

Abstract Submitted  
for the MAR05 Meeting of  
The American Physical Society

Sorting Category: 04.14 (C)

**On elasticity of block-copolymer mesophases with glassy domains** KIRILL KATSOV, GLENN FREDRICKSON, MRL, UC Santa Barbara — The standard Self-Consistent Field Theory of equilibrium self-assembly in copolymer melts is modified to describe effects of glassiness. The glassy domains are modeled by incorporating a variety of structural constraints on chain degrees of freedom. Effects of inter-domain bridging, compressibility, chain pullout and micro-domain deformation on linear and non-linear elasticity are presented. In particular, we study lamellae-forming multi-block copolymers with interleaving glassy and semi-crystalline domains. We predict coexistence between essentially undeformed and highly expanded (micro-cavitating) domains upon sample deformation. Our results are compared to recent experiments on poly(cyclohexylethylene) and poly(ethylene) multi-block copolymer systems.

Prefer Oral Session  
 Prefer Poster Session

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Date submitted: 05 Dec 2004

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