Professor Chandra Shakher
Instrument Design & Development Centre.
Indian Institute of Technology, Delhi
Hauz khas, New Delhi-110016

Dear Professor Chandra Shakher,

On behalf of the International Commission for Optics, I would like to congratulate you on having been chosen the recipient of the 2014 ICO Galileo Galilei Award “for outstanding contributions to the field of holographic and speckle metrology, which were achieved under comparatively unfavorable circumstances”. As you know, the ICO Galileo Galilei Award is awarded to researchers in the area of Optics and Photonics for outstanding contributions achieved under comparatively unfavorable circumstances. You have been able to overcome these obstacles and produce quality research despite these hardships. We are very proud of your accomplishments and achievements!

Please keep in contact with the ICO Secretariat to decide on which ICO meeting you will be able to deliver your Galileo Galilei lecture, so that we may have the great pleasure and honor of organizing a formal Award ceremony for you. I ask you please to send to the ICO Secretariat a summary of your Curriculum Vitae and your work, highlighting the result that you consider most important. Additionally, please supply us with a personal photo and photos of your work, so that we may publish an article about you in the next ICO Newsletter. I ask you please to submit this material to the ICO Secretariat, via e-mail, as soon as possible. The deadline for the ICO Newsletter October issue is this weekend, or early next week.

Again, my warmest congratulations to you for having deserved this very prestigious award, and having greatly benefited the world of Optics and Photonics with your scientific and professional achievements.

Yours sincerely,

ICO Secretary
Santiago de Compostela, the city of pilgrims with its impressive cathedral and its famous botafumeiro, welcomed the participants to the 23rd ICO General Congress. In the words of its chair, Humberto Michinel, the conference program reflected the rich variety of phenomena to whose study we dedicate our lives and provided a glimpse into why we are so passionate about it. During the opening ceremony, special mention was made by M T Flores-Arias (scientific chair and optoelectronics section, Universidade de Santiago de Compostela) of the role and heritage of C Gómez-Reino (co-chair in memoriam). The conference opened with a plenary lecture by Alain Aspect, winner of the 1987 ICO Prize. In the words of the conference chair, the conference theme, Enlightening the Future, “pointed to the need of preparing future generations of scientists to take over and explore fascinating new aspects of light and its applications”. And indeed, a highlight of the Congress was provided by the plenary lectures given by the recipients of the Ernst Abbe and IUPAP Young Scientist prizes, Tobias Kippenberg (2013) and Nicholas Fang (2011), and by two awardees of the IUPAP Young Scientist Prize in Optics, Andrea Alú (2013) and Göery Genty (2011). For the first time, students attending the conference organized their own parallel activities and invited the ICO president, Duncan T Moore, to discuss with them ways in which they could integrate better with ICO’s work and also participate actively in the celebration of the International Year of Light 2015.

The General Assembly was attended by 64 official delegates from 33 ICO Territories and its six international member societies, along with a large number of observers. The General Assembly approved the proposed amendment to Article 1 of the ICO Statutes in order to include the word “photonics”, as transcribed in the ICO Newsletter, July 2014; the admission of the Iberian American Network of Optics (RIAO) as an international society member of ICO with the right to appoint a vice-president to the ICO Bureau; the Bureau proposal for updated Territorial Committees fees with a phasing timeline; a budget for the ICO Bureau to invest wisely in the celebration of the International Year of Light 2015; the proposal by Japan to celebrate the 24th ICO General Congress in Yokohama, Japan, 3–8 September 2017. The General Assembly also elected the members to the ICO Bureau 2014–2017 (see table opposite).

Participants at the conference had the opportunity to interact in many social activities held during the conference, including receptions hosted by the authorities of Santiago de Compostela and by SPIE and OSA. A tour of the region ended with an unforgettable concert of Galician Pipers at a castle in Vigo, the town of Humberto Michinel.
The ICO Prize 2014 awarded to Martin Booth

Martin Booth is head of the Dynamics Optics and Photonics Group at the University of Oxford, UK.

The ICO Prize Committee, consisting of Roberta Ramponi (chair), Yasuhiko Arakawa, Zohra Ben-Lakhdar, Yujie Ding, Fernando Mendoza Santoyo, Maria J Yzuel, and Bingkun Zhou, awarded the 2014 ICO Prize to Prof. Martin Booth, University of Oxford, UK, “for his innovative and pioneering research on dynamic optical methods and new approaches to adaptive optics”.

