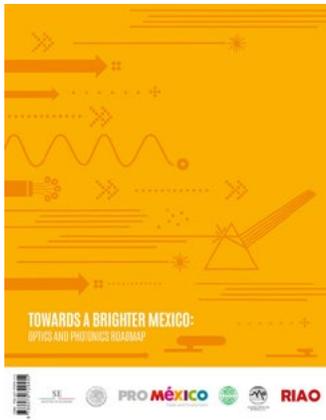




## Querétaro welcomes the Mexican Photonics Cluster:

**An innovation ecosystem for the optics and photonics industry established in Mexico.**



After almost four years of very intense work within the Mexican Photonics Initiative, MPI, (ICO Newsletter 109), last January 30, 2018, the Mexican state of Querétaro, located in central Mexico, was finally selected to host the Mexican Photonics Cluster, MPC, an innovation-oriented ecosystem to be developed in order to foster the optics and photonics industries in Mexico. The establishment of the MPC was highlighted as the key recommendation of “Towards a Brighter Mexico: A Technology Roadmap for Optics and Photonics”, developed by ProMéxico with the collaboration of the International Commission for Optics, released last November 9, 2016 (ICO Newsletter 110) and available in Spanish and English for download at: <http://www.promexico.mx/en/mx/biblioteca>

**The MPC is expected to attract foreign and local private and public investment** to fund the construction of an approximately 10 sq-km shared-facilities complex, hosting several fabrication laboratories, cutting-edge scientific tools, such as an ultra-high power laser, incubators, accelerators, products testing and certification laboratories, a university offering optics and photonics engineer-oriented programs, as well as all other educational level schools, sports, cultural and leisure installations. The *Clúster Mexicano de Fotónica, A. C.*, a non-for-profit organization especially constituted last May 16, 2017, in order to promote the development of this innovation ecosystem (<http://www.photonics-mexico.org>), is fully focused in

providing the R&D laboratories and optics and photonics related companies establishing in the MPC, with the required innovation platform to position Mexico as the leading economy in Latin America.

**The MPC shows that Mexico has in-practice, recognized the optics and photonics enabling sector**, as one of the missing key parts to enrich the production chains of many other important industries for the North American highly integrated regional economy, such as the aero-space, automotive, electronic devices, bio-medical devices, etc., some of them with a strong presence in Mexico from a few decades now. Among many other advantages the Mexican economy offers to the optics and photonics industry, are its high manufacturing and logistics capacity and infrastructure; its mature and large network of free-trade agreements, recently increased with the signature of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership; its demographics based in a large portion of the Mexican population reaching its most productive years; its strong and stable macro economy; and its strategic geographical location, which for centuries has served as crossing platform for goods and products between the North and South Americas, but also between the Asian and European regions.

April 2, 2018.

Eric Rosas

ICO appointed vice president by RIAO

## ICTP Winter College on extreme optics

**The ICTP Winter College** was held in February 2018 in Trieste, Italy. This year the ICTP Winter college was mainly dedicated to extreme nonlinear optics, attosecond science and high-field physics. The aim of the Winter College was to offer PhD students a broad training on extreme light science, from ultra short and ultra intense laser pulse generation, to attosecond and Free

Electron Laser (FEL) technology, focusing on applications of attosecond pulse generation in atomic and molecular physics, photo-chemistry and nanoscience, and the application of extreme light sources to matter-radiation interactions in general.

The attendants had the opportunity to participate on tutorials and on hands-on laboratory sessions.

More information can be found at <http://indico.ictp.it/event/8295/>



# María L. Calvo: ICO's candidate to the new board of ISC

**"I have worked for the national and international scientific community by now for more than 30 years"**



Prof. María Luisa Calvo.

**The ICO has selected María L. Calvo as its candidate to the new board of the ISC**, International Science Council. María L. Calvo is an Emeritus Professor at the Department of Optics of the Faculty of Physical Sciences in the Complutense University of Madrid, Spain. She was the Elected President of ICO during the term 2008-2011. Also, since 2017 she is a member of the ICO Committee for the Relationship with ICSU, International Council for Science.

