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Self-Assembly of Highly Segregating Diblock Copolymer in Solution DILRU RATNAWEERA, Clemson University, STEPHEN CLARSON, University of Cincinnati, DVORA PERAHIA, Clemson University — Solvent affinity drives the association of diblock co-polymers in selective solvents. The shape of the micelles is affected by the size of the blocks and their interaction with the solvent. Most experimental and theoretical studies have investigated solutions of diblocks with a relatively low incompatibility, requiring relatively large blocks to associate. The current work introduces a small angle neutron scattering study of a highly segregated diblock-copolymer, a trifluoro propylmethyl siloxane - polystyrene (PTFPMS-PS) in solutions of *d*-toluene, a good solvent for the polystyrene. Studies were carried out over volume fractions of 0.1 to 0.5 of the fluorinated siloxane segment. The high degree of segregation results in association into star-like micelles with the fluorinated siloxane in the core and a swollen corona even at very low volume fractions of the fluorinated segments. The micelles exhibit unique temperature stability in comparison with aggregates formed by diblock-copolymers in a lower segregation regime. The detailed structure of these aggregates as a function of volume fraction and temperature will be discussed.

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