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Tracking Quantum Populations in Non-Sequential Double Ionization of Atoms[1] STAN HAAN, CHRISTIAN WOOLLEY, KATHERINE SHOMSKY, Calvin College — We use one-dimensional quantum models to consider nonsequential double ionization of atoms in intense laser fields. We examine in particular the mixing of quantum states that is induced by the oscillating laser field. This mixing helps explain why classical models work so well – even prior to recollision, the inner electron is in a mixture of ground and excited states. Recollision can change this mixture without needing a threshold energy for excitation from the ground to first excited state.

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