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Nanoparticlization and Morphological Change of Sulfur- and Fluorine-Containing Block Copolymers in Organic Solvent KOOKHEON CHAR, JEEWOO LIM, YUNSHIK CHO, YOUNGJIN KIM, Seoul Natl Univ — The use of controlled polymerization technique allowed us to readily change the degrees of polymerization of constituent blocks by simply altering the monomer feed ratio. This also allowed for the control over size and, more importantly, sulfur/fluorine contents of the block copolymers (BCP) obtained. We have prepared BCPs containing either high sulfur or fluorine content through one-pot and mild ring-opening metathesis polymerization (ROMP). The low solubility of sulfur- and fluorine-rich blocks led to the *in situ* formation of BCP nanoparticles during the polymerization. Furthermore, the variations of the degrees of polymerization of constituent blocks yielded various nanostructures such as rods and vesicles under non-aqueous environment without the need for extensive post-polymerization modification processes Such control over the sulfur or fluorine content also allowed for the control of refractive indices of drop-cast films of BCPs over a range greater than 0.2

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