Control self-assembled nanowire using chemically modified substrates

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— Block copolymer lithography is a promising method for fabricating periodical nanopatterns. Strongly segregated block copolymers are required for the formation of smaller size microphase-separated structures. In this study, we used a poly(styrene-b-dimethylsiloxane) (PS-b-PDMS) which has large Flory-Huggins interaction parameter. In addition, we investigated this cylinder-forming PS-b-PDMS has large segregation in the bulk condition by small-angle X-ray scattering (SAXS). Consequently, We demonstrated a fabrication of well-ordered arrays of 15nm period PDMS cylinder on the grating substrate with chemical modification. So, we can obtain less than 10 nm L/S fabrication.