

Abstract Submitted
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Self-Organization on Multiple Length Scales in “Hairy-Rod”–Coil Block Copolymer Supramolecular Complexes RAFFAELE MEZZENGA, MATTHEW HAMMOND, University of Fribourg, Physics Department, HARMANTON KLOK, EPFL, Lausanne — A peptide-synthetic hybrid block copolymer, poly(ethylene oxide)-block-poly(L-glutamic acid), is demonstrated to form supramolecular complexes with primary alkylamines of varying alkyl chain length (8 to 18 methylene units) in organic solvents via acid-base proton transfer and subsequent ionic bonding. The peptidic block being in the α -helical conformation, these materials behave as coil-“hairy rod” block copolymers, and show hierarchically self-organized nanostructures in the solid state; X-ray scattering measurements show mesomorphic behavior at the length scales of both the overall block copolymer and the polypeptide-alkylammonium complex.

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