Crystallization of Ethylene Vinyl Acetate (EVA) and Polyethylene (PE) /deuterated Polystyrene (dPS) Blends in Supercritical Carbon Dioxide (scCO₂) CHRISTOPHER PYNN, Hals Hollow Hills High School West, NY, PAYVAND AHDOUT, Roslyn High School, NY, JOHN JEROME, YANTIAN WANG, VLADIMIR ZAITSEV, JOHNATHAN SOKLOV, MIRIAM RAFAILOVICH, Dept. of Mat. Sci. and Engr., State Univ. of New York at Stony Brook, STEVEN SCHWARZ, Dept. of Physics, CUNY Queens College — Thin films of EVA or PE and dPS were spun cast onto Si wafers and crystallized in supercritical carbon dioxide at pressures and temperatures corresponding to the density fluctuation ridge\(^1\) or thermally annealed using standard protocols. The morphology composition and melting points of the films were studied using scanning force microscopy and imaging time-of-flight secondary ion mass spectrometry as function of film thickness and homopolymer concentration. The results showed that exposure to scCO₂ produced highly crystalline films. Furthermore, in contrast to the thermally annealed films, the homopolymer was fully incorporated into the crystalline phase. The surface morphology of the films after crystallization showed either island or hole structure, depending on the relation between the film thickness and the lamellar height. Supported in part by the NSF-MRSEC program and by a grant from the SRC-NYS consortium.