Prof. Booth leads the Dynamic Optics and Photonics Group at the University of Oxford, UK. He has over 17 years of experience in research on optical and photonic engineering, specifically in the areas of active and adaptive optics for microscopy and photonic engineering. His research group is based jointly in the Department of Engineering Science and the Centre for Neural Circuits and Behaviour in Oxford.

Prof. Booth’s research primarily concerns the development of dynamic optical methods for a range of interdisciplinary applications. A major application is the use of adaptive optics for aberration correction in high-resolution microscopy. This technique, originally developed for astronomical telescopes, uses adaptive elements, such as deformable mirrors, to correct aberrations introduced by microscope specimens. Spatial variations in refractive index due to the structure of a specimen introduce aberrations that reduce the resolution and contrast of microscope images. Prof. Booth’s research has involved the development of new methods of phase measurement, wavefront sensing, and aberration control. This work has led to advances in biomedical imaging, including adaptive aberration correction in confocal, multi-photon and wide-field sectioning microscopy. By overcoming the effects of specimen induced aberrations, adaptive optical microscopes operate effectively in thick tissue specimens, where imaging capabilities were previously limited.

Recent research in collaboration with Yale University and the University of Cambridge has involved the development of adaptive compensation of aberrations for super-resolution microscopes. Specifically, Prof. Booth’s group has introduced the first feedback correction of specimen-induced aberrations in stimulated emission depletion (STED) and single-molecule switching microscopes. This research is showing how adaptive optics can transform these microscopes from tools for imaging cells to effective methods for microscopy of thick tissue specimens.

His group has also made advances in dynamic optics for sub-micrometer scale laser fabrication systems. In the focusing of laser light inside transparent materials, spherical aberration is caused by refraction at the surface. Adaptive aberration correction overcomes this problem and enables diffraction limited focusing at depth. This technique is key to obtaining precision three-dimensional fabrication throughout the volume of materials. Further advances have been made in the dynamic parallelization of laser fabrication through holographic, refractive, and hybrid methods. These methods permit the control of hundreds or thousands of laser foci in parallel, increasing the speed of fabrication systems. Applications of these technologies have included photonic crystals, waveguide circuits for quantum optics, and diamond photonics.

Prof. Booth’s research career started in 1997 when he was a visiting student in the group of Prof. Stefan Hell at the Max Planck Institute of Biophysical Chemistry in Göttingen, Germany, where he worked on continuous-wave two-photon microscopy. His doctorate, obtained from the University of Oxford in 2001 and supervised by Prof. Tony Wilson, concerned the development of the first adaptive optical confocal microscope. In the same year, he was appointed a Junior Research Fellow at Christ Church, University of Oxford. From 2003–2008 he was a Royal Academy of Engineering/EPSRC Research Fellow, following which he was an EPSRC Advanced Research Fellow until 2013. He was then appointed to a Senior Research Fellowship before becoming Professor of Engineering Science in 2014. In 2012, he was awarded the “Young Researcher Award in Optical Technologies” from the Erlangen School of Advanced Optical Technologies at the University of Erlangen-Nürnberg, Germany, alongside a visiting professorship at the university. He is also co-founder and director of Aurox Ltd, a university spin-off company, and is a fellow of Jesus College, Oxford, UK.

The ICO Galileo Galilei Award 2014

The award goes to Chandra Shakher, IIT Delhi, India, a leading researcher bridging academic research and industrial applications in India.

Chandra Shakher was born in Meerut, Uttar Pradesh, India, in December 1949. He received his MSc degree from Meerut University in 1970, his Master of Technology in applied optics from the IIT Delhi in 1976, and his PhD in physics from the Indian Institute of Technology Madras in 1980. A unique aspect of Prof. Shakher as an Indian professor is that he has the experience of working for both Indian industries and academia, and has led and promoted research and education of optical metrology by establishing a bridge between industries and academia in India. He served as scientist at Central Scientific Instruments Organization, Chandigarh, from November 1979 to May 1983. In May 1983, he joined Bharat Heavy Electricals Limited (BHEL), Corporate Research and Development Division, Hyderabad, as deputy manager. In March 1989, he joined the Instrument Design Development Centre (IDDC) of the IIT Delhi as Chief Design Engineer and subsequently was promoted to the position of professor in 1995.

