

Abstract Submitted
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Solvent annealing of block copolymer thin films combined with controlled dewetting TAE HEE KIM, CHEOLMIN PARK, Yonsei University — The treatment of block copolymer thin film with its solvent vapor has been known as an effective way to control both orientation of microdomains with respect to the surface and their registration into a well defined periodic lattice structure. We have recently demonstrated hierarchically ordered cylindrical microdomains in a poly(styrene-*b*-ethylene oxide)(PS-*b*-PEO) thin film combined with microcontact printing. Well ordered PEO microdomains in large area was successfully produced by confined dewetting of thin PS-*b*-PEO films micropatterned on chemically modified surface pattern with self-assembled monolayers during solvent annealing. In order to further control block copolymer thin films upon solvent annealing, we introduce a new patterning method of block copolymer thin films, Plasma Enhanced Polymer Transfer Printing (PEPTP) where a block copolymer thin film spin cast directly on a patterned PDMS mold is easily transferred to a substrate with oxygen plasma. The microstructure of the block copolymer film micropatterned by PEPTP is ordered by the subsequent solvent annealing. The controlled microstructures were characterized by Atomic Force Microscope (AFM), Field Emission Scanning Electron Microscope (FESEM) and Grazing-Incidence Small Angle X-ray Scattering (GISAXS).

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