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Local and Average Glass Transitions in Polymer Thin Films JANE LIPSON, Dartmouth College, SCOTT MILNER, The Pennsylvania State University — No quantitative, predictive model has yet been developed to account for the dramatic suppression of the glass transition (Tg) of a polymeric film in the neighborhood of a free surface. Experimental results provide evidence not only for the correlation between Tg and total film thickness, but also partially illuminate how more local slices of the film behave. Our model predicts the local Tg relative to distance from a free surface. In using these results we are lead to consider the kind of average nature evidently performs in revealing the film-averaged response measured experimentally. In this talk I will summarize our progress to date, compare with some existing data, and suggest directions for future experimental work.

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