

International Conference on FRICTION AND ENERGY DISSIPATION IN MAN-MADE AND BIOLOGICAL SYSTEMS

5 - 8 November 2013

ICTP, Miramare, Trieste, Italy



Friction plays a central role in diverse systems and phenomena that span vast ranges of scales, from the nanometer contacts inherent in micro- and nanomachines and biological molecular motors, to the geophysical scales characteristic for earthquakes. It clearly also spans across different disciplines, including physics, engineering, seismology, biology, and more. Despite the practical and fundamental importance of friction and the growing efforts in the field, many key aspects of the dynamics of friction are still poorly understood. Friction generally results in stick-slip dynamics that is central to many different fields including tribology, micro and nanoelectromechanical systems, as in MEMS and NEMS, granular materials, dynamics of fractures in solids and glasses, but also in biological areas including protein function, cell motility, etc..

This Conference will bring together novel aspects of biological friction, related in particular to protein function, biological molecular motors and cell adhesion and motility, with the more standard, physics based problems and methods applied to man-made tribological systems. For that scope, a mixed community will be gathered, general lectures will be arranged covering both basic and specialized items in areas that are different, but that can learn to speak to one another. The Conference will include themes such as:

- [1] Nonlinear nature of sliding friction
- [2] From stick-slip motion to superlubric regimes
- [3] Contact and noncontact AFM: how to measure energy dissipation
- [4] Atomistic friction of carbon materials
- [5] Controlling and tuning friction and wear at the nanoscale
- [6] Nanomanipulation and dynamics of clusters and nano-objects at surfaces
- [7] Dynamic force spectroscopy of biomolecular bonds
- [8] Friction in biological molecular motors
- [9] Cell motility
- [10] Biological systems adhesion and friction

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, students and research scientists from all countries are warmly 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?2497>. Once in the website, comprehensive instructions will guide you step-by-step, on how to fill out and submit the application form.

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KEYNOTE SPEAKERS

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**DEADLINE
for requesting
participation**

31 July 2013