

Dynamic Pathways in Multidimensional Landscapes



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Electron Dynamics in photo-excited Sodium Iodide in the gas phase

Content :

Following the pioneering femtosecond spectroscopy experiments by A. Zewail and coworkers, the coherent electronic and nuclear wavepacket dynamics in photo-excited NaI molecules are revisited by means of sub-100 fs resolution pump-probe photoelectron spectroscopy. Time, energy and angular resolved photoelectron distributions of NaI photo-excited with several pump wavelengths were been measured. The dynamic pathways in the energy-time landscape represent a full picture of the molecular wavepacket evolution upon pumping and directly reveal features such coherent superposition of and transfer of wavepacket population between different molecular states. Furthermore, the dispersion of the evolving wavepacket and the dependence of this dispersion on the initial pump energy can be seen in the spectra. The measurements represent a stringent test for current models and theories and will be compared to state of the art molecular quantum dynamics simulations.

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