

**Cation adsorption-induced enhancement and disruption of oscillatory hydration forces at mica-electrolyte interfaces.**

S.R. van Lin<sup>1</sup>, I. Siretanu<sup>1</sup>, F. Mugele<sup>1</sup>.

<sup>1</sup>Physics of Complex Fluids, University of Twente, Enschede, Netherlands

**Abstract:** High resolution AFM spectroscopy was used to investigate the oscillatory hydration forces at mica-electrolyte interfaces for the chloride salts of alkali cations for concentrations up to 4M. Pronounced force oscillations reflecting the layering in purified water are modified in an ion specific manner beyond an ion-dependent threshold concentration. While only a slight enhancement of the oscillatory forces is seen for the so-called kosmotropic ('structure forming') ions Na<sup>+</sup> and K<sup>+</sup>, the force oscillations completely disappear for the chaotropic ('i.e. 'structure-breaking') ions Cs<sup>+</sup> and Rb<sup>+</sup> suggesting a disruption of the hydration layers.