



German-Russian Workshop

Numerical simulation methods in tribology: possibilities and limitations

Technical University Berlin

14 - 17 March 2005

Organisation & contact

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Program

14. March

15:00 - 16:00 Registration
16:00 - 18:00 Round table

15. March

8:00 - 8:50 Registration
8:50 - 9:00 opening: *Popov V.L.*

Chair: Psakhie S.G.

9:00 - 9:40 Popov V.L., Psakhie S.G.
Numerical simulation methods in tribology
TU Berlin, Germany

9:40 - 10:20 Ostermeyer G.P.
The mesoscopic particle approach
Technical University Braunschweig, Germany

10:20 - 11:00 Müller M., Ostermeyer G.P.
Cellular automata method for macroscopic surface- and friction dynamics in brake systems
Technical University Braunschweig, Germany

11:00 - 11:10 *coffee break*

Chair: Ostermeyer G.P.

11:10 - 11:50 Goryacheva I.G.
Calculation of characteristics of the wear process at micro- and macroscales
Russian Academy of Sciences, Moscow, Russia

11:50 - 12:30 Popov V.L., Geike T., Filippov A.E.
A model of friction of the flexible surfaces
TU Berlin, Germany, and Donetsk, National Academy of Sciences of Ukraine

12:30 - 13:10 Fillot N., Iordanoff I.
Modelling third body flows with a Discrete Element Method
Laboratoire de Mécanique des Contacts et des Solides, INSA de Lyon, France

13:10 - 14:30 *lunch*

Chair: Goryacheva I.G.

14:30 - 15:10 Yuan-Zhong Hu, Wen-zhong Wang, Xin Li, and Hui Wang
Numerical Simulations of Lubrication at Different Scales
State Key Laboratory of Tribology, Beijing, China

15:10 - 15:50 Lestyán Z., Váradí K., Albers A.,
Contact and thermal FE analysis of the worn surfaces of an alumina-steel friction system in dry sliding friction
Budapest, Hungary
Karlsruhe, Germany

15:50 - 16:30 Torskaya E.
Boundary elements method in study of friction contact of coated bodies
Russian Academy of Sciences, Moscow, Russia

16:30 - 16:40 *coffee break*

Chair: Hu Y.-Zh.

16:40 - 17:20 Dmitriev A.I., Shilko E.V., Popov V.L., Psakhie S.G.
Development of the method of movable cellular automata for computer-aided simulation of materials with elastic properties
Russian Academy of Sciences, Tomsk, Russia

18:00 - 20:00 Walking tour "**Review of the History of Berlin**" (Starting point: S-Bahn station "Friedrichstraße")

16. March

	<i>Chair: Popov V.L.</i>
9:00 - 9:40	<u>Psakhie S.G.</u> , Popov V.L. Theoretical foundations of the Method of Movable Cellular Automata (MCA) <i>Russian Academy of Sciences, Tomsk, Russia</i>
9:40 - 10:20	<u>Shakhvorostov D.</u> , Scherge M. Plastic flow and mechanical intermixing due to tribological interaction <i>IAVF Antriebstechnik AG, Karlsruhe, Germany</i>
10:20 - 11:00	Scholle M. Hydrodynamical modeling of lubricant friction between rough surfaces <i>Universität Bayreuth</i>
11:00 - 11:10	<i>coffee break</i>
	<i>Chair: Scherge M.</i>
11:10 - 11:50	Barriga J., Coto B., Fernández B. Molecular Dynamics Study of Optimal Packing Structure of OTS Self Assembled Monolayers on SiO₂ Surfaces <i>Tekniker, Spain</i>
11:50 - 12:30	Heß M. Elastic lattice models <i>TU Berlin, Germany</i>
12:30 - 13:10	Schargott M. Hierarchical contact models <i>TU Berlin, Germany</i>
13:10 - 14:30	<i>lunch</i>
	<i>Chair: Schargott M.</i>
14:30 - 15:10	Filippov A.E. What can we learn about multi-scale systems from the statistical physics and physical kinetics? <i>Donetsk, National Academy of Sciences of Ukraine</i>
15:10 - 15:50	Urbakh M. Effect of lateral vibrations on diffusion and friction in microscopic contacts <i>Tel Aviv University, Israel</i>
15:50 - 16:30	Lasko G.V., Deryugin Ye. Ye. Plastic Deformation Development in Polycrystals based on Relaxation Element Method <i>Russian Academy of Sciences, Tomsk, Russia</i>
16:30 - 16:40	<i>coffee break</i>
	<i>Chair: Urbakh M.</i>
16:40 - 17:20	<u>Rubtsov V.</u> , Kolubaev A. Simulation of strain and heat processes in a surface layer of ductile material in sliding friction <i>Russian Academy of Sciences, Tomsk, Russia</i>
17:20 - 18:00	Duan Fangli, Luo Jianbin, Wen Shizhu Morphological change of silicon surface under the collision of a nanoparticle <i>State Key Laboratory of Tribology, Beijing, China</i>
18:00 - 18:10	Closing

17. March

9:00-10:00 Guided tour through the Institute of Mechanics