

Abstract Submitted  
for the OSF06 Meeting of  
The American Physical Society

**Structure of Copolymer Films Created by Plasma Enhanced Chemical Vapor Deposition (PECVD)** SOMESHWARA PERI, HYEONJAE KIM, MARK FOSTER, The University of Akron, TIMOTHY BUNNING COLLABORATION, HAO JIANG COLLABORATION, SCOTT TULIS COLLABORATION, JIN WANG COLLABORATION, XUEFA LI COLLABORATION — The structures of substrate/layer and layer/air interfaces in copolymer films made using plasma enhanced chemical vapor deposition (PECVD) have been probed for the first time using x-ray reflectivity (XR). Both XR and atomic force microscopy (AFM) measurements revealed extremely smooth surfaces for copolymer films made from comonomers benzene and octafluorocyclobutane (B-OFCB) and from comonomers hexamethyldisiloxane and octafluorocyclobutane (HMDS-OFCB). The surface roughnesses range from 2.5 to 9.5 Å for both B-OFCB and HMDS-OFCB films. HMDS-OFCB copolymer films and B-OFCB copolymer films deposited on Si substrates are characterized by a uniform scattering length density throughout the film thickness. The XR measurements also reveal that one can tune the refractive index by varying the monomer feed ratio in the copolymer films.

Someshwara Peri  
The University of Akron

Date submitted: 22 Sep 2006

Electronic form version 1.4