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A simple view of T_g measurements in thin polymer films JAMES FORREST, University of Waterloo, KARI DALNOKI-VERESS, McMaster University — In the past two decades, there have been numerous measurements of the glass transition temperature, T_g, in thin polymer films. These results have been the subject of significant controversy. While it does appear that the surface of glassy polymer films exhibits an anomalously high mobility, how this results in measured values of T_g less than that of the bulk is not yet clear. Here we present a simple model that shows how an enhanced surface mobility that penetrates into the material with a characteristic length scale can lead to what appears as a reduced dilatometric T_g. We will show that despite the strong similarities to a T_g measurement, the signature observed in experiments does not necessarily correspond to a glass transition in the thin polymer film.

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