



German-Russian Workshop

## Theoretical foundations, applications and problems of methods of reduction of dimensionality

Technische Universität Berlin

November 22-24, 2011

### Organizers

Prof. Dr. Valentin Popov, Prof. Dr. Sergey Psakhie

### Objectives

The space dimensionality of physical systems essentially determines their physical properties. Well known examples of qualitative differences between two- and three-dimensional systems are many problems of contact mechanics and fluid dynamics. However, there are many examples where some physical properties can be described well in the framework of models of different dimensionality. From a "philosophical point of view" a replacement of a system by a completely other system, which however, has the same properties of interest, is a general basis of *all* simulation methods. This workshop is devoted to the discussion of methods where a system with higher dimensionality can be replaced by an "artificial" system of lower dimensionality without loss of "essential information". The possibility of finding such replacement systems depends, of course, on what is considered to be essential information. One of the methods which will be discussed in detail is the method of reduction of dimensionality in contact mechanics. However, any other related topics, comparisons with exact methods or related experiments can be reported at the workshop.

### Topics

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

### Proceedings

Papers presented at the Workshop will be published in a special issue of the International Journal "Physical Mesomechanics".

### Call for papers

If you are interested in participation, please submit an abstract in English not later than October 10, 2011 (preferably by e-mail).

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