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Relating the Dynamics of Supercooled Liquids to the Sensitivity of Modes to Small Perturbations VASILE IULIAN CLAPA, TSAMPIKOS KOTTOS, FRANCIS STARR, Physics Dept., Wesleyan University, Middletown, CT — We propose an alternate method to relate the structural and dynamical properties of a model supercooled binary Lennard-Jones (BLJ) liquid approaching the glass transition. Our proposal builds on methods from random matrix theory and transport theory of disordered systems, where it was shown that the diffusivity/localization can be probed by an appropriate statistical analysis of the eigenvalues and eigenvectors of the Hamiltonian function. Specifically, we examine the viability of connecting the diffusion constant of the BLJ liquid to: (i) the mean level velocities (MLV) of eigenmodes, (ii) the variance of MLVs, and, (iii) the participation number of the eigenmodes.

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