



The Abdus Salam
International Centre for Theoretical Physics



WINTER COLLEGE on OPTICS and ENERGY

8 - 19 February 2010

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 Science (NAS), the Photonics Society (IEEE) and the Central European Initiative (CEI) will organize a **Winter College on Optics and Energy**, which will be held at ICTP, Trieste, Italy, from **8 to 19 February, 2010**.

DIRECTORS: **V. Lakshminarayanan** (University of Waterloo, Ontario)
G. Lanzani (Politecnico di Milano, Italy)
R. Winston (University of California, Merced)

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

The Winter College will expose the participants to a broad range of topics related to the applications of optics and photonics for energy production and saving. Important physics aspects involved in solar energy conversion, like optical properties of materials and structures for light harvesting will be addressed, followed by more applied issues of optical devices design and technology. The scientific programme consists of lectures by international experts, internal seminars and group discussions, some laboratory demonstrations. The aim of the Winter College is to provide the background needed to follow the most advanced literature.

MAIN TOPICS:

- *Radiation-Matter interaction*
- *Charge photogeneration*
- *Transport in semiconductors*
- *Light confinement and nano-photonics*
- *Photonic crystals*
- *Optical properties of photovoltaic systems*
- *Optical modeling and measurements for solar energy systems*

WITH APPLICATIONS TO:

- *Light harvesting*
- *Solar energy conversion*
- *Luminescent solar collectors*
- *Photovoltaic cells, modules, components and systems*

An ICTP **PREPARATORY SCHOOL** will be organized the week before the College (from **1 to 5 February 2010**) for a limited number of selected participants. The purpose is to recollect some basic scientific elements that are relevant to the contents of the College lectures. The School sessions will have a tutorial structure, i.e. will include lectures and exercises.

The **LAMP** (Laser, Atomic and Molecular Physics) programme will include group discussions and internal seminars by participants. All participants are encouraged to present their own research, either in poster form or as an oral presentation, which will be determined sufficiently prior to the College.

PARTICIPATION

Scientists and students from all countries that are members of the United Nations, UNESCO or IAEA may attend the Workshop. As it will be conducted in English, participants should have an adequate working knowledge of this language. Although the main purpose of the Centre is to help research workers from developing countries, through a programme of training activities within a framework of international cooperation, a limited number of students and post-doctoral scientists from developed countries are also welcome to attend. 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://agenda.ictp.it/smr.php?2132>. Once in the website, comprehensive instructions will guide you step-by-step, on how to fill out and submit the application form.

Secretariat: e-mail: smr2132@ictp.it; phone: +39-040-2240-9932; fax: +39-040-2240-7932

College's web page: <http://agenda.ictp.it/smr.php?2132> ICTP Home Page: www.ictp.it



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