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T1 Process and Dynamics in Hard-Sphere Glasses YUXING ZHOU, SCOTT MILNER, Pennsylvania State Univ — The relationship between dynamics and structure in a glass-forming liquid is elusive. Inspired by studies in foam topology, we propose a criterion for T1-active particles in a dense hard-sphere fluid: namely, those that can have a T1 process by moving within their free volume given all other particles fixed. From newly devised hybrid Monte Carlo simulations that effectively suppress crystal without altering the dynamics, we obtain the geometrical and dynamical properties for monodisperse hard-spheres along the whole metastable branch. We find that the fraction of T1-active particles vanishes at random close packing, and the percolation property of T1-active clusters changes dramatically at the glass transition density $\phi_g \approx 0.58$.

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