

Abstract Submitted
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The O^{52} Network by Molecular Design: CECD Tetra-block Terpolymers FRANK S. BATES, MICHAEL BLUEMLE, GUILLAUME FLEURY, TIMOTHY LODGE, U. Minnesota — Varying the length of poly(dimethylsiloxane) in poly(cyclohexylethylene-*b*-ethylene-*b*-cyclohexylethylene-*b*-dimethylsiloxane) (CECD) tetrablock terpolymers between 0 and 20% produces the sequence of ordered phases: cylindrical-to-network-to-cylindrical. Small-angle X-ray scattering and transmission electron microscopy demonstrate $Pnna$ space group symmetry and a unique network morphology stabilized by the asymmetric molecular architecture and block interactions. These results establish a new design principle for the generation of triply periodic and multiply continuous nanostructured soft material.

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