IST AUSTRIA
Institute of Science and Technology

Physical Sciences Seminar

Solid capillarity and surface dynamics at soft interfaces

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Host: Scott Waitukaitis

Surface stress, also known as surface tension, is a fundamental material property of any interface. However, experimental study of solid surface stress in traditional engineering materials, such as oxides and metals, have proven to be extremely challenging. Current understanding of solid capillarity heavily relies on untested theories, especially regarding strain dependent surface stress and surface relaxation mechanism. Here, we take the advantage of high compliance and large deformability of soft polymer gels to study their surface mechanics. We develop advanced optical techniques, including in-situ confocal microscopy and surface interferometry, to precisely measure surface deformation and fast relaxation in wetting problems. We experimentally measured strain-dependent surface stress for the first time, and addressed the importance of surface elasticity of soft solids. Further, we show how bulk porosity couples with elasticity and surface tension, and affects surface relaxation. Our results extend current understanding of mechanics of soft interfaces, and can bring new insight into various soft membrane systems.

Thursday, November 7, 2019 03:30pm - 05:00pm

IST Austria Campus Mondi Seminar Room 2, Central Building

This invitation is valid as a ticket for the IST Shuttle from and to Heiligenstadt Station. Please find a schedule of the IST Shuttle on our webpage: https://ist.ac.at/en/campus/how-to-get-here/ The IST Shuttle bus is marked IST Shuttle (#142) and has the Institute Logo printed on the side.