Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Flow Induced Crystallization in Polyolefins KALMAN MIGLER, NIST — The presence of flow is known to enhance the nucleation rate in semi-crystalline polyolefins by as much as five orders of magnitude, but the underlying molecular mechanism is still under debate. Here we describe experiments that combine birefringent microscopy, light scattering and vibrational spectroscopy to quantity to flow induced crystallization process. We map out the kinetics pathways and flow regimes in commercial grade polyolefins. Results from this program will be important in understanding how to control crystallization in industrial relevant manufacturing operations.

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Date submitted: 15 Nov 2013 Electronic form version 1.4