

Abstract Submitted  
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**The Manhattan Model: A simple model for glassy dynamics** PRASANTA PAL, Department of Applied Physics, Yale University, COREY O'HERN, Department of Mechanical Engineering, Department of Physics, Yale University, JERZY BLAWZDZIEWICZ, Department of Mechanical Engineering, Yale University, O'HERN GROUP TEAM — We study the dynamics of 1d hard rods undergoing Brownian motion in an array of narrow, multiply intersecting channels. In the current version, the junction size equals the particle size and particles are prevented from making turns at each intersection. This simple model shares many of the important features of glassy systems including kinetic arrest, cooperative and heterogeneous dynamics, and aging behavior in the high packing fraction limit. One of our key results is that the structural relaxation time and other dynamical quantities increase super-exponentially with  $\phi$  and diverge at  $\phi_g < \phi_{cp}$  significantly below the close-packed density.

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