

Vortragsankündigung

Kolloquium der Physikalischen und Theoretischen Chemie

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„Soft Interfaces Studied with the Quartz Crystal Microbalance“



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Abstract:

The response of soft interfaces to acoustic shear waves gives clues to their structure, dynamics, and functionality. This response is conveniently probed with the quartz crystal microbalance (QCM). The quartz crystal microbalance has turned in to a surface analytical tool with capabilities much beyond gravimetry. Among the recent novel application of the QCM is high-frequency contact mechanics. Exploiting the amplitude dependence of the shifts in resonance frequencies and the resonance bandwidths on the different overtones, one can follow the transition from stick to (oscillatory) slip. A second field with recent progress are fast measurements (10 ms) combined with a modulation of the electrical potential. For repetitive processes, accumulation drives the precision down the level of a few mHz. Combination of the QCM with potential modulation amounts to a novel sensing dimension even outside electrochemistry.