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Using attosecond high-harmonics to probe dynamics near conical intersections HENRY TIMMERS, NIRANJAN SHIVARAM, Physics Department, University of Arizona, CHEN-TING LIAO, College of Optics, University of Arizona, ARVINDER SANDHU, Physics Department, University of Arizona — Conical intersections provide a highly efficient means for electronic relaxation in excited polyatomic molecules. However, the experimental time-resolved studies of non-adiabatic couplings and dynamics associated with conical intersections have been limited. Here, we present the results of an attosecond, XUV pump - IR probe experiment to resolve the non-adiabatic dynamics of the CO_2 molecular ion in the vicinity of a conical intersection. We use 11th harmonic in the XUV pulse train to create a wavepacket in the two lowest excited states of CO_2^+. The IR pulse samples the evolution of this wavepacket and results in formation of O^+ and CO^+ ions along different dissociation pathways. We observe coherent oscillations in the fragmentation yield which can be attributed to the vibronic coupling mechanism of the conical intersection.

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