

Abstract Submitted  
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**The Sheet Trapped in a Plumber's Nightmare** CHRISTOPHER O'BRYAN, TAPOMOY BHATTACHARJEE, W. GREGORY SAWYER, THOMAS ANGELINI, Univ of Florida - Gainesville — Block co-polymer systems offer exquisite control in the molecular-level design of self-assembled structures. The application of block copolymer phases has been generally limited to their use as bulk stabilizing agents in mass produced commodity chemicals and plastics. Recently, we have found the complex phase structures of self-assembled styrene ethylene/propylene diblock and styrene ethylene/butylene triblock co-polymers useful in 3D printing of other soft materials; the co-polymer structure yields around a writing nozzle as it moves through space while leaving material (polymers or colloids) trapped in the form of programmed structures. However, the relationship between the structural phase of the co-polymer self-assembly and its ability to support printed soft matter materials is not understood. In this study, we explore how different block co-polymer assemblies interact with and support soft matter materials once localized yielding has occurred.

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