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Fabrication of Highly Ordered Silicon Oxide Dots and Stripes from Block Copolymer Thin Films BOKYUNG KIM, University of Massachusetts Amherst, SOOJIN PARK, JIAYU WANG, THOMAS RUSSELL —
A general route to fabricate highly ordered arrays of nanoscopic inorganic oxide dots and stripes from block copolymer thin films is described. Poly(styrene-b-4-vinylpyridine) (PS-b-P4VP) thin films with cylindrical microdomains oriented normal and parallel to the surface were used as templates for the fabrication of nanoscopic silicon oxide. A thin PDMS layer was spin-coated onto the nanopatterned film, followed by thermal annealing. The PDMS diffused into the pores by capillary action. PDMS was transformed to silicon oxide by oxygen plasma treatment, while PS-b-P4VP was completely degraded, resulting in ordered arrays of silicon oxide.

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