



The Abdus Salam
**International Centre
for Theoretical Physics**
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INTERNATIONAL
YEAR OF LIGHT
2015

WINTER COLLEGE on OPTICS

Light: a Bridge between Earth and Space

09 -20 February 2015

Miramare -Trieste, Italy

The Abdus Salam International Centre for Theoretical Physics (ICTP), in collaboration with the International Commission for Optics (ICO), the Optical Society of America (OSA), the International Society for Optics and Photonics (SPIE), the European Optical Society (EOS), the Società Italiana di Ottica e Fotonica (SIOF), the US National Academy of Sciences (NAS), and the International Society on Optics Within Life Sciences (OWLS) will organize a **Winter College on Optics: Light: a Bridge between Earth and Space**, which will be held at ICTP, Trieste, Italy, from 9 to 20 February, 2015.

DIRECTORS: A.Piegari (Optical Coatings Laboratory-ENEA, Italy), E.Armandillo (European Space Agency, The Netherlands), W. Chen, (Shanghai Institute of Optics and Fine Mechanics, China)

LOCAL ORGANIZERS: J. Niemela (ICTP, Italy), M. Danailov (Elettra, Trieste)

The use and application of optical technologies and instrumentation in space has allowed mankind to make significant advances in the knowledge and understanding of our planet and the universe. For example, with the optical “eyes” installed on meteorological satellites we can forecast weather patterns across the globe and gain a better understanding of climate change, as well as the complex inter-relation between the biosphere, geosphere, and atmosphere. Looking outwards, both within and beyond our galaxy, optical systems allow deep space observation for Astronomy and other fundamental research (e.g., origin of the universe, the search for habitable planets, space gravitational field, etc.).

The Winter College will cover all aspects of optical-based observing systems, which include also advanced light-based technologies (photonics). The lectures are divided in three parts: the first one will be dedicated to optics and photonics components, the second part to instruments and technologies and the third part to space applications.

MAIN TOPICS

- Optical components and systems
- Photonic components and sensors
- Optical instruments - passive and active instrumentation
- Optical atomic clocks, cooled atom physics, laser guide stars
- Space satellite applications and missions: meteorology, climatology, atmospheric research, geodesy, gravimetry, astronomy, telecom, navigation, cosmology, planetology, etc.
- Space optics project phasing: from concept to launch and exploitation.

An ICTP **PREPARATORY SCHOOL** will be organized the week before the College (from **2 to 6 February 2015**) for a limited number of selected participants. The Preparatory School will provide background tutorials and exercises designed to help the participants in following the College lectures.

The LAMP (Laser, Atomic and Molecular Physics) program is intended for presentations by the participants. All participants are encouraged to present their own research, either in poster form or as a short oral presentation, and the program will be finalized sufficiently prior to the start of the College. Poster prizes will be awarded, sponsored by the International Society for Optics and Photonics (SPIE).

PARTICIPATION Scientists and students from all countries that are members of the United Nations, UNESCO or IAEA may attend the College. As it will be conducted in English, participants should have an adequate working knowledge of this language. As a rule, travel and subsistence expenses of the participants should be borne by the home institution. Every effort should be made by candidates to secure support for their fare (or at least half-fare). However, limited funds are available for some participants, who are nationals of, and working in, a developing country. Such support is available only for those who attend the entire activity. There is no registration fee.

HOW TO APPLY The application form can be accessed at the activity website:

http://cdsagenda5.ictp.it/full_display.php?ida=a14287

Once in the website, comprehensive instructions will guide you step-by-step, on how to fill out and submit the application

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College's Web site: http://cdsagenda5.ictp.it/full_display.php?ida=a14287

ICTP Home Page: www.ictp.it

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