurer:	A. Sawchuk (USA)
Vice Presidents:	H.H. Arsenault (Canada, appointed by SPIE)
	S. Bagayev (Russia)
	M. Gu (appointed by OWLS)
	A. Guzmán (Colombia)
	G. Jin (China)
	M. Kujawinska (Poland)
	B.Y. Kim (Korea, from industry)
	H. Lefèvre (France, from industry)
	J. Love (Australia)
	T. Tschudi (appointed by EOS)
	A. Wagué (Sénégal, appointed by the LAM Network)
	A.M. Weiner (appointed by IEEE/LEOS)
	I. Yamaguchi (Japan)
	Pending: OSA representative (to be designated by 31 <sup>st</sup> October, 2005)

IUPAP will be asked to appoint, as usual, a delegate to ICO from its Executive Committee. The new Bureau formally assumes responsibility on October 1st, 2005.

### **13        Other business**

General Assembly, second part ends at 6:45 PM.

## 2008 ICO GENERAL ASSEMBLY



### Provisional agenda of the XXI General Assembly

Two sessions are planned for the 21<sup>th</sup> General Assembly of ICO in conjunction with the ICO General Scientific Conference, "Optics for the 21<sup>st</sup> Century":

Session 1: Monday, July 7, 4:15 PM – 5:00 PM

Session 2: Wednesday, July 9, 4:30 PM – 6:30 PM

The exact rooms will be posted in the ICO 21 registration area.

The provisional agenda is as follows. Proposed changes should be preferable by requested in writing to the Secretary (mlcalvo@fis.ucm.es, fax +34 91 3944683) by June 15, 2008. Proposed changes should preferably be requested by writing to the President before the first session begins.

- 1) Minutes of the ICO XIX General Assembly.
- 2) Matters arising.
- 3) Report of the President for 2005-2008 and report of the Long Range Planning Committee.
- 4) Report of the Secretary for 2005-2008
- 5) Finance:
  - a) Treasurer's report
  - b) Proposed budget for 2008-2011
  - c) Unit subscription in 2008-2011
- 6) Changes are indicated in the ICO Rules and Codes of Practice (in this booklet)
- 7) Admittance of new members.
- 8) Reports of the ICO Committees:
  - a) Nominating Committee
  - b) Committee for Regional Development of Optics
  - c) ICO Prize Committee
  - d) ICO Galileo Galilei Award Committee
  - e) ICO/ICTP Award Committee
  - f) ICO Travelling Lecturer Committee
  - g) ICO Education Committee
- 9) Conferences with ICO participation
- 10) Date and venue of the General Meeting ICO-XXII
- 11) Late nominations for the ICO Bureau Elections.
- 12) ICO Bureau Elections for the term 2008-2011
- 13) Other business.

## PROPOSED BUDGET 2008-2011 FOR THE 2008-2011 TRIENNIUM

ITEM	PROPOSED BUDGET FOR Period 10/1/2008 - 9/30/2011	notes
<b>Income</b>		
<b>Dues</b>	\$101.250	1
Less not collectable	\$6.300	2
<b>Net Dues</b>	\$94,950	
<b>Royalties</b>	\$600	3
<b>Interest</b>	\$3.400	4
<b>Total Income</b>	<b>\$98,950</b>	
<b>Expenses</b>		
<b>Secretariat Expenses</b>	\$10.000	5
<b>Secretarial Support</b>	\$15.000	6
<b>Newsletter Distribution</b>	\$16.215	7
<b>Bureau Expenses</b>	\$6.000	8
<b>Meeting Support</b>	\$35.000	9
<b>School Support</b>	\$15.000	10
<b>Prizes</b>	\$12.000	11
<b>Prize recipient travel</b>	\$6.000	12
<b>Travelling Lecturer Support</b>	\$5.000	13
<b>Reserves or New Projects</b>	\$2.000	14
<b>Total Expense</b>	<b>\$122.215</b>	

### NOTES

1. 228 units at \$150/unit + some arrears
2. Overall data there are 5 territories 3-4 years in arrears that it is not expect to pay their dues
3. ICO Books: the ICO-VI Book was published in 2008
4. Based on current interest rates
5. Same as current budget
6. Same as current budget
7. Contract with IoPP for printing, mailing from secretariat
8. Expected to be somewhat less
9. We will support more meetings
10. Increase of US\$ 5,000 per year
11. Increased by General Assembly at ICO-19
12. Increased by General Assembly at ICO-19
13. Same as current budget
14. Reserves only

*Interference among two collinear  
Laguerre-Gaussian beams  
(from experiment done at  
GICO/UCM laboratory)*