Quantitative rescattering theory for high-order harmonic generation from aligned molecules[1] ANH-THU LE, Kansas State University, ROBERT LUCCHESE, Texas A&M University, MU-TAO LEE, Universidade Federal de Sao Carlos, Sao Paulo, Brazil, CHII-DONG LIN, Kansas State University — By employing the recently proposed Quantitative Rescattering Theory (QRS) combined with accurate photoionization transition dipoles for aligned molecules, we show that most of the existing experimental results for high-order harmonic generation (HHG) from CO_2, N_2, and O_2 can be nicely reproduced. In our calculations, the returning electron wavepackets are obtained from the strong-field approximation or from solution of the time-dependent Schrodinger equation for a reference atom, whereas the transition dipoles are obtained from state-of-the-art molecular photoionization calculations. Our results show that quantitative description of the HHG from aligned molecules has become possible.

Thu Le
Kansas State University

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