Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Kinetic Studies of Pressure-Quenched A/B/A-C Polymer Blends
ALISYN NEDOMA, University of California Berkeley, MEGAN ROBERTSON, DAVID LOHSE, NITASH BALSARA, University of California Berkeley — The pressure-dependence of the thermodynamics of multicomponent A/B/A-C polymer blends was studied using small angle neutron scattering (SANS) and mean field theories. At atmospheric pressure, the A/C and A/B Flory-Huggins chi parameters are positive and decrease with increasing temperature while the B/C chi parameter is negative at room temperature and it increases with increasing temperature. Under ambient conditions a microphase separated state exists for low temperatures, a disordered micelle phase for intermediate temperatures, and a macrophase separated state for high temperatures. Surprisingly, we find that at elevated pressures the system is homogeneous over a wide range of temperatures and pressures. Starting from the homogeneous phase, we will perform time-resolved SANS experiments after a reverse pressure quench on our A/B/A-C blend to study the kinetics of macrophase and microphase separation. The results of these experiments will be presented at the meeting.

Alisyn Nedoma
University of California Berkeley

Date submitted: 20 Nov 2006 Electronic form version 1.4