

Abstract Submitted
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Homogeneous Crystal Nucleation: To Fold or Not to Fold?

BUCKLEY CRIST, Northwestern University — Recent simulations and related theories have addressed interesting aspects of homogeneous nucleation of polymer crystals in very dilute solutions; embryos and very small crystals are composed of folded chains. At the same time there has been renewed activity with experimental studies of homogeneous nucleation in molten polymers, either with dispersed droplets or with microphase-separated block copolymers. Compared to dilute solutions, melts offer enhanced possibilities for nucleation by fringed micelle structures with stems from different chains. Basal or “end” surface energy is estimated for unfolded and folded chain nuclei and employed with classical nucleation theory to distinguish between nucleation rates in the two cases. The effect of chain length on the nucleation barrier offers a way to test model predictions.

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