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Confinement effects on the glass transition of nanolayered polymers DAVID SIMMONS, University of Akron Department of Polymer Engineering, RYAN LANG, MARK MACKURA, The University of Akron Department of Polymer Engineering — Despite numerous studies of glass transition confinement effects in liquids confined in freestanding films, on rigid substrates, and in pores, many outstanding questions remain regarding the origin, nature, and magnitude of these effects. In recent years, studies have demonstrated that these effects are also present in materials under soft confinement, including in internally nanostructured polymers such as nanolayered polymers and block copolymers. This latter class of materials offers a new platform for exploration of confinement effects in the absence of issues surrounding substrate selection and preparation. In this talk, we describe the results of coarse-grained molecular dynamics simulations probing the glass-formation behavior of nanolayered polymers, with a focus on the role of 'cooperatively rearranging regions' in nanoconfinement effects in these systems. Furthermore, we discuss the role of miscibility and bulk T_g of the nanolayered polymers in determining the magnitude and direction of changes to T_g and mobility of polymers under this form of 'soft' nanoconfinement.

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