



School on Synchrotron and Free-Electron-Laser Based Methods: Multidisciplinary Applications and Perspectives

4 - 15 April 2016
ICTP, Miramare – Trieste, Italy

The Abdus Salam International Centre for Theoretical Physics (ICTP) and Elettra Sincrotrone Trieste are jointly organizing the School above, to take place from 4 to 15 April 2016.

The 3rd and 4th generation light-source facilities, where electrons in storage rings or linear accelerators generate intense, tunable, multiply polarized, coherent, and pulsed radiation in the X-ray, VUV and IR region, have been the prerequisites for the development of advanced experimental techniques for multidisciplinary applications, with unprecedented spatial, spectral, and time resolution. The goal of this school, addressed to young researchers with a PhD or at least several years of research activity, is to disseminate knowledge about synchrotron and Free-electron-Laser (FEL) based methods, applications, and on-going innovations that will help the participants to identify the techniques relevant to their research interests.

The programme will include introductory lectures on the principles and present status of photon productions and lectures on the various methods based on photon-matter interactions, namely absorption, scattering, diffraction, imaging, spectroscopy, microscopy, and related theoretical approaches for the interpretation of synchrotron and FEL experiments. Emphasis will be given to the latest developments and related new scientific opportunities. A wide range of applications will be presented in various fields, including physical and material sciences, chemistry, biology, nanotechnology, environmental sciences, geology, and medicine. The lectures will be complemented by demonstrations at the synchrotron and FEL facilities at Elettra, Trieste. The following specific topics will be included:

- ***Fundamentals of Synchrotron & FEL Radiation***
- ***X-ray Absorption, Scattering, and Diffraction with Synchrotrons & FELs; and Applications***
- ***Soft and hard X-ray Photoemission with Synchrotrons & FELs; and Applications***
- ***X-ray Microscopy and Imaging with Synchrotrons & FELs; and Applications***
- ***Multicolor Experiments, Transient States of Matter under Extreme Conditions and Ultrafast Dynamics***

PARTICIPATION: Students and young scientists from all countries that are members of the UN, UNESCO or IAEA can attend the School. The main purpose of the Centre is to help researchers from developing countries through a programme of training activities within a framework of international co-operation. A limited number of scientists from developed countries are also welcome to attend. In particular this School is intended for strongly motivated graduate students and young post-doctoral scientists. Logistics limit the number of participants to 60-70.

Limited funds are available for some applicants from developing countries, to be selected by the organizers. Such financial support is available only to those who attend the entire school. Every effort should be made by candidates to secure support for their fares (or at least half-fare) from their home country before applying to this School. ***There is no registration fee for attending the School.***

APPLICATION: the online form can be accessed at <http://indico.ictp.it/event/7594/>

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APPLICATION DEADLINE

15 January 2016

