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**Rotation of  $H_2^+$  driven by 10fs laser pulse<sup>1</sup>** FATIMA ANIS, BRETT ESRY, J. R. Macdonald Laboratory, Department of Physics, Kansas State University — We have performed full-dimensional calculations for  $H_2^+$  in ultrashort intense laser pulse including physical processes of dissociation, electronic excitation as well as nuclear vibration and rotation. The post-pulse time evolution of the bound wave function shows revivals due to impulsive alignment. Revival structure is more pronounced than the revivals observed experimentally for  $D_2$ [1], which makes  $H_2^+$  more favorable to observe this process. Moreover, alignment depends strongly on the initial vibrational state, making it possible to control the alignment and use it in a pump-probe scheme to study dissociation and ionization. This work also shows that including rotation is important even for very short pulses.

[1] K. F. Lee, F. Légaré, D. M. Villeneuve and P. B. Corkum, J. Phys. B, 39, 4081(2006)

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Prefer Oral Session

Prefer Poster Session

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