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Qualitative differences between simulations and experiments of confined glasses ROBERT RIGGLEMAN, YUE ZHANG, ZAHRA FAKHRAAI, University of Pennsylvania — After two decades of experimental and computational work, it is widely accepted that nanoscale confinement strongly perturbs the dynamics associated with glass formation. The presence of either a free surface or a non-wetting wall leads to a local enhancement of the dynamics, while strongly absorbing walls can slow the dynamics of glass formers. These qualitative trends have been observed in experiments through both direct and indirect measures of the dynamics, and simulations that directly measure the local mobility exhibit similar trends. However, there are several experimental observations that are qualitatively different from what is observed in simulations. In this talk, I will highlight these apparent discrepancies as well as describe our attempts at resolving them. I will compare the specific form of relaxation functions, which exhibit a broad single-step decay in simulations but two-step relaxation in several experiments. Finally, I will examine the activation energy for relaxation as a function of film thickness and compare to recent experiments that exhibit a strong crossover in the dynamics when the film thickness is approximately 25 nm.

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