Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Crystallization of low molecular weight atactic polystyrene YU CHAI, JAMES GILBERT, CHAD DALEY, JAMES FORREST, Univ of Waterloo — It is well known that atactic polystyrene does not crystallize. However, it is also true that even in pure atactic polymer, there is a small fraction of isotactic and syndiotactic moieties due to random statistics, which are crystallizable. Using small molecular weight atactic polystyrene, we are able to observe crystallization in an acceptable time window. We characterize the crystals in terms of both the morphology and dynamics by using atomic force microcopy and differential scanning calorimetry and the results are consistent with that from the bulk isotactic and syndiotactic polystyrene. As the molecular weight increases, the fraction of pure isotactic and syndiotactic components becomes smaller, and crystallization is not observed.

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Date submitted: 13 Nov 2014 Electronic form version 1.4