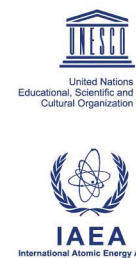




The Abdus Salam
**International Centre
for Theoretical Physics**
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Institute for
**INTEGRATED
CATALYSIS**



Workshop on Materials Science for Energy Storage 11 - 15 May 2015

ICTP, Miramare – Trieste

The Abdus Salam International Centre for Theoretical Physics (ICTP) will organize this Workshop to be held at ICTP in Trieste, Italy, from 11 to 15 May 2015.

PURPOSE:

This workshop will analyze the state of the art in the field of materials for energy storage, identifying its most pressing problems and most promising solutions. Our main focus will be on elementary atomic-scale mechanisms underpinning physico-chemical and solid-state processes such as lithium insertion and diffusion, hydrogen adsorption/desorption, and electrochemical energy conversion, and their computational modeling by current state of the art and foreseeable new tools.

TOPICS:

- **Electrocatalysis for energy storage**
- **Lithium-ion and sodium-ion batteries**
- **Metal-air and metal-sulfur batteries**
- **Redox flow batteries**
- **Hydrogen storage**
- **Supercapacitors**
- **Advanced characterization techniques**
- **Computational modeling**

The importance of energy storage is likely to increase in the near future. One reason is the increasing presence of renewable energy sources, most of which are irregular. Another reason is the drive towards alternatives to fossil fuels for the transportation sector. Across these fields, requirements on the storage system may be very different, for example in terms of energy and power density. Accordingly different are the investigated solutions, from the employment of hydrogen as a clean storage medium through the further development of batteries to the investigation of supercapacitors. For all these solutions, a key issue is the development of functional materials able to perform the required tasks efficiently, produced from safe, widely available and easy-to-process raw materials.

Our main aim is to discuss the recent progress and identify the main challenges in the current materials and electrocatalysis research for energy storage. The workshop will deal with materials for electrochemical energy conversion, hydrogen storage, lithium-ion, sodium-ion, metal-air and metal-sulfur batteries, redox flow batteries, supercapacitors, including spectroscopic and microscopic techniques for the in-situ characterization of materials, and computational simulations.

PARTICIPATION: *Scientists from all countries that are members of the UN, UNESCO or IAEA can attend the event. As the event 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. It is expected that all participants will present a poster or a talk on their work related to the workshop topic. A one-page abstract of such a contribution is requested as a part of the application procedure. Due to organizational reasons, the total number of participants is limited to 60.*

*As a rule, travel and subsistence expenses of the participants should be borne by the home institution. Limited funds are available for some applicants from developing countries, to be selected by the organizers. Every effort should be made by candidates to secure support for their fares (or at least half-fare) from their home country. **There is no registration fee for attending the school or the workshop***

HOW TO APPLY:

The online application form for this Workshop is available at:
<http://indico.ictp.it/event/a14301/>.

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DEADLINE

8 February 2015

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