

International Workshop and School

New Methods of Numerical Simulation and Measurement in Tribology

Sandanski, Bulgaria, October 6-13, 2013

Organized by: xTribo GmbH, Germany

Objectives

This workshop will be devoted to the discussion of two interrelated topics:

- Multi-scale simulation techniques in tribology giving the possibility of bridging the gap between macro and micro scales in tribology.
- Experimental techniques for determination of material parameters needed for the multi-scale simulations.

The main objective is to formulate simple and reliable engineering procedures for the simulation of friction of solids and elastomer materials.

In the framework of the workshop, a lecture series on the Method of Reduction of Dimensionality (MRD) in contact mechanics will be held. The MRD is a simulation method for the rapid simulation of contact and friction properties of solids and elastomer materials. It is based on the ability of mapping a broad class of contact problems between three-dimensional bodies exactly to one-dimensional systems with independent degrees of freedom. This means a huge reduction both of time of numerical implementation and of computational time for the simulation of contact and friction problems. The method opens completely new possibilities in combining microscopic contact mechanics with the simulation of macroscopic system dynamics without determining the "law of friction" as an intermediate step. In lectures of leading specialists, the theoretical basics of the method will be explained and it will be shown how to use this tool for practical applications.

Topics

- Contact mechanics of rough surfaces (including adhesion)
- Friction between rigid rough surfaces and elastomers
- Reduction methods in materials science
- Related experimental investigations
- Method of Reduction of Dimensionality in contact mechanics and friction

Venue

Sandanski is a beautiful town and a recreation center in south-western Bulgaria. Sandanski is located in the Sandanski-Petrich Valley, surrounded by mountains. The town is about 160 km south from Bulgaria's capital Sofia along the major European Route E79. Following the same route at almost the same distance is Thessaloniki, Greece's second largest city.



The workshop will be held in the *Interhotel Sandanski*, which is located in the center of Sandanski, just a few steps from the picturesque City Park, the main shopping street and close to many cultural and historical sights.

For further information see the webpage of the hotel:

<http://interhotelsandanski.bg/index.php?lang=en>

Call for papers

If you are interested in participation, please submit an abstract in English no later than September 6, 2013 (preferably by e-mail).

Exhibition

During the conference, the company “xTribology – Tribology & Damping Solutions” will present a new software for the rapid simulation of contact and friction properties of elastomers as well as a new express rheometer for impact measuring of viscoelastic properties of elastomers. Other companies are invited to present their products.

Target audience

- Researchers in the field of tribology interested in multi-scale simulation techniques
- Practitioners working in mechanical engineering, the automotive and tire industry, polymer and rubber manufacturers, software vendors
- Students and PhD students in the fields of mechanical engineering and manufacturing engineering

Conference fee

Participants from industry: 460,- €

Participants from universities: 290,- €

Students: 80,- €

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