

Dissipation Mechanisms in Nano/Mesoscale Tribological Systems



30 May - 2 June 2022
An ICTP Hybrid Meeting
Trieste, Italy

Further information:
<http://indico.ictp.it/event/9796/>
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Nano/mesoscale mechanical and rheological response with dissipation has become, thanks to the very broad range of experimental/theoretical approaches, a novel local diagnostic and even spectroscopic tool, as well as a playground of sophisticated non-equilibrium statistical physics.

Description:

The physics of nanoscale mechanical dissipation is relevant to sliding nanofriction, to technological themes such as lubrication or finger-touchscreen friction, to soft and granular matter, to nanofrictional emulation in optical lattices, to active matter, to quantum and classical processes in noncontact AFM, and beyond. Between condensed matter physics, nanomechanics, materials science and engineering, this interdisciplinary area is of considerable conceptual value as a modern subject in non-equilibrium physics, and of the potential relevance of neighbouring fields such as fatigue, wear, lubrication, rheology, and biomechanics. As is well established in ICTP Trieste since 1995, we will collect the world community active in these fields, including groups in emerging countries, mixing theoretical, simulation and experimental highlights, and identifying future directions of motion of research in this lively arena.

Participants are encouraged to submit abstracts of proposed talk.

A number of short oral presentation slots will be available for some of them upon selection.

Accepted participants will be able to attend in remote or – strictly following Italian sanitary rules as they will be applicable at the time of the conference, and depending on the very limited number of available places – in person.

Topics:

- From dissipation to superlubricity
- Atomistic friction of 2D layered materials
- Nanomanipulation and dynamics of nano-objects at surfaces
- Tribology of confined systems and lubricants under shear
- Frictional dynamics in soft and active matter
- Friction in powders and granular systems
- Fundamentals of friction theory
- Electronic, magnetic and quantum friction
- Surface and bulk processes and transitions detected by noncontact AFM dissipation
- Tribochemistry, triboelectricity, biotribological effects
- Trends in experimental and computational techniques

How to apply:

Online application:
<http://indico.ictp.it/event/9796/>

Female scientists are encouraged to apply.

Grants:

A limited number of grants are available to support the attendance of selected participants, with priority given to participants from developing countries. There is no registration fee.

Directors:

E. MEYER, University of Basel, Switzerland
A. VANOSI, CNR/IOM & SISSA, Italy
Q. ZHENG, Tsinghua University, China

Local Organiser:

E. TOSATTI, ICTP/SISSA, Italy

Speakers:

A. BENASSI, Chiesi Farmaceutici, Italy
R. BENNEWITZ, Leibniz Institute for New Materials, Germany
R. BUZIO, CNR SPIN, Italy
C. CAFOLLA, Durham University, UK
X. CAO, University of Konstanz, Germany
R. CARPICK, University of Pennsylvania, USA
E.M. CHANDROSS, Sandia National Laboratories, USA
E. CIHAN, TU Dresden, Germany
C.A. DRUMMOND SUINAGA, Paul-Pascal Centre, CNRS, France
A. GIACOMELLO, Sapienza University of Rome, Italy
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N.N. GOSVAMI, Indian Institute of Technology, India
B.W. GOTSMANN, IBM Zurich Research Laboratory, Switzerland
R. GUERRA, University of Milan, Italy
T. HEIMBURG, University of Copenhagen, Denmark
E. KOREN, Technion - Israel Institute of Technology, Israel
H. LÖWEN, University of Düsseldorf, Germany
M. MA, Tsinghua University, China
T. MA, Tsinghua University, China
N. MANINI, University of Milan, Italy
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M. MUSER, Saarland University, Germany
O. NOEL, CNRS, Le Mans Université, LPEC, France
A. OLLIER, University of Basel, Switzerland
W. OUYANG, School of chemistry Tel Aviv University, Israel
L. PASTEWKA, University of Freiburg, Germany
R. PAWLAK, University of Basel, Switzerland
B. PERSSON, Forschungszentrum Jülich GmbH, Germany
J.B. PETHICA, Trinity College, Ireland
A. PETRI, CNR Istituto dei Sistemi Complessi, Italy
E. RIEDO, NYU - Tandon School of Engineering, USA
A. SCHIRMEISEN, Justus-Liebig University, Germany
A. SIRIA, CNRS ENS, LPS Laboratoire de Physique Statistique, France
P. TIerno, University of Barcelona, Spain
M. URBACH, Tel-Aviv University, Israel
G. DE VILHENA, University of Basel, Switzerland

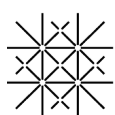
Deadlines:

20 April 2022

Applications needing financial support and/or visa

20 May 2022

All other applications



University
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