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**Controlling Electron Dynamics of Oriented Molecules Using Attosecond Pulses** S. MIYABE, RIKEN, R. LUCCHESE, Texas AM University, T. RESCIGNO, Lawrence Berkeley National Laboratory, K. MIDORIKAWA, RIKEN, C. W. MCCURDY, UC Davis and Lawrence Berkeley National Laboratory — Attosecond pulses offer routes to study and potentially manipulate ultrafast electron dynamics of atoms and molecules on their intrinsic time scale, and therefore attracted attention from various disciplines. In this report we show that for a molecule, oriented in space and excited by an attosecond pulse, the amount of electronic coherence left in the ion depends not only on the orientation of the electric field polarization vector in the molecular-frame, but also on the angular distribution in molecular-frame of electrons ejected in different ionization channels. In our numerical simulation we use one-photon single ionization amplitudes calculated using the complex-Kohn variational method, and we express the amount of coherence in the ion in terms of the (N+1)-electron reduced density matrix of the full N-electron system of the ion plus ionized electron.

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