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Single Particle Jumps in a Glass: Statistics and History Dependence KATHARINA VOLLMAYR-LEE, Bucknell University — We study a binary Lennard-Jones mixture below the glass transition via molecular dynamics simulations. To investigate the dynamics of the system we define single particle jumps via their single particle trajectories. We find two kinds of jumps: "reversible jumps" where a particle jumps back and forth between two or more average positions and "irreversible jumps" where a particle does not return to any of its former average positions. For both the irreversible and reversible jumps we present as a function of temperature the number of jumps, jump size and waiting time between jumps. With increasing temperature T particles undergo both more jumps, and the percentage of irreversible jumps versus reversible jumps increases. Similarly the jump size increases with increasing T. The distributions of jump lengths and waiting times are in accordance with subdiffusive behavior. Whereas the number of jumping particles is dependent on the history of the system, the jump size and waiting times are independent of the history of the glass.

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