

Abstract Submitted
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Multicompartment Micelles from ABC Star Terpolymers ZHIBO

LI, University of Minnesota, MARC HILLMYER, University of Minnesota, TIMOTHY LODGE, University of Minnesota — We have synthesized a series of ABC star terpolymers with three mutually immiscible polymeric components: a fluorocarbon, a hydrocarbon, and a hydrophilic segment. We have observed a new class of multicompartment micellar structures in dilute aqueous solutions by cryogenic transmission electron microscopy. The star architecture enforces interfacial contacts among the three components. The incompatible fluorocarbon and hydrocarbon form separate disk-like micellar cores that are protected from the water by the hydrophilic segment. The flat micelle cores are due to the strongly unfavorable interaction between segment pairs. The structures that emerge depend on the relative lengths of the segments and can be tuned from discrete multicompartment micelles to extended wormlike micelles with segmented cores.

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