



# Joint ICTP-FANAS Conference on TRENDS IN NANOTRIBOLOGY

12 - 16 September 2011

Miramare, Trieste, Italy

The physics of tribology -- a vast interdisciplinary field covering friction, adhesion, lubrication, and wear -- has been largely revived by experimental, theoretical, and simulation advances that approach these phenomena at the nanoscale.

This joint ICTP/FANAS International Conference will bring together scientists from laboratories all over the world that are active in atomic scale tribology and will offer a fresh view of all new developments. In addition, all keynote speakers will be required to make a pedagogical effort in their introductory part and to reserve ample time for discussion, offering an excellent occasion for exchange between experts, but also for a broader interdisciplinary audience to learn about the field.

The Conference will also mark the conclusion of the Project FANAS (Friction and Adhesion in Nanomechanical Systems) by the European Science Foundation (ESF), with the added opportunity to gather a large fraction of Europe's scientists and students in this field. This rich attendance will offer a strategic opportunity to discuss the future directions of this whole area.

## TOPICS

- The nonlinear nature of sliding friction
- From stick-slip motion to superlubric sliding
- Dissipation in contact and noncontact AFM and in QCM
- Atomistic friction of carbon materials: graphene, nanotubes, diamond, etc.
- Controlling and tuning friction and wear at the nanoscale
- The tribology of confined systems and lubricants under shear, and of solid liquid interfaces
- Nanomanipulation and dynamics of clusters and nano-objects at surfaces
- Collective mechanisms in friction
- Developments in macroscopic tribology: granular media, earthquakes, fracture, plasticity
- Adhesion and friction
- Trends in experimental nanotribology techniques
- Trends in computational nanotribology simulations

## PARTICIPATION

Scientists and students from all countries which are members of the United Nations, UNESCO or IAEA may attend the Conference. 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, 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, 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 can be accessed at the activity website <http://agenda.ictp.it/smr.php?2259>. Once in the website, comprehensive instructions will guide you step-by-step, on how to fill out and submit the application form.

**Prospective participants are encouraged to input, besides their personal data, a title and abstract of a proposed contribution, to be considered by the Conference Directors as possible oral contributions, or as posters.** Participation of young researchers active in the field is warmly encouraged. During the closing session, prizes will be awarded to the best oral and best poster presentations delivered by students or scientists who have achieved their PhD in the previous 5 years.

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February 2011

## Co-Sponsors:



EUROCORES Programme  
European Collaborative Research

FANAS

Friction and Adhesion in Nanomechanical Systems



Dipartimento di Fisica  
Università degli Studi  
di Milano

## DIRECTORS

Oguz Gulseren (Bilkent Univ.)

Nicola Manini (Univ. Milan)

Andrea Vanossi (SISSA)

## LOCAL ORGANIZER

Erio Tosatti (ICTP/SISSA)

## KEYNOTE SPEAKERS

Bill Allison  
Robert Carpick  
Paolo Decuzzi  
Ali Erdemir  
Adam Foster  
Joost Frenken  
Bernd Gotsmann  
Jacob Israelachvili  
Ernst Meyer  
Elisa Riedo  
Mark Robbins  
Miquel Salmeron  
André Schirmeisen  
Alois K. Schlarb  
Nic Spencer  
Michael Urbakh

**DEADLINE**  
for requesting participation

31 May 2011