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Patterning of Nano-Objects on PS-*b*-PMMA Thin Films by Selective Swelling KOOKHEON CHAR, JEONG GON SON, Seoul National University, PAUL F. NEALEY, HUIMAN KANG, University of Wisconsin — Nano-objects have recently received great attention due to their unique photonic, electronic, and magnetic properties. However, in order to take full advantage of these properties of nano-objects, massively parallel assembly or integration of nano-objects is required. Block copolymers are well known to spontaneously form a wide range of nanostructures and block copolymer thin films can easily allow nano-scale patterns. In this presentation, we would like to introduce a new approach to realize nano-object patterning on perpendicularly oriented polystyrene-block-poly(methyl methacrylate) thin films. Our main idea is based on the properties of block copolymer thin films that simultaneously form the topographical and chemical patterns. We employed the annealing with selective solvents to realize topographical patterns of block copolymer thin films, from which we realized nano-object patterns either in the grooves of the patterns or on the top of the patterns. We verified the structures and mechanisms for the nano-object patterns on block copolymer thin films using Atomic Force Microscopy, Field-Emission Scanning Electron Microscopy and X-ray Photoelectron Spectroscopy.

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