

## Elastocapillarity: Adhesion & Wetting of Soft Materials

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Surface tension is a fundamental property of any interface of condensed matter. It is widely appreciated in the description of liquid behavior, but is usually overlooked for solids. Recently it has been shown that solid surface tension can play an important role in the mechanics of soft materials. For instance, the classical model by Johnson, Kendall, and Roberts is pervasive in the description of adhesive contacts, but suffers from a stress singularity at the edge of the contact. In the framework of elastocapillarity, this singularity is removed. Instead, Young's wetting angle emerges, but this time for a solid-solid contact line, which essentially unifies the phenomena of wetting and adhesion. Liquid drops on soft solids generate strong deformations around the contact line, resulting from a balance of capillary and elastic forces.

When moved laterally, these deformations lead to strong dissipation in the solid. Importantly, these deformations also cause long-range interactions, an effect which has potential implications for colloidal assembly and mechanobiology.

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**MPIDS, Prandtl lecture hall, building AI,  
Am Faßberg 11, Göttingen**

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