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Understanding diblock copolymer colloidal particle anisotropy DEBRA AUDUS, SE GYU JANG, DANIEL KROGSTAD, University of California, Santa Barbara, ALEXANDRE CAMERON, Ecole Normale Superieure, SANG-WOO KIM, KRIS DELANEY, University of California, Santa Barbara, SU-MI HUR, University of Chicago, EDWARD KRAMER, CRAIG HAWKER, GLENN FREDRICKSON, University of California, Santa Barbara — Colloidal particles are formed by emulsifying a mixture of PS-*b*-P2VP, nanoparticles and chloroform in water with surfactant and then evaporating the chloroform. With the addition of a sufficient number of nanoparticles, the colloids form prolate ellipsoids with lamellae oriented along the major axis. These colloidal particles are of interest for potential applications such as photonic materials and drug delivery. In order to explain the colloidal particle anisotropy and its dependence on colloidal particle size, a theoretical model that balances internal and external surface tension was developed. Agreement between the model and experimental results suggests that thermodynamic factors control the particle anisotropy.

Debra Audus
University of California, Santa Barbara

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