

Symposium Dynamical wetting of flexible, adaptive and switchable surfaces (SYDW)

jointly organized by
the Chemical and Polymer Physics Division (CPP),
the Biological Physics Division (BP),
the Dynamics and Statistical Physics Division (DY),
the Magnetism Division (MA), and
the Surface Science Division (O)

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The symposium shall advance a broad discussion of current results and open problems concerning dynamic wetting and dewetting processes on flexible, adaptive and switchable surfaces. Flexible surfaces are deformed by capillary interactions and thus provide a feedback mechanism on the static and dynamic behaviour of the liquid. Adaptive surfaces change their physico-chemical properties in the presence of a liquid, e.g., under a drop, or they adapt their wetting behaviour in response to environmental conditions. Switchable surfaces can repeatedly and almost instantaneously change their surface energy or topography in response to external influences, thereby, e.g., enabling periodic wetting dynamics. Switching processes can, e.g., be triggered by electric fields or light irradiation. In all three cases – flexible, adaptive and switchable surfaces – the substrate dynamics couples to the hydrodynamics in the wetting liquid and provides additional time and length scales. This results in interesting new questions even for simple, low-molecular-weight liquids, and even more so if one considers mixtures of simple liquids, diluted suspensions and surfactant solutions. Such a coupling of different non-equilibrium processes has a significant influence on the mechanisms of energy dissipation, which ultimately determine the overall dynamics. The resulting additional degrees of freedom offer new possibilities for a targeted control of dynamic wetting processes, but also pose new challenges for experimental investigation and theoretical description.

Overview of Invited Talks and Sessions

(Lecture hall HSZ 02)

Invited Talks

SYDW 1.1	Thu	15:00–15:30	HSZ 02	Statics and Dynamics of Soft Wetting — ●BRUNO ANDREOTTI
SYDW 1.2	Thu	15:30–16:00	HSZ 02	Modelling imbibition, dynamic wetting and evaporation on structured surfaces and porous coatings — ●TATIANA GAMBARYAN-ROISMAN, NOEMI GHILLANI
SYDW 1.3	Thu	16:00–16:30	HSZ 02	Droplets on shaped liquid and electrically switchable surfaces — ●GLEN MCHALE
SYDW 1.4	Thu	16:45–17:15	HSZ 02	Liquid-liquid Dewetting: From Spinodal Breakup to Dewetting Morphologies and Rates — ●RALF SEEMANN, STEFAN BOMMER, ROGHAYEH SHIRI, SEBASTIAN JACHALSKI, DIRK PESCHKA, BARBARA WAGNER
SYDW 1.5	Thu	17:15–17:45	HSZ 02	Droplet durotaxis and engulfment on yielding viscoelastic gels — ●ANNE JUEL

Sessions

SYDW 1.1–1.5 Thu 15:00–17:45 HSZ 02 **Dynamical wetting of flexible, adaptive and switchable surfaces (SYDW)**