

Abstract Submitted  
for the MAR05 Meeting of  
The American Physical Society

**Direct measurement of the counterion distribution within swollen polyelectrolyte films** VIVEK PRABHU, BRYAN VOGT, WEN-LI WU, JACK DOUGLAS, ERIC LIN, SUSHIL SATIJA, NIST, DARIO GOLDFARB, IBM T.J. Watson, HIROSHI ITO, IBM Almaden, NIST, POLYMERS DIVISION AND CENTER FOR NEUTRON RESEARCH, GAITHERSBURG, MD 20899 TEAM, IBM T. J. WATSON RESEARCH CENTER, YORKTOWN HEIGHTS, NY 10598 COLLABORATION, IBM ALMADEN RESEARCH CENTER, SAN JOSE, CA 95120 COLLABORATION — A depth profile of the counterion concentration within thin polyelectrolyte films was measured *in-situ* using contrast variant specular neutron reflectivity to characterize the initial swelling stage of the film dissolution. We find a substantial counterion depletion near the substrate and an enrichment near the periphery of the film extending into the solution. These observations challenge our understanding of the charge distribution in polyelectrolyte films and are important for understanding film dissolution in medical and technological applications.

Vivek Prabhu  
NIST

Date submitted: 30 Nov 2004

Electronic form version 1.4