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Hierarchical silver concentric ring patterns of block copolymer microdomains for high efficient SERS DUSIK BAE, JIN KON KIM, Pohang University of Science and Technoloby — We fabricated the half-onion like microdomains of polystyrene-block-poly(methyl methacrylate) copolymer (PS-b-PMMA) when it was confined within hemi-spherical anodic aluminum oxide (AAO) template. The ring number of the concentric ring patterns was easily controlled by changing the molecular weights of the block copolymers, which was verified by scanning and transmission electron microscopes and atomic force microscope. We also deposited silver with 6nm height selectively on the PS microdomains. A number of silver ring patterns were varied from 5 to 8 depending on the molecule weights of the block copolymer. This silver ring structures showed high surface enhanced Raman scattering (SERS) with a maximum enhancement factor of 10^7.

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