

Study of Block Copolymer Morphology Confined in AAO Template Modified by Tilt Metal Deposition

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Many researchers have studied confinement effect on block copolymer morphology. Although, most of them has focused on symmetric morphology by modifying template surface with neutral brush or selective brush, no one has tried to get anisotropic morphology.

Here, I partially modified AAO surface by tilting the template and following aluminum deposition. Due to the roughness of alumina layer, I could get stacked lamellar hemisphere structure without neutral brush modification and selective cover. I expect the morphology can be dramatically changed by controlling the roughness, thickness of metal layer, and molecular weight of block copolymer. Also, if I use neutral brush or selective brush to modify AAO surface before metal deposition, I expect many interesting asymmetric morphologies can be obtained by anisotropic confinement effect for large area(cm²), but other lithography techniques can't achieve.