

Abstract Submitted  
for the MAR09 Meeting of  
The American Physical Society

**Nanoscale Ionic Aggregate Morphology in Zwitterionic Copolymers** JAE-HONG CHOI, Department of Materials Science and Engineering, University of Pennsylvania, Philadelphia, Pennsylvania 19104-6272, REBECCA HUYCK, Department of Chemistry, Virginia Tech, Blacksburg, VA 24061, DAVID SALAS-DE LA CRUZ, Department of Chemical and Biomolecular Engineering, University of Pennsylvania, Philadelphia, PA 19104, TIMOTHY E. LONG, Department of Chemistry, Virginia Tech, Blacksburg, VA 24061, KAREN I. WINEY, Department of Materials Science and Engineering, University of Pennsylvania, Philadelphia, Pennsylvania 19104 — The morphology of two different zwitterionic copolymers, poly(sulfobetaine methacrylate-*ran*-butyl acrylate), and poly(sulfobetaine methacrylamide-*ran*-butyl acrylate) are investigated as a function of the mol % content of SBMA (7 and 9 mol %) and SBMAm (6, 10 and 13 mol %), respectively. In both copolymers, X-ray scattering results show a new structure in the material arising from ionic aggregates. The sizes of the ionic aggregates are obtained through the scattering model. The sizes of the ionic aggregates increase as the ion content increases. The application of scanning transmission electron microscopy to the study of ionomer morphology has enabled direct, model-independent visualization of the ionic aggregates. The correlation between X-ray scattering results and the real space imaging for morphology of these zwitterionic copolymers will be presented.

Jae-Hong Choi  
Dept of Materials Science and Engineering, University of Pennsylvania,  
Philadelphia, Pennsylvania 19104-6272

Date submitted: 11 Dec 2008

Electronic form version 1.4