

Dynamic wetting ridge of soft surface

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When a liquid droplet is sitting on a soft surface, the capillary forces of liquid deform the soft solid into a sharp wetting ridge. The amplitude of this wetting ridge is determined by the elasto-capillary length. If such droplet moves, a strong viscoelastic dissipation occurs in the soft solid. In this research, we visualise the moving wetting ridge created on a soft surface by water and fluorinated oil and measure the solid and liquid contact angles. We have noticed that the rotation of the wetting ridge follows the dynamic contact angle at slow contact line speed. On the other hand, the rotation angle starts to decrease at high contact line speed. In this talk, we will explain how does this phenomenon can be explained by dynamic solid surface tension.

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