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The Influence of Electric Fields on the Order-Disorder Transition Temperature of Block Copolymer Systems¹ HEIKO SCHOBERTH, Lehrstuhl fuer Physikalische Chemie II, Universitaet Bayreuth, D-95440 Bayreuth, Germany , KRISTIN SCHMIDT, Materials Research Laboratory, University of California, Santa Barbara, CA 93106, USA, KERSTIN SCHINDLER, ALEXANDER BÖKER, Lehrstuhl fuer Physikalische Chemie II, Universitaet Bayreuth, D-95440 Bayreuth, Germany — We investigate the influence of electric fields on the phase behavior of diblock copolymers in concentrated solutions using synchrotron small-angle X-ray scattering (synchrotron SAXS). When heating the solutions through the order-disorder transition temperature T_{ODT} , we find a significant decrease in T_{ODT} with increasing electric-field strength. In addition we found a temperature regime in which it is possible to switch between the mixed and phase separated state at constant temperature upon application of a moderate electric field.

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Heiko Schobert
Lehrstuhl fuer Physikalische Chemie II, Universitaet Bayreuth,
D-95440 Bayreuth, Germany

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