

Abstract Submitted
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A novel approach to achieve perpendicular long range order alignment in lamella PS-b-PEO system PARVANEH MOKARIAN- TABARI, Dept of Chemistry, University College Cork; Centre for Research on Adaptive Nanostructures and Nanodevices (CRANN), Trinity College, Ireland, TIMOTHY W. COLLINS, Department of Chemistry, University College Cork, Cork, Ireland, JUSTIN D. HOLMES, MICHAEL A. MORRIS, Dept of Chemistry, University College Cork; Centre for Research on Adaptive Nanostructures and Nanodevices (CRANN), Trinity College, Ireland — Here, we introduce a novel approach for obtaining perpendicular alignment in lamella forming PS-b-PEO system. The vertical alignment of layers in diblock copolymer thin films has great potential for producing nanowires used in nanofabrication of electronic devices. However, due to selective surface interaction of the polymers with the substrate, perpendicular alignment usually requires neutralisation of the surface by means of brushes or making pre-pattern substrates which could be complicated and time consuming. Applying our novel approach named “combinatorial annealing” which consists of two stages of thermal and solvent annealing process, we have successfully created parallel lines (without a brush). After selective etching of one block, the remaining template is pattern transferred to a silicon substrate leading to manufacturing of sub 20 nm silicon nanowires.

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