



NEWSLETTER

COMMISSION INTERNATIONALE D'OPTIQUE • INTERNATIONAL COMMISSION FOR OPTICS

ICO: bringing together the world of optics

The new ICO president outlines his plans.



Ari T Friberg, ICO president (term 2005–2008) and professor at the Royal Institute of Technology (KTH), Stockholm, Sweden.

It is with humility, but determination, that I take over the presidency of the International Commission for Optics (ICO) from René Dändliker. During his three-year tenure of leadership, and that of Art Guenther before him, ICO revised its structure and operations, putting it in a truly unique position to address global challenges. With their remarkable progress and growth, optics and photonics are now more exciting and promising than ever, and it is important that not only the technologically advanced but also the world's developing regions will be able to share in the profits. The ICO will live up to its motto: the place where the world of optics meets.

The introduction of International Society (IS) Members has put the ICO in direct contact with optical sciences and engineering organizations worldwide. Currently the ICO has six IS Members (OSA, SPIE, IEEE/LEOS, EOS, OWLS and LAM Network), but others could be envisioned, for example geographically covering Latin America. Optics has its roots deeply in physics, and since last year was the United Nations' World Year of Physics 2005 we all can be proud of the great contributions of optics to the development of physics.

The ICO is an Affiliated Commission of the International Union of Pure and Applied Physics (IUPAP). However, optics is progressing as its own branch of science. Indeed, in October 2005 the ICO became an International Scientific Associate of ICSU, the International Council for Science. While retaining its status in IUPAP, the election of the ICO directly in ICSU will greatly enhance the global significance and recognition of optics as a discipline, which will have a positive impact on optics education and industries. To make the best possible use of this new affiliation I invite the whole optics community to contribute with new initiatives.

These are all tremendous developments. However, the uniquely distinguishing strength of the ICO is its Territorial Members, giving ICO a highly valued communication channel to the optical communities and policy-makers throughout the globe. At the ICO-20 Congress in Changchun, China, in August 2005, Greece and Moldova were admitted as new ICO Members, while Ecuador became an Associate

Member. Hence, in total, the ICO currently has 47 Territorial Members and three Associate Members. The Territorial Committees are a precious asset so their working relations with the ICO Bureau must be kept fluent and efficient. With these broad territorial connections and worldwide organizational support, the ICO can assume a leading international role in the progress and promotion of optics on all fronts.

To fulfil its charter the ICO has a number of programmes and initiatives. These include a close collaboration with the ICTP in Trieste, for example the annual Winter Colleges on Optics, directed towards developing countries. In recent years the ICO has especially focused on Africa and Latin America. Additionally, the ICO has a Proceedings Donation Programme and it is actively involved in two conference series: Education and Training in Optics and Photonics (ETOP), which is the only series of global meetings dedicated solely to optics education, and Information Photonics (IP). Besides the Triennial Congresses, the ICO organizes annually Regional and Topical Meetings, and it maintains a Travelling Lecturer Programme, aimed at promoting optics in regions where particular support is needed. Traditionally, it has published every three years the so-called ICO book in the series "Trends in Optics" – I plan to attempt to do that again.

Moreover, the ICO awards several prizes (the ICO Prize, the ICO Galileo Galilei Award and the ICO/ICTP Award) to recognize outstanding achievements in optics. A convenient summary of the ICO's programmes and activities is in the triennial document *The ICO Green Book*, available on the ICO website.

Although the ICO statutes call for at least two members of the Bureau to be from industry, what is conspicuously missing from the current ICO activities is a direct involvement of the optics industries in advising the ICO and in funding joint actions. All suggestions for such new initiatives are most welcome.

In Changchun a new ICO Bureau was also elected by the General Assembly. Some members, having completed one or two three-year terms, left the Bureau. I sincerely thank these members for their dedicated service to the ICO and the global optics community. In particular,

I want to acknowledge past-president Art Guenther, who is likely to carry on with the ETOP series, and treasurer Glenn Sincerbox for their work and leadership. Equally, I acknowledge Asher Friesem for his Prize Committee work, Giancarlo Righini for chairing the Regional Development Committee, Lingli Wang for her industrial efforts, and Nestor Gaggioli for tirelessly working for South America. At the same time, it is my pleasure to welcome those who were elected, or appointed, as new members of the ICO Bureau for the period 2005–2008. We have an experienced and productive team to further the general ICO objectives. I'm most pleased to report that Pierre Chavel, the real father of many of the main changes within the ICO, has agreed to

continue his involvement in the new Bureau as senior adviser "ad personam". At this time I would like to recognize the efforts and support of all those who in recent years have contributed to the strengthening of the ICO and to the enhancement of its worldwide visibility.

