

Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Mean Field Theory for Ionomer Melts ERICA SALTZMAN, SANAT KUMAR, Columbia University — Single Chain Mean Field theory is applied to melts of charged polymers. Control parameters include temperature, chain length, and monomer density. Equilibrium variations of polymer conformational, translational, and rotational degrees of freedom and counterion translational degrees of freedom are studied; in particular we are interested in conformational and morphological transitions which occur in ionomers with changes in temperature and apparently dominate their macroscale behavior. The equilibrium theoretical results, which are compared to simulation findings of low temperature condensation of chains and counterions to form ordered sheets of charges, form the basis for stochastic theories which model the temporal evolution of these structures, with immediate relevance to measurable dynamic properties.

Erica Saltzman
Columbia University

Date submitted: 21 Nov 2008

Electronic form version 1.4