

Abstract Submitted
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Block Co-Polymer Nanopatterning For Emerging Technologies Involving Undergraduate Students at Illinois State University MARCOS PEREZ, MAHUA BISWAS, Illinois State University — With the rise in emerging technologies in the field of optoelectronics, fabrication of plasmonic and photonic nanomaterials is becoming imperative. To delve into the nanoworld, Illinois State University's Applied Nanomaterials Lab is utilizing block co-polymers (BCP) template method to fabricate nanopatterns of inorganic materials of titanium dioxide and gold. This fabrication procedure, known as BCP lithography, is a promising, simple, low cost route, which has already shown great promise in the microelectronics industry. Self-assembled Polystyrene-block-poly methyl methacrylate (PS-b-PMMA) and Polystyrene-block-poly (2-vinylpyridine) (PS-b-P2VP) BCPs nanostructures are fabricated first using a spin casting method for making the template, followed by selective deposition of inorganic precursor into PMMA and P2VP using solution process method and the subsequent removal of the BCP template. We are characterizing these nanostructures using scanning electron microscopy, x-ray diffraction and UV-VIS spectroscopy to understand the morphological, physical and optical properties. The fabricated nanostructures with long range patterns will be attractive for optical devices and other applications.

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