# Soft Wetting: Liquid drops on (visco)elastic solids

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**Keywords:** wetting, viscoelastic, contact line

The wetting of a liquid on a solid usually assumes the substrate to be perfectly rigid. However, this is no longer appropriate when the substrate is very soft [1]: capillary forces can induce substantial elastic deformations, as has been demonstrated e.g. for drops on elastomers. In this talk we discuss the fundamentals of elasto-capillary interactions. For static situations we show how soft solids are deformed under the influence of a droplet or bubble. We then turn to droplet dynamics. Remarkably, the contact line motion is primarily governed by the viscoelastic properties of the solid while the liquid hydrodynamics plays a negligible role [2]. Experimental results are successfully compared to a theory based on the substrate rheology, which also explains stick-slip motion of the contact line.

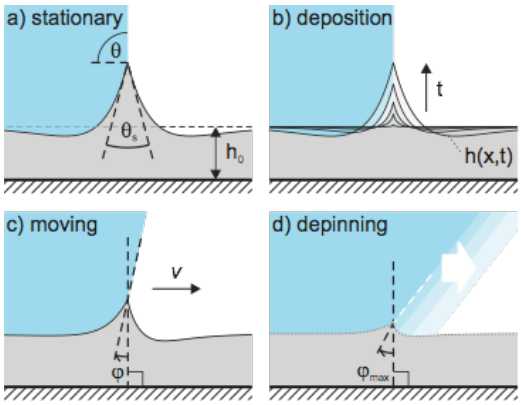


*Fig. 1. Statics and dynamics of a wetting ridge below a liquid drop on a soft surface. (a) Equilibrium shape of the wetting ridge. (b) Growth of the ridge after droplet deposition. (c) Dynamic contact angle during spreading. (d) Dynamical depinning event, where the contact line slides down the wetting ridge.*

## References

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