

THE HEBREW UNIVERSITY OF JERUSALEM
THE INSTITUTE FOR ADVANCED STUDIES

Research Workshop on

STICK-SLIP DYNAMICS, FROM NANO TO
GEOPHYSICAL SCALES

May 2-5, 2011

All lectures will take place at the Feldman Building
on the Givat Ram Campus

Organizers: Jay Fineberg (The Hebrew University)
Michael Urbakh (Tel Aviv University)

PRELIMINARY PROGRAM

Monday, May 2

18:30 *Welcome Party*

Tuesday, May 3

8:30 *Registration*

9:00-9:10 **Opening Remarks**

9:10-9:50 **Ernst Meyer** (University of Basel, Switzerland)
Dissipation on Superconductors and Quantum Dots

9:50-10:30 **Adam Foster** (Helsinki University of Technology, Finland)
*Atomic Scale Energy Dissipation and Nanomanipulation
Mechanisms*

- 10:30-11:00 *Coffee break*
- 11:00-11:40 **Andre Schirmeisen** (University of Muenster, Germany)
Scaling Laws of Superlubric Sliding
- 11:40-12:20 **Erio Tosatti** (SISSA/ICTP, Trieste, Italy)
Simulating Nanofriction in Extreme or Unusual Conditions
- 12:20-14:00 *Lunch*
- 14:00-14:40 **Martin Dienwiebel** (Fraunhofer Institute for Mechanics of Materials, Freiburg, Germany)
Microtribology on Ultra-thin Layers
- 14:40-15:20 **Heather Savage** (Columbia University, USA)
Shaking up Faults: Insights from the lab and nature on how oscillating stresses trigger earthquakes
- 15:20-15:50 *Coffee break*
- 15:50-16:30 **Michael Urbakh** (Tel Aviv University, Israel)
Stabilizing Stick-Slip Friction
- 16:30-17:10 **Eran Bouchbinder** (Weizmann Institute, Israel)
Cracklike Dynamics at the Onset of Frictional Sliding
- 17:10-18:30 **Poster Session**

Wednesday, May 4

- 9:00-9:40 **James R. Rice** (Harvard University, USA)
Frictional Shear in Fluid-Saturated (and Thermally Decomposing) Fault Gouge
- 9:40-10:20 **Ze'ev Reches** (Oklahoma University)
Friction, wear and energy dissipation during high velocity slip along rock surfaces
- 10:20-10:50 *Coffee break*
- 10:50-11:30 **Yehuda Ben-Zion** (University of Southern CA, Los Angeles)
Episodic Tremor and slip on a Frictional Interface with Critical Zero Weakening in Elastic Solid

11:30-12:10 **Valentin Popov** (Technical University, Berlin, Germany)
Rate and State Dependent Friction Laws and Prediction of Earthquakes

12:10-14:00 *Lunch*

Excursion

Conference Dinner

Thursday, May 5

9:00-9:40 **Rob W. Carpick** (Pennsylvania State University, USA)
Aspects of Stick-Slip Friction, from Atomic to Tectonic Scales

9:40-10:20 **Roland Bennewitz** (INM-Leibniz Institute for New Materials, Saarbrücken, Germany)
Atomic Friction under Electrochemical Control

10:20-10:50 *Coffee break*

10:50-11:30 **Ruben Perez** (Universidad Autonoma de Madrid, Spain)
Adhesion hysteresis in molecular systems

11:30-12:10 **Marek Szymonski** (Jagiellonian University, Krakow, Poland)
Probing Atomic-scale Friction on Reconstructed Surfaces of Single Crystal Semiconductors

12:10-14:00 *Lunch*

14:00-14:40 **Elie Wanderman** (ENS Paris, France)
Friction at Patterned Interfaces

14:40-15:20 **Einat Aharonov** (Institute of Earth Sciences, The Hebrew University, Jerusalem, Israel)
Understanding Friction of Fluid-filled Granular Media: Implications to Faults, Landslides and Soils

15:20-15:50 *Coffee break*

15:50-16:30

Jay Fineberg (The Hebrew University, Jerusalem, Israel)

Tuning the Onset of Frictional Motion: Is the static friction coefficient really static?

16:30-17:00

Informal Gathering