

Abstract Submitted
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Directed assembly of block copolymers on chemically nanopatterned substrates: enabling science for ultra high resolution lithography
PAUL NEALEY, University of Wisconsin — Self-assembling materials based on block copolymers spontaneously form structures with well-defined dimensions and shapes at length scales of interest in nanotechnology. Unfortunately the thermodynamic driving forces for self-assembly are small and low-energy defects can get easily trapped. At issue is the extent of direction or guidance required to meet criteria related to perfection and registration for use of such materials in nanofabrication. Through fundamental understanding of the physics, chemistry, and surface and interfacial phenomena associated with equilibrating block copolymer films in the presence of chemically nanopatterned substrates, we demonstrate how block copolymers may be integrated into and advance the performance of the lithographic process. The technological importance of this approach is discussed with respect to patterned media and the fabrication of integrated circuits.

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