

Abstract Submitted  
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**A closer look at the two-layer model** DONGDONG PENG, Boston University — Previously we have measured the viscosity of short-chain, unentangled polystyrene films coated on silicon covered with a 100 nm thick oxide layer. We found that a two-layer model, portraying the films as being made of a 3 nm thick mobile layer sitting on top of a bulk-like inner layer, was able to describe our data very well. More recently, we extended similar measurements to entangled films with a higher molecular weight of 212 kg/mol. We found that the same two-layer model was able to describe the viscosity measurements, but would imply an unphysically large stretching of the polymer chains in the films or else the near-surface chains would have to be oblate spheroids with an aspect ratio of about 4. In this talk, I will discuss new results we obtain from films with higher molecular weights of up to 2316 kg/mol and also films that are deposited on a different kind of substrate, namely hydrogen terminated silicon. Implications of these results on the two-layer model will be discussed.

Dongdong Peng  
Boston University

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