

Abstract Submitted
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Self-assembly of semiflexible-flexible block copolymers

ARUN KUMAR, VENKAT GANESAN, The University of Texas at Austin — We apply self-consistent Brownian dynamics simulations to study the self-assembly behavior of semiflexible-flexible block copolymers. A Maier-Saupe interaction model was applied for the orientational interactions between the semiflexible polymers, while the enthalpic interactions between semiflexible and flexible polymers were modeled through a standard Flory-Huggins approach. To develop a physical understanding of the phases and their regimes of occurrence as a function of varying persistence length of the semiflexible block, we computed the $2D$ phase diagram for our model. We quantify the progression of the self-assembly morphologies in transitioning from coil-coil block copolymers on the one hand to rod-coil block copolymers on the other hand. The results obtained are in qualitative agreement with the existing experimental and numerical results.

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