



### Topic

Textured substrates infiltrated with a lubricant form a new class of functional surfaces, known as lubricant-infused slippery surfaces. They are promising candidates for low adhesive, anti-icing and anti-fouling surfaces.

To design durable slippery surfaces, a better understanding of the interplay between the physical and chemical interactions among the surface topography, the lubricating film and the droplet under static and flow conditions is essential. After an introduction on how to chemically modify surfaces, the basic concepts to model wetting of smooth, and rough surfaces will be introduced.

This includes advancing, receding contact angles, tilting angles, and lateral adhesion forces. The consequences of a lubricating film will be discussed, including the Neumann triangle, spreading coefficient, capillary forces and elastic forces. Different mechanisms of adhesion will be introduced. Analytical and numerical methods to describe adhesion are going to be presented, including mesoscopic (Lattice Boltzmann method) and macroscopic (scaling analysis and lubrication theory) approaches.

The Innovative Training Network (ITN) Lubricant-Impregnated Slippery Surfaces (LubISS) has as main objectives the designing, characterization, and modelling of these slippery and low adhesive surfaces.

For further details see:

[Lubiss.eu](http://Lubiss.eu) or [LubISSschool](http://LubISSschool)

### Speakers

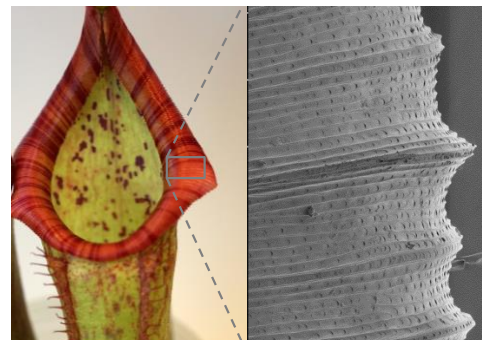
- Prof. Jochen Gutmann** Department of Physical Chemistry, University of Duisburg (Germany), 4 hours  
Introduction to surface modification
- Prof. David Quéré** Physics and Mechanics of Heterogeneous Media Laboratory, ESPCI (France), 4 hours  
Modeling wetting using scaling analysis
- Prof. Jacco Snoeijer** Physics of Fluids group, University of Twente (The Netherlands), 4 hours  
Lubrication and elastocapillarity
- Prof. Julia Yeomans** Department of Physics, University of Oxford (United Kingdom), 4 hours  
An introduction to the theory of wetting; Lattice Boltzmann simulations and their applications

### Contact

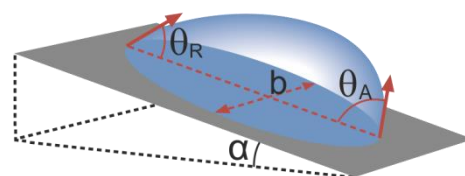
Registration is free of charge. However, registration is mandatory. Deadline 1 November 2018

If you would like to attend, please send an e-mail to: [Lubisschool@mpip-mainz.mpg.de](mailto:Lubisschool@mpip-mainz.mpg.de)

Venue: Max Planck-Institute for Polymer Research, Ackermannweg 10, 55128 Mainz



Left: Pitcher plant, example of slippery surface in nature. Right: SEM image showing the microstructure of the peristome



Drop on tilted surface. The interplay of gravity and adhesion determine when the drop rolls off.

