

Abstract Submitted  
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**Angle-dependence of strong-field ionization of singly- and doubly-charged carbonyl sulfide** PETER SANDOR, ROBERT R. JONES, Department of Physics, University of Virginia, ADONAY SISSAY, Department of Chemistry, Louisiana State University, PAUL ABANADOR, FRANÇOIS MAUGER, METTE GAARDE, KENNETH J. SCHAFER, Department of Physics and Astronomy, Louisiana State University, KENNETH LOPATA, Center for Computation and Technology / Department of Chemistry, Louisiana State University — We have studied the ionization probability of OCS molecules exposed to intense 780 nm laser pulses as a function of the angle between the molecular axis and the linear laser polarization. The molecules are exposed to two laser pulses. The first induces no ionization but, instead, creates a rotational wave packet within each molecule that exhibits preferential alignment in the laboratory frame at specific time delays. We measure the variation in the single and double ionization yield as a function of the delay between the two pulses. We obtain the angular dependent ionization probability by fitting the observed delay-dependent yield to moments of the angular distribution of the rotational wavepacket which can be accurately calculated. The experimentally determined angular distributions are compared to results of new time-dependent density functional theory predictions as well as previous measurements and calculations performed at somewhat lower laser intensities [1]. Accurate molecular ionization rate anisotropies are an important pre-requisite to utilizing strong-field techniques, such as high-harmonic spectroscopy, to probe of intramolecular electron dynamics. [1] J.L. Hansen et al., J. Phys. B 45, 015101 (2012); R. Johansen et al., J. Phys. B 49, 205601 (2016)

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