The Abdus Salam
International Centre
for Theoretical Physics
50th Anniversary 1964–2014

United Nations Educational, Scientific and Cultural Organization

IAEA International Atomic Energy Agency

ICTP-ICO-MCTP
College on Optics and Energy

28 April – 9 May 2014
(Tuxtla Gutiérrez, Chiapas, Mexico)

The Abdus Salam International Centre for Theoretical Physics (ICTP), together with the International Commission for Optics (ICO) and the Mesoamerican Centre for Theoretical Physics (MCTP), is organizing a College on Optics and Energy, to be held in Tuxtla Gutiérrez, Chiapas, Mexico, from 28 April – 9 May 2014.

The 21st century is the century of photonics and of the revolution triggered by renewable energy resources. Sustainable technologies and devices for energy production involve fundamental aspects of physics such as interaction of matter with radiation, optics and optical devices for diagnostics, physical properties of materials in the optical band, the physics of semiconductors and new photo materials. The search for improvement of the efficiency of solar systems involves also research in new areas like silicon photonics, new structures for the harvesting of light, and the design and fabrication of optical elements with high optical performances, such as photovoltaic concentrators. The College is intended to provide researchers from developing nations, and in particular Latin America and the Caribbean, with a scientific understanding of photovoltaic systems, recent scientific achievements in nanotechnology and plasmonics for the enhancement of the efficiency of solar cells and global tendencies towards efficient energy consumption and the implementation of smart grids.

TOPICS AND FACULTY

- Photonics for solar energy: Fundamentals of photovoltaics (Maria Luisa Calvo, Universidad Complutense de Madrid, Spain)
- Novel photovoltaic materials and light harvesting structures (Rajesh Menon, Electrical & Computer Engineering, University of Utah, USA)
- Optical design and novel technologies for high performance solar concentrators (Juán Carlos Miñano, Universidad Politécnica de Madrid, Cedint, Campus de Montegancedo, Madrid, Spain
- Organic Photovoltaics (OPVs) (Oracio Barbosa García, CIO, México)
- Solar energy storage. (Arturo Fernández Madrigal, Instituto de energías renovables, UNAM, Mexico.)
- Smart grid applications: optical fiber communication and sensors. Angela Guzmán, College of Optics and Photonics, UCF, Florida, USA)
- Lighting: new energy saving sources (Iván Moreno, University of Zacatecas, Mexico)
- Power generation diagnostic with optical spectroscopy techniques (Elena Golinelli, T&D Technologies Department, RSE – Ricerca sul Sistema Energetico, Milano, Italy)
- Workshop: Measuring the local solar spectrum for efficient solar energy harvesting with low cost equipment (Omar Ormachea. CIO, UPB, Bolivia)
- Workshop: Characterization of solar cell systems (Miguel Torres-Cisneros. University of Guanajuato, Salamanca, Mexico)
- Workshop: Energy saving sources for lighting (Iván Moreno, University of Zacatecas, Mexico)

PARTICIPATION

The workshop is open to researchers and students from all countries which are members of the United Nations, UNESCO, or IAEA. The principal objective of the ICTP is to help researchers from developing countries through a programme of training activities within a framework of international cooperation. Participants should have an adequate working knowledge of English. Due to budget limitations, every effort should be made by candidates to secure either total or partial support for their expenses. However, funds are available exclusively for a limited number of participants who are nationals of, and working in, countries from Latin America and the Caribbean. Participants are required to take part in all aspects of this activity for its entire duration. There is no registration fee.

HOW TO APPLY FOR PARTICIPATION

The application form can be accessed at the activity website http://agenda.ictp.it/smr.php?2620 Once in the website, comprehensive instructions will guide you step-by-step, on how to fill out and submit the application form. Closing date for receipt of the applications is: 20 February 2014.

ACTIVITY SECRETARIAT:
Telephone: +39-040-2240-355
Telefax: +39-040-2240-585
E-mail: smr2620@ictp.it ICTP Home Page: http://www.ictp.it/
ICO webpage: e-ico.org/calas e-ico.org/OptEner

MCTP
Mesoamerican Centre for Theoretical Physics

International Commission for Optics
Commission Internationale d'Optique

DIRECTORS

M. L. Calvo
Universidad Complutense
(Madrid, Spain)

A. M. Guzman
University of Central Florida
(Orlando, USA)

E. De la Rosa Cruz
Centro de Invesigaciones en Optica
(CIO, Mexico)

A. Zepeda
MCTP
(Tuxtla Gutiérrez, Mexico)

LOCAL ORGANIZER

J. Niemela
ICTP
(Trieste, Italy)

DEADLINE
For requesting participation:

20 February 2014