**During her career** she has co-authored more than 200 scientific publications in light scattering, optical waveguide theory, photoreceptors, holography, photonics devices and neutron optics. Also, she was part of several commissions and boards both in Spanish and International scientific organisms.

María L. Calvo has worked for the national and international scientific community for more

than 30 years now. During that time she has experienced a large number of international forums, in optics and other topics. Already when she was President of ICO she started to initiate contacts with ICSU of which the ICO is an Associate Member since 2005. Thus the importance of the presence of ICO in the ICSU forums. She understood that ICO should have a stronger role in the ICSU structure because of the great value of ICSU forums reflecting the real status of the world of science and, therefore, helping international organizations to focus more effectively in the projected actions and policies. Her work during 30 years of activities will surely provide her with the experience needed in order to face this new challenge. The supraorganization for science and society is a key challenge for the new generations to benefit of the improvement of their quality of life and a better future.

## Urbasi Sinha awarded the 2018 ICO/ICTP Gallieno Denardo Award



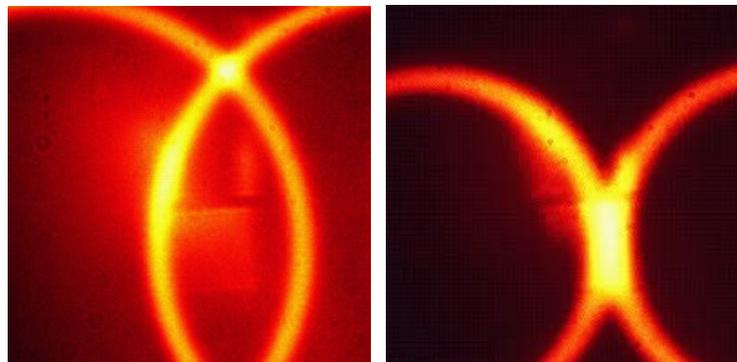
Dr. Urbasi Sinha, Raman Research Institute, India.

**The 2018 ICO/ICTP Gallieno Denardo Award** was announced at the Winter College on Optics on February 13th. The whole Award ceremony can be seen at 2018 ICO/ICTP Gallieno Denardo Award. The part concerning the ICO/ICTP prize starts at min 11:30 and includes the presentation by the winner.

**The recipient of the award is Urbasi Sinha** of the Raman Research Institute, Bangalore, India, for her pioneering research in photonic quantum technologies, contributions to cutting edge experimental research in quantum optics, and extensive and multifaceted outreach activities towards popularizing experimental optical science in India. In India, she created and leads the country's first laboratory dedicated to research in quantum optics, directing ground-breaking research in quan-

tum information and computing. One of the activities at her lab is investigating a qutrit, which is an alternative approach to trying to increase the number of qubits in a quantum computer. The approach was to develop a very innovative system using the spatial degrees of freedom of a single photon, allowing her to increase the dimensionality of the Hilbert space.

**The winner was there with her husband, Aninsa Sinha**, who was a recipient of the [ICTP Prize in 2016](#). Her daughter and mother were in attendance as well. Her daughter performed with the band that evening, playing piano and singing and making a very short speech- "This is a great party" -to enthusiastic applause.



Images of the down-conversion rings from the Type II Spontaneous Parametric Down-conversion single photon source in her lab.

# Report on the ICAOP-2017

**At ICAOP there were 260 invited papers out of which 83 were oral presentations and 177 poster.**



Prof. Tankeshwar Kumar.



Shri Benjamin Lionel.



Jayeta Banerjee got the first oral presentation award. She is a PhD student at the Department of Applied Optics and Photonics, University of Calcutta.

