

# EINLADUNG

zum Vortrag  
von

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## Designing Surfaces with Less Friction

am

**Dienstag, 19. November 2013, um 16:00**

Technische Universität Wien  
Seminarraum 1/3 OPG, Perlmooser-Haus, Raumnummer DF0321  
1040 Wien, Operngasse 11

### Abstract:

Nature lubricates in ways that often have no direct counterparts in man-made machine-element lubrication. One aspect is the lubricant, which in nature is invariably water-based, but contains additives such as glycoproteins. Another is the use of soft sliding surfaces, which are often porous and filled with viscous lubricant. By using surfaces that slowly deform on being subjected to a load, the lubricant being slowly squeezed out through the porosity, the system uses the liquid phase to share the load, and to protect the delicate porous structure from damage. A further aspect is the use of layered and gradient systems, where outer, more rigid, layers can afford protection, while the softer underlayers lead to greater compliance of the system, with potential benefits for lubrication.

We have mimicked all three natural lubrication aspects in our laboratory, using a variety of polymer brushes to lubricate in aqueous media, using oil-compatible, ATRP-synthesized methacrylate polymer brushes to lubricate in oils, and applying a novel approach to reinitiation of brush-gel systems to produce layered structures reminiscent of the structure of skin.

### FWF SFB F45 „Functional Oxide Surfaces and Interfaces (FOXSI)“

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