



## Advanced Workshop on Non-Standard Superfluids and Insulators

18 - 22 July 2011  
Miramare, Trieste, Italy

The Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy, is organizing an **Advanced Workshop on Non-Standard Superfluids and Insulators**, to be held in Trieste from 18 to 22 July 2011.

Recent years have seen remarkable progress in creating, exploring, and understanding novel states of matter such as multi-component superfluids, finite-temperature insulators, spinor condensates, localized states, dipole systems, and supersolids, just to name a few. They are found in realistic condensed matter materials, prepared in table-top experiments with cold atomic gases and ions, and imagined in abstract theoretical models though the notion of "abstract" is questioned by the advancement of quantum emulators. These states challenge standard notions about insulators and superfluids, call for development of new physical concepts and effective descriptions, require unconventional methods of observation and detection, and promise enormous potential for technological applications.

This workshop will bring together active researchers in the field to discuss its current status, address existing controversies, and propose strategies for their resolution. It will foster closer collaboration between the theoretical and experimental groups including the design of next-generation experiments and first-principles simulations to test new ideas.

### TOPICS

- Mott insulators
- Localization in many-body systems
- Finite temperature insulators
- Supersolids
- Multi-component superfluids and spinor condensates
- Dipole systems
- BEC-BCS crossover
- Nonequilibrium physics of quantum gases

### PARTICIPATION

Scientists from all countries that are members of the UN, UNESCO or IAEA can attend the Workshop. The Organizers will select participants upon evaluation of the application forms. The main purpose of the Centre is to help researchers from developing countries within the framework of international cooperation. However, scientists from developed countries are most welcome to attend. As the Workshop will be conducted in English, participants must have an adequate working knowledge of that language.

As a rule, travel and subsistence expenses of the participants are borne by their home institutions. Limited funds are available for a limited number of applicants who are nationals of, and working in, developing countries. As scarcity of funds granted allows travel to be only in a few exceptional cases, every effort should be made by candidates to secure support for their fare from their home country. Such financial support is available only to those attending the entire Workshop. There is no registration fee to attend this activity.

**How to apply for participation:** candidates can access the **Online Application Form** through the activity webpage: : <http://agenda.ictp.it/smr.php?2252>. Once in the website, comprehensive instructions will guide you step-by-step, on how to fill out and **submit online the application not later 31 March 2011**.

### WORKSHOP SECRETARIAT

E-mail: [smr2252@ictp.it](mailto:smr2252@ictp.it)  
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Workshop webpage: <http://agenda.ictp.it/smr.php?2252>

ICTP Home Page: <http://www.ictp.it>



### ORGANIZERS

B.L. Altshuler (Columbia, USA)  
I. Bloch (MPQ & LMU Munich, Germany)  
M.N. Kiselev (ICTP, Italy)  
N.V. Prokof'ev (UMass, USA)  
P. Weichman (BAE, USA)

### PRELIMINARY LIST OF SPEAKERS

I. Aleiner (Columbia, USA)\*  
A. Aspect (Orsay, France)  
M. Chan (Penn. State Univ., USA)  
N. Cooper (Cambridge Univ., UK)  
E. Demler (Harvard, USA)  
J.M. Gunn (Birmingham Univ., UK)  
T.L. Ho (Ohio State Univ., Columbus, USA)  
D. Huse (Princeton, USA)\*  
M. Inguscio (LENS, Florence, Italy)  
V. Liu (Univ. of Pittsburg, USA)  
L.A. Maksimov (Kurchatov Institute, Russia)\*  
R. Mukhopadhyay (Clark Univ., USA)  
L.P. Pitaevskii (Univ. of Trento, Italy)  
T. Pfau (Univ. of Stuttgart, Germany)  
L. Radzihovsky (Boulder, USA)  
G. Refael (CalTech, USA)  
Yu. Rubo (UNAM, Mexico)  
S. Sachdev (Harvard, USA)  
Ch. Salomon (ENS, Paris, France)  
B. Svistunov (UMass, Amherst, USA)  
G. Shlyapnikov (Univ. Paris-Sud XI, France)  
D. Stamper-Kurn (UC Berkeley, USA)  
M. Troyer (ETH, Zurich, Switzerland)\*  
M. Zwierlien (MIT, USA)

\* to be confirmed

### DEADLINE

**31 March 2011**