**A four-day International Conference on Advances in Optics and Photonics** (XLI Conference of Optical Society of India) was held on November 2017 at CRS auditorium organized by the Department of Physics, Guru Jambheshwar University of Science & Technology, Hisar, Haryana. The chief guest on this occasion was Shri Benjamin Lionel, Director of IRDE, Deharadhun. The Guest of Honor was Shri Satish Kumar, Director of the National Institute of Technology, Kurukshetra. Prof. Kehar Singh was the technical chair of ICAOP-2017. The conference was attended by over 400 delegates from India and abroad. It was sponsored by the Defense Research and Development Organization, the Department of Science and Technology-SERB, the Department of Atomic Energy-BRNS, the International Commission of Optics, the Optical Society of America, Bharat Electronics Ltd. and supported by manufactures/dealers. A souvenir was also released on the occasion of the Inauguration emphasizing the completion and celebration of the 50th anniversary of Haryana.

**Prof. Kehar Singh**, Technical Chair - IIT Delhi briefed the audience about the conference. The Vice Chancellor of Guru Jambheshwar University of Science and Technology, Prof. Tankeshwar Kumar, gave a message at the inauguration of ICAOP: “Advanced optics based next generation devices are likely to influence our lives in so many ways that we could never have imagined a few decades ago. And we move ahead in 21st century with Photonics that will play even more significant role in new modalities in the practice of medicine, more efficient national defense, sensor technology based on nano-materials.” The Director of IRDE, Shri Benjamin Lionel, emphasized that battlefield strategy evolves with the technological innovations. Dr. A. K. Gupta, president of the Optical Society of India (OSI) briefed about the society goals and activities towards promotion of optics in the country. Prof. Satish Mishra, a rebound scientist of country better-known integrated missile technology development and currently director of the National Institute of Technology stressed on the development of indigenous developed technologies in this field of optics.

Also, Prof. Devendra Mohan Convener told that the ‘International Conference on Advances in Optics and Photonics’ being organized under the umbrella of the prestigious ‘Optical Society of India’ would nurture various fields on current advancements from communications to manufacturing, diagnostics to aerospace particularly with design of novel nanophotonic structures, quantum computing and imaging techniques.

## **Other activities during the ICAOP**

There were four Plenary lectures and two Special Lecture/tutorial, these by Virendra Mahajan (USA) and Padamshree Rajpal S. Sirohi (IIT Delhi). There were also thirty seven invited talks from all over the world, 260 invited papers (83 was oral presentations and 177 poster presentations) organized in 26 parallel sessions on different themes. OSI meeting was held the first day of ICAOP.

The technical session started with a plenary lecture by Zeev Zalevsky (Israel), on Remote photonic diseases sensing. He gave a glimpse of how photonics is going to detect some fatal diseases at earlier stage enabling better prevention and cure. The second half of the day started with the talk “Multicontrollable Metasurfaces” by the plenary lecture Akhlesh Lakhtakia (USA) who stressed out how the concept of multicontrollable metasurfaces is inspired by biological multicontrollability.

The 2nd day started with a highly informative plenary lecture by Prof. Daniele Faccio (UK). During his mesmerizing talk where he started with history of photography where the first photograph took days of exposure to modern day image capture targeting event control within nanoseconds, he emphasized on recent developments in CMOS technology.

The 3rd day started with a plenary lecture by Prof. Pablo Artal (Spain). He explained about applications of adaptive optics in eye related health issue. On the last day of the conference there were two talks on silicon Photonics and Erbium doped fiber amplifiers by K Das and Vipul Rastogi.

**Prizes during ICAOP:** OSI best paper awards were announced by the organizers; one for Optical Society of America (OSA) and six for OSI along with four ICAOP Awards.

J. Banerjee got the award for best oral presentation. Namitha C. V., Parimal Sah, and Kavita Yadav got the Ist, IInd, and IIIrd awards for best oral presentation.

Sushanta Kumar Pal, Hauz Khas, and Ramesh Kumar got the Ist, IInd, and IIIrd Optical Society of India Awards for best poster presentation.

Soumadri Samanta and Anil Kumar Chauhan got the Ist and IInd ICAOP-Young Scientist Awards for oral presentation.

