

Abstract Submitted
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Glassy worms of PS-PEO block copolymers KANDASWAMY VIJAYAN, DEBBIE CHENG, DENNIS DISCHER — A novel class of rigid worm micelles formed by PS-PEO diblock copolymers are described. The worms exhibit unique hinged motion about defects, with the defect density falling drastically at higher molecular weights. The glassiness of the system is demonstrated using FRAP analysis. Stiffness of the worms is estimated in terms of tangent-tangent correlation along the backbone, and by the magnitude of angle fluctuations about the hinges. The backbone flexibility is found to be only weakly dependent on the temperature up to 80 °C. Breaking of glassiness, including stiffness and morphology control using organic solvents and a fluid diblock, are described. A simple method to engineer worm shape during formation process is presented. The rheological properties of the worms studied under parallel plate geometry, along with visualization of the worms under shear are presented.

Kandaswamy Vijayan

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