

Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

***In situ* Neutron Reflectivity study of alcohols into ultra-thin ion-mer films** THUSITHA ETAMPAWALA, DVORA PERAHIA, LILIN HE, Clemson University, CHRISTOPHER CORNELIUS, Virginia Polytechnic Institute — For many applications a polymeric membrane with selective well-controlled transport are desired. A new class of materials that consists of rigid hydrophobic polyphenylene decorated by sulfonic acid functionalized phenylene side chains has shown a potential as controlled transport membranes for energy applications. The nature of the diffusion depends on the polymer structure and the interaction of its different segments with the solvent. In addition, the interfacial layer plays a critical roll in the transport characteristics. The current work introduces an *in situ* neutron reflectivity study of penetration of long-chain alcohols into ultrathin films. The time dependence of the penetration of deuterated n-hexanol into films of 20nm thick ultra-thin films was determined and compared with that of less hydrophobic solvents. The process consists of two stages, a relatively fast stage in which the film thickness increases linearly with time followed by a slow phase in which structural changes take place.

Dvora Perahia
Clemson University

Date submitted: 22 Nov 2008

Electronic form version 1.4