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Unexpected Observation of 2.5 Dimensional Growth of Polymer Spherulite¹ DUJIN WANG, Dr., Prof., CHANGMING WANG, YING ZHAO, JINLIANG SONG, BUXING HAN — Preparation of integrated polymer spherulite from both solution and melt has been a challengeable subject. In this letter, micro-sized spherulites of ultrahigh molecular weight polyethylene (UHMWPE) have been successfully prepared from supercritical ethanol. The spherulite grows to 2.5 but not 3 dimensions with only one nucleation site on the surface. The 2.5 dimensional growth makes it possible to observe both the nucleation site and sheaf-like structure on the surface of a spherulite and to obtain one global final spherulite as a single particle. A possible mechanism for the particular morphology of spherulites is proposed based on the contributions of surface nucleation on polymer droplet, high molecular weight of UHMWPE as well as the soft confinement of supercritical fluid.

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