

Abstract Submitted  
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**Comparison of a model vapor deposited glass films to equilibrium glass films**<sup>1</sup> ELIJAH FLENNER, Chemistry Department, Colorado State University, LUDOVIC BERTHIER, Universite de Montpellier, PATRICK CHARBONNEAU, Department of Chemistry, Duke University, FRANCESCO ZAMPONI, LPT, Ecole Normale Superieure — Vapor deposition of particles onto a substrate held at around 85% of the glass transition temperature can create glasses with increased density, enthalpy, kinetic stability, and mechanical stability compared to an ordinary glass created by cooling. It is estimated that an ordinary glass would need to age thousands of years to reach the kinetic stability of a vapor deposited glass, and a natural question is how close to the equilibrium is the vapor deposited glass. To understand the process, algorithms akin to vapor deposition are used to create simulated glasses that have a higher kinetic stability than their annealed counterpart, although these glasses may not be well equilibrated either. Here we use novel models optimized for a swap Monte Carlo algorithm in order to create equilibrium glass films and compare their properties with those of glasses obtained from vapor deposition algorithms. This approach allows us to directly assess the non-equilibrium nature of vapor-deposited ultrastable glasses.

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