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**Relation Between Glass Transition Temperatures in Polymer Nanocomposites and Polymer Thin Films** JAMIE KROPKA, Sandia National Laboratories, VICTOR PRYAMITSYN, VENKAT GANESAN, The University of Texas at Austin — Motivated by recent experiments, we examine within a percolation model whether there is a quantitative equivalence in the glass transition temperatures of polymer thin films and polymer nanocomposites (PNCs). Our results indicate that while the qualitative behaviors of these systems are similar, a quantitative equivalence cannot be established in general. However, we propose a phenomenological scaling collapse of our results which suggests a simple framework by which the results of the thin films may be used to quantitatively predict the properties of PNCs. Sandia is a multi-program laboratory operated by Sandia Corporation, a Lockheed Martin Company, for the United States Department of Energy's National Nuclear Security Administration under Contract DE-AC04-94AL85000.

Jamie Kropka  
Sandia National Laboratories

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