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**Exploring the parameter space for ionization and dissociation of  $H_2^+$  in an intense laser pulse**<sup>1</sup> VLADIMIR ROUDNEV, B.D. ESRY, J.R. Macdonald Laboratory, Department of Physics, Kansas State University — We explore the dissociation and ionization of  $H_2^+$  ions aligned with a 790 nm laser field of peak intensity in the range  $1.0 \times 10^{13}$  to  $7.0 \times 10^{14}$  W/cm<sup>2</sup>. Calculated dissociation and ionization probabilities are reported for different initial vibrational states and for the initial state averaged over the Franck-Condon distribution. The dependence on the carrier-envelope phase difference for different initial states and for pulse durations from 5 to 30 fs FWHM is presented. These results — from direct solution of the time-dependent Schrödinger equation — are compared with solutions in the Born-Oppenheimer representation with two-channels for low peak laser intensities.

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Prefer Oral Session

Prefer Poster Session

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