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Interfacial Bending of Lamellar Microdomains of Block Copolymers SANG-MIN PARK, IBM Almaden Research Center, MENG DONG, Department of Chemical and Biological Engineering, Colorado State , CHARLES RETTNER, IBM Almaden Research Center, QIANG WANG, Department of Chemical and Biological Engineering, Colorado State , HO-CHEOL KIM, IBM Almaden Research Center — We report our investigation on the interfacial bending property of the lamellar microdomains using a symmetric block copolymer of poly(styrene-b-methyl methacrylate) (PS-b-PMMA) deposited on a neutral surface. The degree of interfacial bending of lamellae on surface was controlled by varying the angle of elbow-like topographic guiding patterns prepared by E-beam lithography. The characteristic parameters of lamellae bending including the critical angles of elbow-like patterns which give maximum interfacial bending of lamellae, the lamellae tilting angle at sidewall were determined for both single and paired guiding patterns. The behavior of a block copolymer containing hybrid system, a mixture of poly(styrene-b-ethylene oxide) and organosilicate, was investigated as well. A computational calculation on the lamellae bending which provides more insights on the free energy and interfacial characteristics will be discussed as well.

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