

Abstract Submitted  
for the MAR06 Meeting of  
The American Physical Society

**Diffusion-limited growth of poly (caprolactone) in poly (tert-butyl acrylate) matrices at the air/water interface** BINGBING LI, ALAN R. ESKER, Department of Chemistry (0212), Virginia Tech, Blacksburg, VA 24061 — Surface pressure induced crystallization of poly (caprolactone) (PCL) in poly (tert-butyl acrylate) (PtBA) matrices at the air/water interface has been monitored in real time by Brewster angle microscopy (BAM). Diffusion-limited morphologies of PCL crystals grown in PCL/PtBA mixed monolayers were observed during the compression process. The lateral forces applied on the mixed monolayer during compression assist the diffusion of PCL molecules from the surrounding monolayer to the crystal growth fronts, where the amorphous PtBA components are excluded. Surface pressure-area per monomer isotherm studies suggest that the nucleation and growth of PCL occurs at about 11 mN/m. The lamellar thickness of PCL dendrites determined by atomic force microscopy is about 7-8 nm. With decreasing surface concentration during expansion of the mixed films, PCL chains slowly detach from the crystalline domains and diffuse into the monolayer. These findings provide an interesting model system for future studies of crystallization in confined geometries.

Bingbing Li  
Department of Chemistry, Virginia Tech, Blacksburg, VA 24061

Date submitted: 30 Nov 2005

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