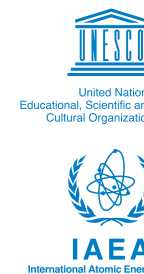




The Abdus Salam  
International Centre for Theoretical Physics



The Abdus Salam International Centre for Theoretical Physics (ICTP), in collaboration with the Italian Institute for Nuclear and Sub-Nuclear Physics (INFN), will hold the

# International Workshop on Recent Developments in Astronuclear and Astroparticle Physics

**19-23 November 2012**  
**Miramare, Trieste, Italy**

Numerous data gathered over the last decade, from measurements of electromagnetic radiation at all wavelengths (including high-resolution spectroscopy on 10m class telescopes), charged cosmic rays and neutrinos, as well as the progress on theoretical modeling of stars, in various hydrostatic and explosive stages, have led to unprecedented developments in several areas of astroparticle and astronuclear physics. Examples include developments in particle interactions at very high energies, the structure of compact stellar remnants and the measurement of abundances in the first stars. Progress in specific fields of physics, at the microscopic level, has become strongly linked to the grand scales of cosmological relevance. While some of this progress relies on theories that are well-tested in terrestrial laboratories, there remains a vast territory, which is basically unknown. Unveiling it is challenging, because of the multidisciplinary character of the problem, which requires expertise from historically independent disciplines, covering the entire range from microphysics to cosmology. The aim of the workshop is to bring together the best scientists in the main research branches with the purpose of providing an updated review of this rapidly evolving interdisciplinary area.

## Topics to be discussed at the workshop include:

### 1. OUR UNDERSTANDING OF THE UNIVERSE

(Big bang nucleosynthesis; stellar modelling and observations; supernovae; presolar grains)

### 2. HIGH DENSITY SYSTEMS

(Equation of state for dense matter; neutron stars; black holes from stellar remnants to galactic nuclei; high density systems in the laboratory)

### 3. COSMIC RADIATION AND FUNDAMENTAL INTERACTIONS

(Dark matter; cosmology; general relativity; cosmic rays; processes induced by leptons and neutrons; neutrinos; x-rays; gamma-rays)

### 4. PRESENT and FUTURE of GROUND and SPACE-BASED EXPERIMENTS

(Space- and ground-based experiments; technological developments)

## PARTICIPATION

Scientists and students from all countries which are members of the United Nations, UNESCO or IAEA may attend the Workshop. As it will be conducted in English, participants should have an adequate working knowledge of that 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 developed 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.

## HOW TO APPLY FOR PARTICIPATION

The [application form](http://agenda.ictp.it/smr.php?2347) can be accessed at the activity website <http://agenda.ictp.it/smr.php?2347>. Once in the website, comprehensive instructions will guide you step-by-step, on how to fill out and submit the application form.

**ACTIVITY SECRETARIAT:** Telephone: +39-040-2240-231  
E-mail: [smr2347@ictp.it](mailto:smr2347@ictp.it)

Telefax: +39-040-2240-7231  
ICTP Home Page: <http://www.ictp.it/>

April 2012

**CO-SPONSOR**



*Italian Institute for Nuclear Physics*

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**\* Local organizers**

**DEADLINE**

*for requesting participation*

**30 June 2012**