

Droplet on soft flexible sheets

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Leveraging our established droplet model developed using the boundary element method (BEM), we investigate dynamic wetting on thin flexible sheets. One promising application arising from this research is the potential for designing tunable fluidic lenses.

Central to our study is the nuanced interplay between the mechanical attributes of the sheet and droplet behavior, with a particular emphasis on contact angle during wetting. Drawing inspiration from biological membranes, we have integrated the Skalak model for elastic deformations and the Helfrich Hamiltonian for bending mechanics into our approach. This enables us to dissect how tension forces and sheet rigidity impact droplet shape and wetting dynamics. While our findings have implications for material science, they are equally significant for biological applications, illuminating the fascinating interactions between soft substrates and liquid interfaces.

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Sitzung Einordnung: Short Talks