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Polymer Crystallization at Curved Liquid-Liquid Interface CHRISTOPHER LI, WENDA WANG, HAO QI, ZIYIN HUANG, Department of Materials Science and Engineering, Drexel University, Philadelphia, PA 19104, USA — Curved space is incommensurate with typical ordered structures with three-dimensional (3D) translational symmetry. However, upon assembly, soft matter, including colloids, amphiphiles, and block copolymers (BCPs), often forms structures depicting curved surface/interface. Examples include liposomes, colloidosomes, spherical micelles, worm-like micelles, and vesicles (also known as polymersomes). For crystalline BCPs, crystallization oftentimes overwrites curved geometries since the latter is incommensurate with crystalline order. On the other hand, twisted and curved crystals are often observed in crystalline polymers. Various mechanisms have been proposed for these non-flat crystalline morphologies. In this presentation, we will demonstrate that curved liquid/liquid (L/L) interface can guide polymer single crystal growth. The crystal morphology is strongly dependent on the nucleation mechanism. A myriad of controlled curved single crystals can be readily obtained.

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