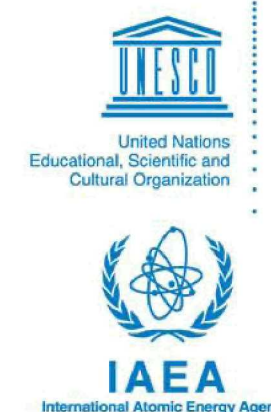




The Abdus Salam  
International Centre for Theoretical Physics



## **Advanced School on SYNCHROTRON AND FREE-ELECTRON- LASER SOURCES AND THEIR MULTIDISCIPLINARY APPLICATIONS**

**7-25 April 2008**  
**ICTP, Miramare - Trieste, Italy**

The Abdus Salam International Centre for Theoretical Physics (ICTP), the Elettra Synchrotron Light Laboratory, and the International Atomic Energy Agency (IAEA, Vienna) will jointly organise the "*Advanced School on Synchrotron and Free-Electron-Laser Sources and their Multidisciplinary Applications*", to be held in Trieste *from 7 to 25 April 2008*.

Synchrotron radiation (SR) based research techniques play a pivotal role across a wide range of disciplines in research and technology, including physics, chemistry, biology, medicine, environmental sciences, materials science and engineering. The rapid and continuing expansion of SR based research is reflected by the growing number of synchrotron facilities all over the world. At present emerging new light sources such as the IR, VUV, and x-ray free-electron lasers (FEL's) with unprecedented coherence, peak brightness, and pulse length are opening new opportunities of development and research. Furthermore, this facility-based research is genuinely international, with a large number of scientists using synchrotron light sources abroad to complement the research done at their home laboratories and participate in the development of new experimental tools and methodologies for interdisciplinary research.

The Advanced School is addressed to PhD students and young researchers interested in exploring modern developments in the physics and applications of synchrotron and FEL light sources. It will cover topics in generation and properties of SR and FEL radiation, photon optics and beamline instrumentation, and SR-based experimental techniques and their applications. Recent progress in the development of spectroscopic, diffractive, microscopy/imaging, and time-resolved methods for expanding the research opportunities at the SR and FEL facilities will also be included. The School will consist of three 5-day working weeks with morning and afternoon lectures and seminars, complemented by practical training and demonstrations. Practical sessions in instrumentation and data handling will be organized on personal computers, and the methodology of common SR techniques will be demonstrated at the Elettra SR laboratory in Trieste. The following specific topics will be included:

- Fundamentals of SR and FEL Radiation•
- Photon Optics and Beamline Instrumentation•
- Absorption and Diffraction Techniques and Applications in Materials and Life Sciences•
- Photoemission Techniques and Applications in Surface Science•
- Microscopy and Imaging, and Applications in Medicine, Nanotechnology, and Chemistry•
- Study of Ultra-Fast Processes in Matter•

*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. However, 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 75-80.*

*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 activity. 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.***

The Application form, to request for participation to attend the School is available from the ICTP WWW server of ICTP at:

[http://cdsagenda5.ictp.trieste.it/full\\_display.php?smr=0&ida=a07145](http://cdsagenda5.ictp.trieste.it/full_display.php?smr=0&ida=a07145)

**The closing date for receipt of applications for participation is 15 November 2007.**

Fully completed and signed application form should be returned to:

School on Synchrotron Radiation (smr1936)  
c/o Elizabeth Brancaccio  
The Abdus Salam International Centre for Theoretical Physics  
Strada Costiera 11  
34014 Trieste, Italy

*If sending an application by e-mail: [smr1936@ictp.it](mailto:smr1936@ictp.it) (please sign and send file in pdf attachment)*

Phone: +39-040-2240284      Telefax: +39-040-224163  
E-mail: [smr1936@ictp.it](mailto:smr1936@ictp.it)  
ICTP Home Page: <http://www.ictp.it/>

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### **DEADLINE**

**15 NOVEMBER 2007**