



The Abdus Salam
International Centre for Theoretical Physics



**African School on
Nanoscience for Solar Energy Conversion**

3 - 7 May 2010

Addis Ababa, Ethiopia

The African continent is characterized by strong solar radiation. It is therefore ideally suited for implementations of solar energy technology. Also, the absence of a powerful energy infrastructure (grids) makes the use of small, decentralized, solar devices very attractive.

One of the main obstacles for a more generalized use of photovoltaics in Africa is the relatively high cost of present solar cells. The possibility of new cost-efficient nanostructured solar devices is therefore an encouraging promise in those countries.

Recent years have seen the emergence of a new class of photovoltaic devices. While most of today's widely used solar panels are based on semiconductor heterojunctions, new concepts make extensive use of nanotechnology and involve electron transfer processes at surfaces. Prominent examples of such new approaches are the well known Graetzel solar cell, where light is "harvested" by dye molecules at the surface of a nanostructured semiconductor, bulk heterojunction solar cells based on conjugated polymer donors, and fullerene acceptor systems or a combination of both approaches (organic/inorganic hybrid).

This workshop will address the fundamental principles, basic processes and technological challenges of solar energy conversion in nanostructured materials. The workshop will start with a number of introductory presentations of the key concepts in the field. Both experimental topics and theoretical approaches (using computer simulations) will be covered.

Participation

Scientists and students from all countries which are members of the United Nations, UNESCO or IAEA may attend the School. Priority will be given to advanced undergraduates, graduate students, post-doctoral researchers, faculty and research scientists from Africa.

As it will be conducted in English, participants should have an adequate working knowledge of that 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, and who are not more than 45 years old. Such support is available only for those who attend the entire activity. 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?2178>

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

You may address general requests for information to:

Ms. M. Poropat (smr. 2178)
the Abdus Salam International Centre for Theoretical Physics
Strada Costiera 11 - 34014 Trieste, Italy
Telephone: +39-040-2240540 - Telefax: +39-040-2240354
E-mail: smr2178@ictp.it
ICTP Home Page: <http://www.ictp.it>

Dr. Teketel Yohannes Anshebo (smr. 2178)
Addis Ababa University
Science Faculty
Materials Science Program
P.O. Box 1176 - Addis Ababa, Ethiopia
Telephone: +251-11-6551909 - E-mail: msp@sc.aau.edu.et



co-sponsored by:
Addis Ababa University

DIRECTORS:

Teketel Yohannes ANSHEBO
(Addis Ababa University, Ethiopia)

Ralph GEBAUER
(ICTP, Trieste, Italy)

INVITED LECTURERS:

C.J. Brabec,
Konarka Inc., Linz, Austria (*)

K. Brooks,
Dyesol Group, Lutry, Switzerland

N. Camaioni,
CNR, Bologna, Italy

F. De Angelis,
University of Perugia, Italy

A. Di Carlo,
University of Rome Tor Vergata, Italy (*)

O. Inganas,
University of Linkoping, Sweden

Yongfang Li,
Institute of Chemistry, Beijing, China

N. Marzari,
MIT, Cambridge, USA

D. Meissner,
Crystalsol, Vienna, Austria

N.S. Sariciftci,
Linz Institute for Organic Solar Cells,
Austria

C. Taliani,
CNR, Bologna, Italy

(*) to be confirmed

DEADLINE

**for requesting participation:
16 January 2010
(if requesting funds)**

**13 March 2010
(if requesting neither
funds nor visa assistance)**