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Kinetics of Transition between HEX and Lamellar Phases in a triblock copolymer solution in a selective solvent. YONGSHENG LIU, RAMA BANSIL, Boston University, MILOS STEINHART, Institute of Macromoleculear Chemistry, Academy of Sciences of the Czech Republic — Synchrotron based time-resolved small angle x-ray scattering (SAXS), was used to study the kinetics of ordering transition (OOT) between cylindrical micelles in HEX phase and lamellar (LAM) phase in a 0.4 (w/v) solution of a triblock of polystyrene (PS) and poly(ethylene-*co*-butylene) (PEB), SEBS (PS-PEB-PS) copolymer in Dibutyl Phthalate (DBP), a selective solvent for the PS block. From a temperature ramp experiment the OOT was identified at about 137C and an ODT above 160 C. Several temperature jump experiments from HEX to LAM and the reverse were performed over the temperature range of 110-155C. Detailed analysis of the time evolution of the intensities of the Bragg peaks to follow the kinetics of the transition between HEX and LAM phases will be presented. A model to explain the transition mechanism will be discussed. This research was supported by NSF-DMR.

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