Fabrication of nanoscopic patterns using supramolecular nano template

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Supramolecular materials are macromolecules based on monomeric unit held together with directional and reversible secondary interaction. The morphologies of self-assembled supramolecules can be controlled by proper design of molecular architecture including molecular shape, molecular size, molecular weight, functionality, magnetic property, and dipole moment. In this study, the final goal is the template with ultra-high density of several nanometer periodicity. Several supramolecules were chosen on the basis of highly ordered hexagonal cylinder structure, convenient orientation control, and the dimension with under 10nm scale. The morphologies of supramolecules were hexagonal cylinder with orientation perpendicular to the substrate. difference in etching rate by RuO4 staining induced the pattern of dot array.