Dynamics and effective temperature for a steady-state sheared glass\textsuperscript{1} THOMAS HAXTON, ANDREA LIU, University of Pennsylvania Department of Physics and Astronomy — In a model sheared glass, the slow dynamics near the onset of jamming are shown to be controlled by a well-defined effective temperature $T_{\text{eff}}$. We conduct two-dimensional nonequilibrium molecular dynamics simulations of steadily-sheared, densely-packed, bidisperse disks with soft repulsive pairwise interactions in contact with a heat reservoir. We calculate the viscosity and $T_{\text{eff}}$ as functions of shear rate $\dot{\gamma}$ and bath temperature $T_{\text{bath}}$. At $\dot{\gamma} = 0$, the system undergoes a glass transition at $T_{\text{bath}} = T_g$. We study the steady state at $\dot{\gamma} \neq 0$ and $T_{\text{bath}} < T_g$. At low $\dot{\gamma}$, $T_{\text{eff}}$ decreases extremely slowly with $\dot{\gamma}$ and is nearly independent of $T_{\text{bath}}$, while the viscosity continues to increase rapidly. The dramatic change in dynamics with a gradual change in effective temperature is reminiscent of the behavior of the quiescent system as temperature is lowered towards $T_g$.

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