

## **Wetting of soft deformable substrate — phase fields for fluid structure interaction with moving contact lines.**

*Dr. Dirk Peschka (WIAS Berlin)*

In this talk, we will present some aspects of dynamics of wetting on soft substrates. Wetting flows are free boundary problems involving liquid layers placed on substrates. The corresponding fluid flows are relevant on microscopic length scales and thus are driven by capillary surfaces and often involve moving contact lines, whereas inertia and gravity can often be neglected. If the underlying substrates are soft, then the fluid flow interacts with it through mechanical forces and other processes. We will address some fundamental questions of modeling these systems in a thermodynamically consistent way, show some considerations of sharp-interface limits, and point out extensions that take diffusive processes in the soft substrate into consideration. We highlight interesting mathematical issues and perspectives.

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