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Arrangement of block copolymer microdomains confined at hemispherical substrates with different brush layers DU SIK BAE, WON CHUL JOO, JIN SEOK BYUN, GUMHYE JEON , JIN KON KIM — The arrangement of the microdomains in block copolymers changes significantly from that in bulk, when they are confined at certain geometric constraints. Although many research works have been reported on microdomain arrangement at one-dimension, two-dimension, and three-dimension confinement, the hemi- spherical geometry has been never employed for this purpose. Here, we study, via scanning and transmission electron microscopy, the arrangement of the microdomains of polystyrene- block-poly(methyl methacrylate) copolymer (PS-b-PMMA) confined at a hemi-sphere wall. This constraint was introduced by using anodic aluminum oxide template. The inner wall surface of the hemi-sphere was further modified by three different brush layers: (1) PS, (2) PMMA, and (3) neutral brushes on PS and PMMA. We observed some interesting morphologies which have not been reported.

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