



Joint ICTP-IAEA Workshop on PHYSICS OF RADIATION EFFECT AND ITS SIMULATION FOR NON-METALLIC CONDENSED MATTER

13 - 24 August 2012

ICTP, Miramare - Trieste, Italy

The Abdus Salam International Centre for Theoretical Physics (ICTP) will organize the above *Workshop* to be held at the ICTP in Trieste, from 13 to 24 August 2012.

The purpose of this workshop is to review the current status of ion induced radiation effects in non-metallic materials specifically semiconductors and insulators; and provide advanced training and an information exchange platform for early stage researchers as well as more-experienced scientists interested in this important subject. An emphasis will be given to microstructure response and evolution, movement both in time and space, recombination and generation, etc. This also includes the appropriate application of computer tools. Basic theoretical principles of radiation damage phenomena and specific features of non-metallic materials will be presented. Special attention will be given to the application of these types of materials specifically for detectors, hidden radiation protection, electronics, optics and nuclear materials.

The Workshop will focus on modeling and simulation approaches (Binary Collision Approximation and Molecular Dynamics calculations etc.) and experimental approaches (ion beam induced charge, time resolved, deep level transient spectroscopy, photoluminescence or positron annihilation spectroscopy etc.). The workshop will also summarize recent scientific results on radiation damage by electrons, protons, heavy ions and neutrons. A short overview on the R&D initiatives will be given including future trends and perspective areas for further development.

PARTICIPATION:

Early stage researchers (primarily post-docs and PhD students) in the field of computer modelling and solid state physics related to the radiation-matter based interactions are invited to submit their application. All participants should present the results of their research work in the form of a poster. Appropriate time will be allocated for scientific discussions in order to stimulate further development and co-operation among the participants.

Participants from all countries that are members of the UN, UNESCO or IAEA can attend the School. The Workshop will be conducted in English therefore participants must have adequate language knowledge. Although the main purpose of the Centre is to help researchers from developing countries, graduate students and post-doctoral scientists from developed countries would equally benefit from the Workshop and are encouraged to apply.

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). Limited funds will be available for some participants who are nationals of, and working in, a developing country, and who are not more than 45 years old. There is no registration fee.

The online application form for this Workshop is available at:

http://cdsagenda5.ictp.it/full_display.php?email=0&ida=a11182

Workshop Secretariat (smr2359)
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Directors:

Aliz Simon
&
Andrej Zeman
(IAEA, Vienna)
Sandro Scandolo
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Invited Lecturers

Wim Bras
(ESRF, Grenoble - France)
Ivana Capan
(RBI, Zagreb - Croatia)
Sehila Gonzalez
(EFDA, Garching - Germany)
Milko Jaksic
(RBI, Zagreb - Croatia)
Paolo Olivero
(University of Turin, Italy)
Jyrki Raisanen
(University of Helsinki, Finland)
Vladimir Skuratov
(JINR, Dubna - Russia)
Roger Smith
(University of Loughborough, UKD)
Ettore Vittone
(University of Turin, Italy)
György Vizkelethy
(Sandia Laboratories, USA)
Thierry Wiss
(JRC, European Commission)
Steve Zinkle
(ORNL, Oak Ridge - USA)

Main topics

- Basics and complex modelling principles of electron, proton, heavy ion and neutron irradiation
- Characterization of defects evolution in electronic materials, ion-solid interaction models
- Investigation of advanced materials as ceramics, semiconductors and non-metallic crystallite structures.
- Radiation degradation of novel detector materials: including characterization and modification.
- State-of-the-art on nuclear materials such as: SiC, ZrO and other types of materials with nanostructure features.
- Charge carrier transport models in the presence of defects, theory and simulation.
- Advanced accelerator-based techniques to study ion irradiation effects (in-situ and real-time approach).
- Multidisciplinary approach related to the radiation effects in harsh radiation environments.

DEADLINE

30 April 2012