



The Abdus Salam
**International Centre
for Theoretical Physics**
50th Anniversary 1964–2014



Turbulent Mixing and Beyond Workshop: Mixing in Rapidly Changing Environments - Probing Matter at the Extremes

4 - 9 August 2014

Miramare, Trieste, Italy

The Abdus Salam International Centre for Theoretical Physics (ICTP, Trieste, Italy) is organizing a Workshop “Mixing in Rapidly Changing Environments - Probing Matter at the Extremes” to be held at ICTP in Trieste from 4 to 9 August 2014. This Workshop will be focused on hydrodynamic instabilities and on interfacial and turbulent mixing in fluids, plasmas and materials under extreme conditions of high energy density and sharply changing flow fields, and on their applications in nature and technology, from atomistic to astrophysical scales.

The Workshop is a part of the program “Turbulent Mixing and Beyond” (TMB) that was developed in 2007 with the support of the ICTP and international funding agencies and institutions to bring together researchers from different areas of science, engineering and mathematics, and to focus their attention on the fundamental problem of non-equilibrium processes and turbulent mixing, <http://www.ictp.it/~tmb>. Hydrodynamic instabilities and mixing control a broad variety of processes in fluids, plasmas and materials. These processes can be natural or artificial, their characteristic scales can be astrophysical or atomistic, and energy densities can be low or high. Examples include inertial confinement, heavy ion, and magnetic fusion, stellar and planetary convection, material transformation under impact, supersonic flows, and laser micromachining. The tremendous success that has been recently achieved in large-scale numerical simulations, in laboratory experiments (especially those in high power laser systems), in technology development (including possibilities for improvements in precision, dynamic range, reproducibility, accuracy, and data acquisition rate), and in theoretical analysis (e.g., new approaches for handling multi-scale, non-local and statistically unsteady dynamics) renders unparalleled opportunities to explore the properties of mixing and to touch the matter at the extremes. This success, as well as the striking similarity in behavior of hydrodynamic instabilities and mixing in the vastly different physical regimes, make this moment right for integrating our knowledge of the subject and for further enriching its development. The TMB Workshop ‘Mixing in Rapidly Changing Environments’ will consist of key-note and invited lectures, contributed talks, poster presentations, and round table discussions. The results of the Workshop will be published.

PARTICIPATION

Scientists and students from all countries that are members of the United Nations, UNESCO or IAEA may attend the Workshop. 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 research workers from developing countries, through a programme of training activities within a framework of international cooperation, a limited number of 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. Such support is available only for those who attend the entire activity. There is no registration fee.

HOW TO APPLY: The application form for the Workshop can be found on the activity website at: http://cdsagenda5.ictp.it/full_display.php?agenda_id=4320

Once in the website, comprehensive instructions will guide you step-by-step on how to fill out and **submit online** the application form. Please apply **not later than 1 May 2014**. Under “other information” applicants should attach a one-page abstract (plain text, no more than 300 words) of their scientific contribution to the workshop.

ACTIVITY SECRETARIAT: Mrs. Ave Lusenti; e-mail: <mailto:smr2596@ictp.it>
telephone: +39-040-2240544 ICTP Home Page: <http://www.ictp.it/>

DIRECTORS

S.I. Abarzhi

(Carnegie Mellon Un., USA &
Carnegie Mellon Un., Qatar)

S. Gauthier

(Commissariat à l'Energie Atomique,
France)

B. A. Remington

(Lawrence Livermore Nat. Laboratory,
USA)

K.R. Sreenivasan

(New York University, USA)

LOCAL ORGANIZER

J.J. Niemela

(ICTP, Trieste, Italy)

DEADLINE

01 May 2014