## Abstract Submitted for the MAR16 Meeting of The American Physical Society

Understanding the relationship between different measures of nanoconfinement effects on segmental dynamics and the glass transition.<sup>1</sup> DAVID SIMMONS, JAYACHANDRA HARI MANGALARA, WESTON MER-LING, The University of Akron — Several decades of research have indicated that confinement of a polymer or other glass-forming material to a nanoscale domain can significantly alter its glass transition temperature and segmental dynamics. Such effects have been reported in thin films, nanolayered and block copolymers, ionomers, and semicrystalline polymers. These alterations in glass formation behavior have implications for applications ranging from microelectronics to water purification. Many of the major open questions in this field center on apparent differences in nanoconfinement effects as probed by different methods. Recent studies have reported substantial differences in the apparent magnitude, direction, and onset temperature of these effects as probed via ellipsometry, calorimetry, fluorescence, dielectric spectroscopy, neutron scattering, various measures of viscous relaxation, and simulation. Here we employ molecular dynamics simulations to elucidate relationships between different measures of nanoconfinement effects. Particular emphasis is placed on differences in the manner in which different metrologies average over interfacial gradients in dynamics and pseudothermodynamic properties.

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