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Universal Scaling Relation Near Point J[1] THOMAS HAXTON, ANDREA LIU, Department of Physics and Astronomy, University of Pennsylvania — Recently, several studies (P. Olsson and S. Teitel. *Phys. Rev. Lett.* **99**, 178001 (2007); T. Hatano. arXiv:0803.2296; L. Berthier and T. A. Witten. arXiv:0810.4405) have indicated the existence of a dynamical phase transition at or near Point J, the point at zero temperature, zero shear stress, and a critical density where repulsive amorphous sphere packings lose rigidity. However, a universal scaling relation connecting the rheology of the jammed solid to that of the viscous liquid has been lacking. We control the temperature, strain rate, and pressure in molecular dynamics simulations to show that the steady-state rheology is described by a universal scaling relation near Point J.

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