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Selective Metallization of Well Aligned PS-*b*-P2VP Block Copolymers in Thin Films and in Confined Geometries JAMES D. SIEVERT, JAMES J. WATKINS, THOMAS P. RUSSELL, University of Massachusetts - Amherst — Well aligned, microphase-separated structures of styrene-2-vinylpyridine block copolymers are being used as templates for macromolecule-metal nanocomposites. These composites are either prepared as thin films or confined in nanoporous aluminum oxide membranes. Under optimal conditions, templates are prepared as thin films or confined nanorods and metallized without disturbing the ordered structure. We have developed a procedure that deposits metal within the polymer using supercritical carbon dioxide-soluble metal precursors. The use of supercritical carbon dioxide allows for selective metallization of the polymer at or below the glass transition, without disrupting the morphology. In addition, similar procedures have been investigated using metal salts and acids. Using these techniques, metals and metal-sulfides including silver, gold, platinum and zinc sulfide have been selectively deposited.

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