The success of the ICO ultimately depends on its Members' interest in getting involved in the old and new initiatives. The ICO is an inclusive organization. Active participation of all Territorial and Society Members in the ICO programmes is encouraged and solicited, while scientific freedom and respect for cultural differences are emphasized.

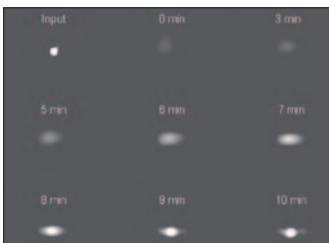
For the next three years I look forward to your enthusiastic and unqualified support.

Ari T Friberg, ICO president, at your service

Valentin Vlad wins the ICO Galileo Galilei Award 2005



Valentin Vlad, a professor of physics at the University of Bucharest and chief of the Laboratory for Non-Linear Information Optics at the Institute of Atomic Physics, Bucharest.



The dynamics of soliton waveguides induced with a femtosecond pulsed laser beam (800 nm) with CW green background illumination in lithium niobate crystals.

Valentin Ionel Vlad has won the ICO Galileo Galilei Award 2005 for his work in nonlinear optics to enhance the presence of Romanian optics in the global scientific community.

Vlad graduated the Polytechnic Institute of Bucharest, Department of Electronics, in 1966 and obtained the scientific title of Doctor Eng. at the 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 1969–1970 he studied at the University of Paris (with Prof. M Françon) and at CGE-Marcoussis. In 1975 he became chief of the Holography Laboratory at the Department of Lasers, IAPB. In the period 1977–1989, 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 Centre of Excellence in Photonics (ROCEP). He has been visiting professor at 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; and 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 (US) in 1999.

Additionally, he has been active as an external collaborator at Imperial College London's Blackett Laboratory 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, has taken part in more than 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 the US).

Vlad was the president of the Physics Commission of the Romanian Consultative College for R&D in 1991–2002 and has been vice-president of the Grant Commission of the Romanian Academy since 1994. He is also the national representative of 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. He is the president of div. optics and quantum electronics of the Romanian Physical Society (also acting as the ICO Territorial Committee). In 1991–1993 he was vice-president of SPIE – Romanian Chapter. He is the editor-in-chief of the journals *Romanian Reports in Physics* and *Proc. Romanian Academy A*, and on the editorial board of *Journal of Optics A* (IOPP). Vlad has received several awards, including the T Vuia Award of the Romanian Academy in 1978. He was elected fellow of the Optical Society of America in 1978, and has been a member of the Romanian Academy (a lifetime position for 281 distinguished intellectuals) since 1991 and a fellow of the Institute of Physics and a chartered physicist, UK, since 1999. In 2005 he was elected a member of Academia Europaea.

ICO becomes an ICSU International Scientific Associate

A long-term ICO action had a positive outcome in October 2005 when ICO was made an International Scientific Associate of the International Council for Science at ICSU's triennial General Meeting. This is a step forward in the recognition of optics as an emerging discipline that, in addition to its roots in physics, develops more and more independence. The main reason for this achievement was Pierre Chavel, who was ICO secretary and is cur-

rently senior adviser at the ICO Bureau. ICO participation in ICSU, in addition to giving more visibility to our discipline, will create new opportunities to collaborate with ICSU and its members on the global challenges faced by science and technology for the future of mankind. More detailed information will be included in the next issue of this Newsletter, April 2006. For further information about ICSU see www.icsu.org/.

ETOP conference in Marseille proves a massive success



Norbert Hubin and Daniel Maystre.



Christian Cavailler and M J Soileau.



Alain Aspect and Bob Breault.

The Education and Training in Optics and Photonics conference takes place every two years. ETOP has previously been held in San Diego (US), Leningrad (Russia), Pecs (Hungary), Delft (the Netherlands), Cancún (Mexico), Singapore, and Tucson (US) in 2003, but the ninth ETOP conference was held last October in Marseille (France). It brought together nearly 150 educators, teachers and researchers from 23 countries, who held discussions during three full days.

