



The Abdus Salam
**International Centre
for Theoretical Physics**
www.ictp.it



ADVANCED SCHOOL ON APPLICATION OF SYNCHROTRON TECHNIQUES IN ENVIRONMENTAL SCIENCE

15 - 26 April 2013

Trieste, Italy

The Abdus Salam International Centre for Theoretical Physics (ICTP), jointly with the Synchrotron-radiation for Experimental Science and Applications in Middle East (SESAME) laboratory, and Elettra Synchrotron Laboratory, will organize an Advanced School from 15 - 26 April 2013 focused on the role and impact of synchrotron radiation-based techniques in environmental science and related fields.

BACKGROUND

The contamination of the atmosphere, oceans and soil is a problem of increasing concern as the world population increases and industrialization spreads to more regions across the globe. Solutions to this problem will depend on improvements in our ability to accurately characterize pollutants generated, e.g., from nuclear, industrial, and agricultural wastes, and fuel consumption. In this context, significant advances have been made in recent years using synchrotron radiation-based techniques to identify the physical and chemical properties of polluting matter, and ultimately their risks to public health. The construction of new synchrotron laboratories worldwide, such as the SESAME laboratory in the Middle East, will provide additional opportunities for further and significant contributions in this area to science and society.

OBJECTIVE OF THE ADVANCED SCHOOL ON SYNCHROTRON TECHNIQUES

The main objective of the School is to introduce the participants to various synchrotron-based methods that can be applied to a variety of environmental problems. This is intended to be a comprehensive and "hands-on" course, providing participants not only with topical lectures, but also with practical training and other resources needed to enhance their abilities to adopt these methodologies and to effectively disseminate the results of their research.

TOPICS

The School program will include the following synchrotron techniques, commonly used for addressing environmental problems:

- X-ray diffraction and scattering.
- X-ray fluorescence
- X-ray Absorption Spectroscopy
- X-ray imaging and spectromicroscopy

There will be invited talks and lectures describing the synchrotron based methods and their specific use in the context of environmental research. There will also be practical sessions, which will largely take place at the Elettra Synchrotron Laboratory. These include the collection of data using various beamlines at Elettra, data analysis using specialized software developed for the corresponding synchrotron-based technique, and in-depth discussions on how to interpret and communicate the results obtained. At the end of the school the participants will be asked to submit a report.

PARTICIPATION

Scientists and students from all countries that are members of the United Nations, UNESCO or IAEA may attend the activity. As it will be conducted in English, participants must have an adequate working knowledge of this language. Although the main purpose of the Centre is to help researchers from developing countries through a program of training activities within a framework of international cooperation, limited numbers of students and post-doctoral scientists from developed countries are also welcome to attend. As a rule, travel and subsistence expenses of the participants are borne by their home institutions. 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 of age. Such support is available only to those attending the entire event. Every effort should be made by candidates to secure support for their fare (or at least half-fare). There is no registration fee for attending the activity.

The **Application Form** is available on the ICTP WWW server:

<http://agenda.ictp.it/smr.php?2452>

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

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Confirmed Lecturers

- Daniel Grolimund (Switzerland)
- Messaoud Harfouche (Jordan)
- Andrea Lausi (Italy)
- Giuliana Aquilanti (Italy)
- Diane Eichert (Italy)
- Alessandra Gianoncelli (Italy)
- Maya Kiskinova (Italy)
- Maurizio Polentarutti (Italy)
- Lisa Vaccari (Italy)
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APPLICATION DEADLINE

15 January 2013