

## Dynamical wetting of droplets on flexible sheets

Droplets resting on soft flexible sheets deform into a lens-like shape, presenting exciting opportunities for developing tunable fluidic lenses. Building upon our previously established droplet model, which utilises the boundary element method (BEM), we continue to explore dynamic wetting on thin, flexible sheets. Our research focuses on the intricate interplay between the mechanical properties of the sheet and the behaviour of the droplet, with particular attention to the contact angle during wetting. Inspired by biological membranes, we have incorporated the Skalak model for elastic deformations and the Helfrich Hamiltonian for bending mechanics of the sheet. This integration allows us to examine how tension forces and sheet rigidity can influence droplet shape and wetting dynamics, thereby enabling both droplet deformation as well as controlled navigation of a droplet across the substrate. While primarily applicable to material science, our model also offers valuable insights into interfacial biology, shedding light on the complex interactions between soft flexible substrates and liquid interfaces.

**Hauptautoren:** Prof. STARK, Holger (TU Berlin); SULTAN, Salik (TU Berlin)

**Vortragende(r):** SULTAN, Salik (TU Berlin)