Optics and photonics are essential fields for the development of advanced technologies, complex systems and our understanding of the universe. The domain is not only useful for progress in health, telecommunications, transport and astrophysics. As was discussed throughout the ETOP conference, it is also useful for helping developing countries to have access to advanced technologies and to help them progress; it is also important to interest young people in science.

ETOP2005 was 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, and to have not only 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 with sustainable development are having to face. Optics and photonics have an important place in this development. The International Commission for Optics (ICO), SPIE, the Optical Society of America (OSA), the European Optical Society (EOS), the French Optical Society (SFO) and other societies were very active supporters at the 2005 edition of the ETOP conference.

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 talked on "The Adaptive Optics Status and Roadmap at EOS". Robin Barnsley showed the development of the 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 system. Christian Cavailler presented "The Megajoule Laser: An Optical Complex System". Two talks on fundamental considerations were also given: Daniel Maystre lectured on "Metamaterials and Optical Resolution: the End of the Rayleigh Limit?" while Alain Aspect lectured on "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 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 optical experiments are a 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 about 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 specifics. The third workshop and last session, "Requirements of Industry", was chaired by Gilbert Dahan, chairman of the European Society of Optic Systems (SESO), and originated quite fine discussions. For more information see www.etoponline.org.

François Flory, general chair, ETOP 2005

Award news from ICO's Singapore Territorial Committee



Presentation of the Humboldt Research Award by Prof. Dr Wolfgang Frühwald (left), president of the Alexander von Humboldt Foundation.

Colin Sheppard, National University of Singapore, was presented with an Alexander von Humboldt Research Award (Forschung-spreis) in Physics at the 33rd Humboldt Foundation Symposium for Research Awardees, Ziegelbau, Bamberg, on 18 March 2005.

The Humboldt Research Award for internationally recognized scientists, the highest award of the Alexander von Humboldt Foundation, honours the academic achievements of the winner's lifetime. Furthermore, winners are invited to carry out research projects of their own choice in Germany in co-operation 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 sci-

entific lecture on three-dimensional microscopic imaging, in which he compared 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 Programme.

Contacts

International Commission for Optics (<http://www.ico-optics.org>).

Bureau members (2005–2008)

President A T Friberg

Past-president R Dändliker

Treasurer A Sawchuk

Secretary M L Calvo,
Departamento de Óptica,
Universidad Complutense,
28040 Madrid, Spain. E-mail:
mlcalvo@fis.ucm.es.

Associate secretary G von Bally

Vice-presidents, elected

S N Bagayev, A M Guzmán,
G F Jin, B Y Kim,
M Kujawinska, H Lefèvre,
J Love, I Yamaguchi

Vice-presidents, appointed

M Gu, G Sincerbox, P Stahl,
T Tschudi, A Wagué,
A M Weiner

Senior adviser (ad personam)

P Chavel

IUPAP Council representative

Y Petroff

ICO meetings get April, October deadlines

To improve co-ordination and efficiency, the ICO Bureau has decided that ICO meetings and schools applications are from now on considered only twice a year. The deadlines for the applications are 15 April and 15 October of each year, and the applications must have been received by the ICO at least one year before the event.

The application forms for all categories of ICO meetings (i.e. for ICO congresses and other major events, and for ICO co-sponsored and endorsed meetings) are available for download from the ICO website at www.ico-optics.org/. The forms, which are in Microsoft Word "protected form" format, contain two parts –

"Information and Guidelines" and "Questionnaire". After studying the Information and Guidelines, the Questionnaire should be filled in and the form returned electronically, as an e-mail attachment, to the ICO associate secretary for processing.

The ICO Bureau takes all decisions about ICO participation in conferences and schools. Please send all ordinary and electronic mails to: Gert von Bally, ICO Associate Secretary (in charge of meetings), University of Münster, Medical Centre, Laboratory of Biophysics, Robert-Koch-Str. 45, D-48129 Münster, Germany. Tel. +49 251 835 6888; fax +49 251 835 8536; e-mail lbiophys@uni-muenster.de.

To find out information about forthcoming events with ICO participation, see the events page of the ICO website at www.ico-optics.org/events.html

