



Contribution ID: 153

Type: **Plenary talk**

Inner Structure and Dynamics of polymers at interfaces

Wednesday, 11 December 2019 09:30 (45 minutes)

The focus is on the inner structure and dynamics of polymers at solid and liquid interfaces studied by different neutron scattering techniques. For fabrication of stimuli responsive polymer coatings one challenge is to generate stable films which are still mobile and sensitive to outer parameters. The talk will address two different types of thin polymer films at interfaces: 1) films formed by deposition of hydrogel microgels and 2) by polymer brushes. During the last decades microgels made of N-isopropylacrylamide (NIPAM) have attracted much interest due to their thermoresponsive behaviour. Our work focuses on the effect of geometrical confinement on the phase volume transition and dynamics of these microgel particles at solid interfaces [1] and at liquid interfaces like in foams. The second example for stimuli sensitive coatings are polymer brushes (PNIPAM, PMETAC). They are doped with gold nanoparticles (AuNP) to make them sensitive to light or to changes in pH value. The correlation between the distribution of AuNP within the brush and the response of the AuNP/brush system to outer stimuli is of interest [2]. The dynamics of different polymer coatings were studied under grazing incidence (GISANS [3], GINSE [4]).

[1] S. Christau, et al. *Polymer* (2016) 98 454

[2] D. Boyaciyan et al., *Soft Matter* (2018) 14 4029

[3] S. Wellert, et al. *Langmuir* (2014) 30 7168

[4] K. Gawlitza, et al. *Macromolecules* (2015) 48 5807

Primary author: Prof. VON KLITZING, Regine (TU Darmstadt)

Co-authors: BOYACIYAN, Dikran (TU Darmstadt); KÜHNHAMMER, Matthias (TU Darmstadt); KYREY, Tetyana (JCNS at MLZ, Forschungszentrum Jülich GmbH, Stranski-Laboratorium, TU Berlin, 10623 Berlin); WITTE, Judith (TU Berlin); HOLDERER, Olaf; WELLERT, Stefan (TU Berlin)

Presenter: Prof. VON KLITZING, Regine (TU Darmstadt)

Session Classification: Plenary talk

Track Classification: Plenary