

Abstract Submitted
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Control over dissociative dynamics in O_2^+ HENRY TIMMERS, NIRANJAN SHIVARAM, ARVINDER SANDHU, University of Arizona — We report results from a pump-probe experiment in O_2 in which we monitor the dissociative ionization upon interaction with a XUV attosecond pulse train in the presence of a strong IR probe field. We use the XUV attosecond pulse to excite the molecule to the ionized ($c^4\Sigma_u^-$) O_2^+ state and monitor the evolution of the vibrational wavepacket using a time delayed femtosecond IR pulse. We present the capability to control the dissociative ion yield of O^+ by controlling the intrinsic spin-orbit predissociation mechanism. Furthermore, we demonstrate the ability to control the time-of-birth position of the vibrational wavepacket as well as the wavepacket's dissociating phase.

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