Jogender Singh and Atul Kumar Dubey got the Ist and IInd ICAOP-Young Scientist Awards for Poster presentation.



# Nanophotonics at INL

**The INL (in Braga, North of Portugal) is an inter-governmental research organization founded by the governments of Portugal and Spain.**



Dr. Jana B. Nieder, Head of the Department of Nanophotonics.

The INL - International Iberian Nanotechnology Laboratory is a research organization founded by the governments of Portugal and Spain. It intends to address the society's grand challenges by employing nanoscience and nanotechnology. The four research application areas are: Health, Food & Environment, ICT - Information & Communication Technologies, Renewable Energy.

**The Nanophotonics Department at INL is lead by Jana B. Nieder.** The [research groups](#) provide expertise in the analysis of light-matter interactions at various scales: Reaching from the detection of individual fluorescent molecules or nanoparticles to the high-resolution label-free and fluorescence-based imaging of fixed and life cells, e.g. in 2D cell models or tissues. Furthermore the researchers are experienced to design optically active nanomaterials and optical devices and characterize e.g. plasmonic interaction effects or surface enhanced Raman effects (SERS) and study optical properties of metamaterials. The department is one of the six research departments of INL providing the ideal ecosystem for highly interdisciplinary research.

**The new INL Nanophotonics and Bioimaging user facility program** offers [open access to exter-](#)

[nal users](#) not only to its state-of-the-art infrastructure and systems but also provide expert training and support for the development of compound research and technology solutions. The techniques and technological solutions include linear, dynamic, and nonlinear spectroscopy techniques, and advanced fluorescence-based confocal, nonlinear and super resolution imaging technologies. Furthermore, the researchers at the Nanophotonics Department are continuously developing new generation imaging and spectroscopy solutions.

## Forthcoming events at INL.

The INL together with the Sociedade Portuguesa de Óptica e Fotónica are organizing in the framework of the celebrations of the UNESCO International Day of Light the [International Day of Light - WITH students FOR students](#) the 16th of May, 2018. Jana B. Nieder and Bruno Romeira are the local organizers.

Also, the INL will hold the [3rd Workshop for Early Stage Researchers \(ESR\) on Nanoscale Quantum Optics](#) on the 6th and 7th of September, 2018. The local organizer is Martin Lopez Garcia.

Jana B. Nieder

## Contacts

International Commission for Optics (e-ico.org).

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**Editor in chief** H Michinel

**Editorial committee** W T Rhodes, Florida Atlantic University; K Baldwin, Australian National University, Australia; J Dudley, Université Franche-Comté, France

## Forthcoming events with ICO participation

Below is a list of 2018 events with ICO participation. For further information, visit the ICO webpage at <http://e-ico.org>.

### 1-2 August 2018

**3rd International Seminar on Photonics, Optics, and its Applications (ISPhOA 2018)**

Surabaya - Indonesia  
tel: +62 31 5947188

[isphoa2018@ep.its.ac.id](mailto:isphoa2018@ep.its.ac.id)  
<http://www.isphoa2018.org>

### 8-12 October 2018

**European Optical Society Biennial Meeting (EOSAM)**

Delft, Netherlands  
Contact: Elina Koistinen  
tel: +358 50 592 4693

[eosam@myeos.org](mailto:eosam@myeos.org)  
<http://myeos.org/events/eosam2018>

### 25-28 November 2018

**15th Conference on Optics Within Life Sciences**

Rottneet Island, Perth, Western Australia  
Contact: Julie Jerbic

[e.julie@conferenceonline.com.au](mailto:e.julie@conferenceonline.com.au)  
<http://www.owls2018.org/index/welcome>

### 28-30 November 2018

**11th International Conference on Optics-photonics Design&Fabrication**

Tokyo, Japan  
Contact: Tsuyoshi Hayashi  
tel: +81-3-3669-6161

[odf18@pac.ne.jp](mailto:odf18@pac.ne.jp)  
<http://www.odf.jp/>



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