Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Ordering in Salt Containing Block Copolymer Thin Films SEUNG HYUN KIM, MATTHEW J. MISNER, THOMAS P. RUSSELL, Dept. of Polymer Science and Engineering, University of Massachusetts, Amherst — Polymer-salt complexes have been the subject of intense study due to the potential applications as the solid polymer electrolytes. Here the complexation of ionic salts with cylinder-forming P(S-*b*-EO) block copolymer in thin film was investigated, where added salts are expected to bind the PEO block as the minor component. Even small amounts of salt lead to large changes in the ordering behavior in the block copolymer thin films, inducing an ordering pathway different than without salt. The cylindrical microdomains were found to change from parallel to perpendicular orientation relative to the substrate. These results strongly depend on salt concentration and the counter ion. Combined with the solvent annealing, highly ordered arrays of cylinders with long-range lateral order were produced. Using this behavior, the well-organized patterns of inorganic materials such as gold and cobalt nanoparticles on the substrate are generated by solvent annealing.

Seung Hyun Kim
Dept. of Polymer Science and Engin

Date submitted: 01 Dec 2004 Electronic form version 1.4