

Abstract Submitted  
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**Dynamical alignment of  $\text{H}_2^+$  in an intense ultrashort laser pulse<sup>1</sup>**

FATIMA ANIS, R. CABRERA-TRUJILLO, B. D. ESRY, J.R. Macdonald Laboratory, Department of Physics, Kansas State University — We will present a study of ionization and dissociation of  $\text{H}_2^+$  in an intense ultrashort laser pulse. Our results include all degrees of freedom — classical for the nuclei and quantum mechanical for the electron. Similar previous calculations<sup>1,2</sup> have obtained the electronic wave function using a basis expansion. We, however, are solving the time-dependent Schrödinger equation on a three dimensional grid in the lab frame. One of our goal is to study dynamical alignment of  $\text{H}_2^+$  and its fragments. We consider a distribution of initial nuclear positions and momenta so that our results are suitable for direct comparison with experiment.

<sup>1</sup>M. Ullmann, T. Kunert, F. Grossmann, R. Schmidt, Phys. Rev. A **67**, 013413 (2003).

<sup>2</sup>E. Deumens, A. Diz, R. Longo, and Y. Öhrn, Rev. Mod. Phys. **66**, 917 (1994)

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Fatima Anis  
Department of Physics, Kansas State University

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