



School and training course on DENSE MAGNETIZED PLASMA as a source of ionizing radiations, their diagnostics and applications

8 - 12 October 2012

Miramare, Trieste, Italy

The Abdus Salam International Centre for Theoretical Physics (ICTP) will organize a **School and training course on Dense Magnetized Plasma as a source of ionizing radiations, their diagnostics and applications**, from 8 to 12 October 2012.

PURPOSE of the School

Capacity building in the field of dense magnetised plasma and ionizing radiation generation and diagnostics, among young scientists from developing countries, is the main purpose of the School. This purpose will be achieved by means of several tutorial lectures on current status, performance and limitations of contemporary Dense Magnetized Plasma (DMP) devices as well as by means of hands-on experimentation at the ICTP-MLAB Plasma-Focus laboratory. Particular attention will be devoted to mechanisms of generation and characteristics of various types of ionizing radiation (neutrons, beams of high-energy electrons and ions, soft and hard X-rays, plasma streams) emitted by the DMP devices. Passive and active diagnostic techniques used for characterization of their parameters including development of new instrumentation and methodologies will be considered. A number of applications of these devices in science, industry and for bio-medicine will be examined. The School will include practical experiences using Dense Plasma Focus (DPF) devices and a number of diagnostics to measure various parameters of plasma and ionizing radiations generated by the devices.

The School will include laboratory activity in hands-on experimentation with a DPF device, based on modern technology, in operation at the ICTP Multidisciplinary Laboratory (MLAB). Plans are to use the device for experimental sessions devoted to characterization of different types of radiation generated by the facility, as well as for demonstration of selected applications of these radiation pulses in various fields. This will help to provide cost-effective solutions in the field of the DMP instrumentation to meet the needs for research and training in developing countries. This School will also provide basic concepts and techniques necessary to work on leading-edge technologies in support of radiation material sciences, radiation biology and nuclear medicine.

PARTICIPATION

Scientists and students from all countries which are members of the United Nations, UNESCO or IAEA may attend the School and Workshop. As it 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, students and post-doctoral scientists from advanced countries are also welcome to attend.

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). 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 old. Such support is available only for those who attend the entire activity. There is no registration fee to be paid.

HOW TO APPLY FOR PARTICIPATION:

The **application form** can be accessed at the activity website <http://agenda.ictp.it/smr.php?2370>. Once in the websites, comprehensive instructions will guide you step-by-step, on how to fill out and submit the application form.

ACTIVITY SECRETARIAT:

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Some of the TOPICS to be covered will include:

- Plasma parameters defined by spectrometry and laser techniques
- Status and advances in passive and active techniques for plasma diagnostics
- Methods of investigation, characterization and metrology of different types of ionizing radiation (dose, dose power, power flux density, spectrum, spatial and angle distribution, etc.) and their role in plasma diagnostics
- Modelling at DMP devices of different phenomena taking place in the main-stream fusion facilities
- Various applications of DMP devices – already implemented, in process of development and perspective ones
- Atomic data and modelling tools for the analysis of the experimental results

DEADLINE

for requesting participation

~~15 June 2012~~

extended to

30 June 2012