

Abstract Submitted  
for the MAR12 Meeting of  
The American Physical Society

Sorting Category: 01.12 (E)

**The Calorimetric Glass Transition of Polystyrene Ultrathin Films**<sup>1</sup> SIYANG GAO, YUNG P. KOH, SINDEE SIMON, Texas Tech University — Although the glass transition behavior of polystyrene ultrathin films has been widely studied, calorimetric measurements are limited due to difficulties in sample preparation. Here we report the use of a rapid scanning calorimeter based on a membrane sensor to measure the rate-dependent glass transition temperature ( $T_g$ ) for single ultrathin films. Both microtomed and spin-coated films are investigated. Preliminary results suggest that the magnitude of the  $T_g$  depression is similar to that observed for freely-standing films. The  $T_g$  depression also depends on the cooling rate such that at the highest rates used (1000 K/s), the depression is only a few degrees. The kinetics of dewetting are followed, with  $T_g$  values increasing as a function of time and finally reverting to the bulk values after several hours at 160 °C.

<sup>1</sup>National Science Foundation DMR-1006972

Prefer Oral Session  
 Prefer Poster Session

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Date submitted: 19 Dec 2011

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