Contribution ID: **49** Type: **Talk**

Co-nonsolvency behavior of responsive polymers in thin film/vapor systems

Tuesday 7 December 2021 16:40 (25 minutes)

After exposure to mixed water/cosolvent vapor, hydrated thin films of stimuli-responsive block copolymers with PNIPAM or PNIPMAM blocks exhibit a co-nonsolvency behavior. In a rapid film contraction, in either system, both water and cosolvent are expelled. Film swelling and contraction kinetics from saturated vapor are investigated in time-of-flight neutron reflectometry (ToF-NR) with simultaneous spectral reflectance (SR). Molecular interactions of the solvent with the respective polymer chains are analyzed with Fourier-transform infrared (FTIR) spectroscopy. The response kinetics are found to be dependent on the solvation potential of specific functional groups.

Author: GEIGER, Christina (Technical University of Munich, Chair of Functional Materials)

Co-authors: REITENBACH, Julija; WANG, Peixi (Workgroup Polymer Interfaces, TUM Department of Physics, Technical University of Munich); Ms HENSCHEL, Cristiane (Institut für Chemie, Universität Potsdam, 14476 Potsdam-Golm, Germany); MANGIAPIA, Gaetano (German Engineering Materials Science Centre (GEMS) am Heinz Maier-Leibnitz Zentrum (MLZ)); MOULIN, Jean-Francois (Hereon); LASCHEWSKY, André; PAPADAKIS, Christine (Technische Universität München, Physik-Department, Fachgebiet Physik weicher Materie); MÜLLER-BUSCHBAUM , Peter (1 Technische Universität München, Fakultät für Physik, Lehrstuhl für Funktionelle Materialien, James-Franck--Str.1, 85748 Garching, Germany 2 Heinz Maier-Leibnitz-Zentrum (MLZ), Technische Universität München, Lichtenbergstr. 1, 85748 Garching, Germany)

Presenter: GEIGER, Christina (Technical University of Munich, Chair of Functional Materials)

Session Classification: Soft Matter

Track Classification: Soft Matter