

Abstract Submitted  
for the MAR05 Meeting of  
The American Physical Society

**Competing Surface Fields on the Ordering Transition of Block Copolymer Films** PETER GREEN, ABRAHAM ARCEO, University of Texas at Austin — The ordering temperatures of *polystyrene-b- polymethylmethacrylate* (PS-*b*-PMMA) thin film diblock copolymers of thickness  $h \leq 2L$ , supported by  $SiO_x/Si$  substrates, were examined in compressed CO<sub>2</sub> fluid and vacuum environments. The substrate is shown to induce ordering into the film as temperatures above the bulk order-disorder transition. This ordering temperature is estimated to be about 200 degrees above the bulk ODT. We also show that in compressed CO<sub>2</sub> environments, these films are ordered at temperatures above which they would be ordered in vacuum! This latter observation is of particular significance since compressed CO<sub>2</sub> is a known plasticizer for both polymers and low molecular weight diluents generally have the effect of lowering the *ODT*, not increasing it.

Peter Green  
University of Texas at Austin

Date submitted: 04 Dec 2004

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