## Abstract Submitted for the MAR06 Meeting of The American Physical Society

Homopolymer Penetration on Crosslinked Copolymer Mat DU YEOL RYU, Yonsei University, JIA-YU WANG, UMASS-Amherst, ERIC DROCKENMULLER, UCSB, KRISTOPHER LAVERY, UMASS-Amherst, CRAIG HAWKER, UCSB, THOMAS RUSSELL, UMASS-Amherst, UMASS-AMHERST COLLABORATION, UCSB COLLABORATION — Ultra-thin films of benzocyclobutene (BCB)-functionalized random copolymers of styrene and methyl methacrylate were thermally-crosslinked on a substrate, but applicable to other systems, with a controlled thickness. Contact angles measured in nano scale describe that over the critical minimum thickness (5.5nm) interfacial interaction of crosslinked random copolymer is well balanced. Neutron Reflectivity has been used to investigate in terms of the penetration of the polymer into crosslinked random copolymer P(S-r-BCB-r-MMA). Thus, to evaluate the critical minimum thickness which is at least required to control over the microdomain orientation of the PS- PMMA block copolymer systematically, deuterated PMMA was spin coated on crosslinked random copolymer controlled with various thickness from 1 to 10 nm. The neutron scattering length densities (SLD) of crosslinked random copolymer are increased with decreasing thickness, which means that the SLD contribution of d-PMMA to BCB layer is getting bigger because thin BCB layer is not enough to cover the SiOx.

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