

Abstract Submitted
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Crystallization of atactic polystyrene. YU CHAI, JAMES FORREST, Univ of Waterloo — Atactic polystyrene is often used as an archetypical example of a material that has no crystalline ground state due to the lack of order in the arrangement of phenyl groups along the backbone. However, even in polymers with perfect Bernoullian (random) statistics, there is a probability that a given molecule will have larger blocks of a given stereoregularity. These blocks, in turn, could allow the formation of nanocrystalline domains. As a model system to investigate whether such blocks could lead to nanoscale crystallinity, we consider PS with Mw less than 1000 where there is a reasonable probability of a molecule having all meso or racemo diads . For the case of Mw 600, there are clear indications of crystal growth with two characteristic temperatures below which two different crystal species can nucleate and grow. Similar crystal growth and melting behavior is observed for Mw 1000.

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