



Contribution ID: 339

Type: **Poster**

Phase behavior and solution structure of new UCST- and LCST-type polymers

Tuesday, 18 September 2018 16:45 (15 minutes)

Thermoresponsive polymers are an interesting class of material for industrial and medical applications and also for fundamental research. Lower critical solution temperature (LCST) polymers, such as poly(*N*-isopropylacrylamide), are common and well-studied, whereas materials with an upper critical solution temperature (UCST) still are rare and not well examined. Depending on the material used, the transition temperature can be varied by different parameters, which can enlarge the potential field of applications. Here, not only it is interesting to tailor the temperature, at which the phase transition occurs, also it is interesting to control the type of transition, i.e. from LCST to UCST or vice versa. We synthesized acryl-amide based copolymers that, depending on the composition, display either a LCST behavior, or a UCST-like phase behavior. We used turbidity measurements, static and dynamic light scattering as well as small angle neutron scattering (SANS) to study the phase behavior of our polymers on global and local length scales. In particular, from SANS important information on the polymer structure is accessible.

Primary author: Mr LERCH, Arne (Physical Chemistry I, Heinrich-Heine-University Duesseldorf)

Co-authors: Mr KÄFER, Florian (Macromolecular Chemistry II, University Bayreuth); Prof. AGARWAL, Seema (Macromolecular Chemistry II, University Bayreuth); KARG, Matthias (Physical Chemistry I, Heinrich-Heine-University Duesseldorf, 40225 Duesseldorf, Germany)

Presenter: Mr LERCH, Arne (Physical Chemistry I, Heinrich-Heine-University Duesseldorf)

Session Classification: Poster session 2

Track Classification: P2 Soft matter