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Exploiting the Rotational Dynamics of Asymmetric Top Molecules to make Angle Resolved, Molecular Frame Ion Yield and High Harmonic Measurements[1] VARUN MAKHIJA, XIAOMING REN, JAN TROSS, SUDIPTA MONDAL, ANH-THU LE, CARLOS TRALLERO, VINOD KUMARAPPAN, J.R. Macdonald Laboratory, Kansas State University, JRM HHG-ALIGNMENT COLLABORATION — We extract the angle-dependent ionization rate of ethylene in an intense femtosecond laser pulse from the rotational revivals of the yield of the singly-charged molecular ion. By fitting the measured delay-dependent ion yield to the molecular axis distribution calculated using a rigid rotor code for asymmetric top molecules, we show that the dependence of the ionization rate on two Euler angles can be on obtained. Additionally we explore the possibility of extracting molecular frame information from similar pump-probe measurements of high harmonic generation.

[1]Office of Basic Energy Sciences, U.S. Department of Energy

Varun Makhija
J.R. Macdonald Laboratory, Kansas State University

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