

Program of the 1st ESF-Nanotribology Workshop, 19-23 October 23, Portovenere, Italy

Saturday, October 19

Arrival in Portovenere

Sunday, October 20

9.00-9.15 E. Meyer Introduction to ESF-Nanotribo

Adhesion, Contact mechanics, Tribocharging

9.15-10.00 B. Persson Contact Mechanics and Adhesion
10.00-10.30 S. Zilberman, Adhesion between elastic bodies with rough surfaces
10.30-11.00 Coffee Break
11.00-11.30 R. Buzio, Contact mechanics and friction of fractal surfaces probed by AFM
11.30-12.00 S. Bistac, Adhesion and friction of polymer networks: molecular mechanisms
12.00-12.30 A. Shluger, Atomistic Modelling of the Mechanism of Tribocharging

Lunch and Afternoon-Excursion

Monday, October 21

Friction, Nanomechanics

9.15-10.00 M. Salmeron, Viscous and wetting properties of perfluoropolyethers
10.00-10.30 Th. Becker, Two-Dimensional Dynamics of Layering Transitions
10.30-11.00 Coffee Break
11.00-11.30 U. Schwarz, The Frictional Behavior of Hertzian Contact Analyzed Using a new Contact Mechanical Model
11.30-12.00 J. Klafter, From a microscopic description of friction to phenomenology: new regimes of motion
12.00-12.30 G. Rubio-Bollinger, Mechanical properties and formation mechanisms of a wire of single gold atoms
12.30-14.00 Lunch

Simulations

14.00-14.45 U. Landman, Atomic roughness effects and molecular control in lubricated nano-junctions
14.45-15.15 A. Foster, Electronic and Ionic Processes at Contact
15.15-15.45 Coffee Break

Wear

15.45-16.15 M. Scherge, Dissipation in nanoscale wear
16.15-16.45 J-P. Celis, The concept of wear rate per unit of dissipated energy in macro- and microsliding
16.45-17.15 E. Gnecco, Atomic scale friction and wear on ionic crystals

Tribochemistry

17.15-17.45 C. Kajdas, An attempt to model the initiation process of tribochemical reactions by the flash temperature
17.45-18.15 M. Bielman, Interfacial friction of micrometer sized chip bond contact: Impact of plasma treatment on Ag bond pads
20.00 Dinner
21.00 Steering committee meeting

Tuesday, October 22

Friction, stick-slip, QCM

9.15-10.00	J. Krim, QCM-STM Studies of the Nanoscale Dynamics of "Model System" and "Real-World" Lubricants."
10.00-10.30	J. Luebbsen, Contact Mechanics at MHz Frequencies with a combined QCM/AFM
10.30-11.00	Coffee Break
11.00-11.30	G. Mistura, Depinning of atomically thin Kr films on Gold
11.30-12.00	O. Ronsin, Self Healing Slip Pulses along a Gel/Glass Interfaces
12.00-12.30	E. Brener, Frictional shear cracks
12.30-14.00	Lunch

Friction, non-contact friction, dissipation in tapping mode

14.00-14.30	S. Ciraci, A microscopic theory of energy dissipation in friction
14.30-15.00	S. Dag, Atomic scale study of friction between hydrogenated carbon surfaces
15.00-15.30	F. Mugele, Dissipation in Tapping Mode AFM at High Humidity
15.30-16.00	R. Garcia, Energy dissipation and compositional mapping in amplitude modulation AFM
16.00-16.30	Coffee Break
16.30-17.00	A. Volokitin, Noncontact friction between nanostructures
17.00-17.30	A. Baratoff, Interaction-induced Damping in Non-contact Atomic Force Microscopy (NC-AFM)
17.30-18.00	R. Perez, Interplay between Nonlinearity, Scan Speed, Damping, and Electronics in Frequency Modulation Atomic Force Microscopy
18.00-18.30	L. Kantorovich, Dissipation mechanisms in AFM: approach based on nonequilibrium statistical mechanics
19.30	Dinner
21.00	Short presentations of posters (10minutes) and poster session

Wednesday, October 23

Lubrication, Wetting, Atomic Wires

9.00-9.30	M. Urbakh, Chemical Control of Friction: Mixed Lubricant Monolayers
9.30-10.00	U. Tartaglino, Boundary Lubrication: Squeeze-out Dynamics of a Compressible 2D Liquid
10.00-10.30	S. Agrait, Energy dissipation in atomic wires
10.30-11.00	E. Riedo, Nanoscale wetting dynamics in sliding friction
11.00-11.30	A. Kulik, Tribology and Ultrasonic Hysteresis at Local Scales
11.30-12.00	Concluding Remarks

Poster Session

- P1 P. Fornaro, Real-Time Simulations on Atomic Friction for Science and Education
- P2 A. Lohmus, Possibilities of 3D Nanoscale subsurface study
- P3 D. Ertz, Force interactions and adhesion of Au nanocontacts and Si nanowires using a combined SPM/TEM
- P4 I. Hussainova, Microstructural aspects on wear on nonhomogeneous materials
- P5 A. Socoliuc, Ripple formation induced by localized abrasion
- P6 F. Buatier de Mongeot, NanoRub: an experimental collaboration to study atomic friction
- P7 A. Foster, Simulating Nanoparticle-Surface Forces
- P8 C. Boragno, A novel approach for the investigation of mesoscopic contact mechanics
- P9 K. Saal, Preparation of reproducibly smooth siloxane surfaces
- P10 M. Dias, Wear testing
- P11 R. Perez, "Ab-initio calculation of conductance and forces in Al nanowires"
- P12 G. Kulik, "Friction measured on hydrophobic perfluorosilane layers of different density"