O($^1D_2$) ORBITAL ORIENTATION IN THE ULTRAVIOLET PHOTODISSOCIATION OF OZONE

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We present the absolute velocity-dependent orbital orientation for O($^1D_2$) atoms produced from the photodissociation of ozone in the 248-285 nm region obtained using the DC slice imaging method. The results are analyzed in terms of laboratory frame anisotropy parameters describing distinct excitation and dissociation mechanisms possessing characteristic angular distributions. The results show negligible orbital orientation produced in dissociation by circularly polarized light, but strong recoil speed-dependent orientation following photolysis by linearly polarized light at all wavelengths studied. The origin of this polarization is ascribed to nonadiabatic transitions at avoided crossings and at long range.