Prof. Shakher's awards and honors include: Fellowships of SPIE, and Indian National Academy of Engineering, the National Research Development Corporation Independence Day Award 1993, and a member of the editorial board of Optics and Lasers in Engineering (Elsevier).

ICO mourns the passing of Roberto Ortega (1946–2014)

A remarkable promoter of optics in Mexico.

Prof. Roberto Ortega Martínez was born in Mexico City. He obtained his BSc (physics) from the Universidad Nacional Autónoma de México (UNAM) where he began teaching even before he graduated. While at the UNAM, he was among the outstanding and enthusiastic students that took part in the social demonstrations of 1968 in Mexico.

His BSc dissertation, presented in 1971, included the design and construction of very low electronic noise amplifiers that were used for over a decade in the San Pedro Mártir based Observatorio Astronómico Nacional of the UNAM, OAN-SMP, in Mexico. He also collaborated with the installation of the control instrumentation, the photometric detection systems, and the physical infrastructure of the OAN-SMP 0.84 m and 1.5 m astronomical telescopes. After one and a half years at the Optical Sciences Center of the University of Arizona, OSC-UA, he joined the Facultad de Ciencias of the UNAM, FC-UNAM as instructor, and became FC-UNAM faculty in 1976. He obtained his MSc and PhD degrees from the UNAM in 1976 and 1986, respectively. He also worked as associated senior researcher of the Instituto de Astronomía of the UNAM, IA-UNAM, from 1975–1982, where he participated in projects on stellar spectrometry, Michelson-Fourier interferometry, and in the electromagnetic instrumentation installation and maintenance of several astronomical telescopes of the San Pedro Mártir and the Tonantzintla observatories.

In 1983, Prof. Héctor Domínguez, then general director of the former Centro de Instrumentos del UNAM, CI-UNAM, (currently known as the Centro de Ciencias Aplicadas y Desarrollo Tecnológico of the UNAM, CCA-DET-UNAM), invited Prof. Ortega to establish an applied optics laboratory, a remarkable effort-consuming project if we consider the small number of optics scientists available at the UNAM in the 1971–1981 decade (a significant number of optics scientists left the UNAM in 1971 to establish the Instituto Nacional de Astrofísica, Óptica y Electrónica, INAOE, in Tonantzintla, and later in 1980, the Centro
Below is a list of 2014/15 events with ICO participation. For further information, visit the new ICO webpage at http://e-ico.org/node/103.

14–15 October 2014
International Seminar on Photonics, Optics, and its Applications (ISPhOA 2014)
Sanur, Bali, Indonesia
Contact: Aulia Nasution
tel: +6231 5947188
anasution@ep.its.ac.id, www.isphoa2014.org

14–17 October 2014
International Conference on Optics, Photonics & Photosciences (CIOFF)
Havana, Cuba
Contact: Angel Augier
tel: +537 8705707
aaugier}@fisica.uh.cu
http://imre.oc.uh.cu/cioff/

9–20 February 2015
Winter College on Optics
Trieste, Italy
Contact: Joe Niemela
tel: +39-040-2240555
smr2691@ictp.it

8–12 April 2015
Discussions on Nano & Mesoscopic Optics (DINAMO-2015)
El Chalten, Argentina
Contact: Andrea Bragas
tel: +541145763426,
bragas@df.uba.ar
http://dinamo2015.df.uba.ar/

29 June – 2 July 2015
Education and Training in Optics and Photonics (ETOP 2015)
Bordeaux, France
Contact: Elisabeth Boéri
tel: +33 5 57 01 74 00
contact@etop2015.org

14–18 September 2015
Twelfth International Conference on Correlation Optics “Correlation Optics ’15”
Chernivtsi, Ukraine
Contact: Oleg V Angelsky
tel: +380372244730; fax: +380372244730
angelsky@ift.cv.ua
www.ift.cv.ua/corropt15/

Responsibility for the correctness of the information on this page rests with ICO, the International Commission for Optics; http://www.e-ico.org/. President: Prof. Yasuhiko Arakawa, Director, Collaborative Institute for Nano & Quantum Information Electronics, University of Tokyo, Japan, arakawa@iis.u-tokyo.ac.jp. Associate Secretary: Prof. Gert von Bally, Centrum für Biomedizinische Optik und Photonik, Universitätsklinikum Münster, Robert-Koch-Straße 45, 48149 Münster, Germany; bally@uni-muenster.de