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**Tg-Confinement Effects in Polymer Thin Films, Nanotubes, and Nanospheres as Measured by DSC, Ellipsometry and Fluorescence** JOHN TORKELSON, ANTHONY TAN, LAWRENCE CHEN, Northwestern Univ — The effect of nanoscale confinement on the glass transition temperature (T<sub>g</sub>) of supported and free-standing polymer films has been studied for two decades by various techniques. However, conventional DSC, which is the most common method for measuring T<sub>g</sub> of bulk polymers, is not well suited for such measurements. Here, we demonstrate that T<sub>g</sub>-confinement effects measured by conventional DSC in nanotubes of polymer supported in anodic aluminum oxide (AAO) templates compare well with T<sub>g</sub>-confinement effects measured in supported polymer films by ellipsometry and fluorescence. We further show that T<sub>g</sub>-confinement effect data for nanotubes obtained by fluorescence agree well with data obtained by DSC. Finally, we draw comparisons between the T<sub>g</sub>-confinement behavior of nanoprecipitated polymer nanospheres as measured by fluorescence to T<sub>g</sub>-confinement effects for both supported and free-standing polymer films. The roles, if any, of confinement dimensionality (1-D vs 2-D vs 3-D) and measurement technique on the observed T<sub>g</sub>-confinement effect will be discussed.

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