

**Plenary Talk**

PLV III Mon 14:00 HSZ 02

**Microgels at Interfaces** — ●REGINE VON KLITZING — Institute for Condensed Matter Physics, TU Darmstadt, Germany

Rupturing foams (and emulsions) on demand is a big challenge for many applications. One strategy is to use stimuli-responsive surface-active polymer particles as stabilizers. Here we use thermosensitive microgel particles which show an LCST-like volume phase transition. In order to understand their impact on foam stabilisation it is important to get deeper insight into different length scales of the foams, i.e. from adsorption of microgels at the air/water interface studied by

scanning force microscopy (AFM), via forces across microscopic foam lamellas measured with a thin film pressure balance and foam bubbles to macroscopic foams stabilized by PNIPAM microgels. The foam structure is investigated by small angle neutron scattering (SANS). The deformation of the microgels plays an important role for the stabilisation mechanism and is related to their inner structure (studied by SANS), the swelling behaviour and nanomechanical and nanorheological properties that are investigated by dynamic indentation with an AFM tip. The combination of these studies on different length scales almost completes the picture about the stabilisation ability of microgels and might be transferred to other types of colloidal dispersions.