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**Swelling Behavior of Blended Multilayer Thin Films Using Neutron Reflectivity.** BULENT AKGUN, NIST Center for Neutron Research/ Department of Materials Science and Engineering, University of Maryland, College Park, MD 20742 , SUSHIL SATIJA, NIST Center for Neutron Research, National Institute of Standards and Technology, Gaithersburg, MD 20899 , HOSUB KIM, KOOKHEON CHAR, School of Chemical Engineering and Institute of Chemical Process, Seoul National University, Seoul 151-744, Korea — Surface structure and swelling behavior of polyelectrolyte multilayer films of poly (allylamine hydrochloride) (PAH)/poly(sodium 4-styrenesulfonate) (PSS):poly(methacrylic acid) (PMAA) have been studied using X-ray and neutron reflectivity (NR). Samples have been prepared either using spin-assisted self assembly or dip coating. Swelling measurements were done in a chamber by using saturated salt solutions. PSS:PMAA blend composition was varied from pure PSS to pure PMAA to investigate the effect of strong polyelectrolyte on the swelling of the multilayer film. Multilayer films prepared by spin assisted deposition yields well defined films with much smooth interfaces than the films prepared by dip coating. NR results showed that incorporation of strong polyelectrolyte, PSS, into the multilayer decreases the swelling capacity of the film.

Bulent Akgun  
NIST Center for Neutron Research/ University of Maryland

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