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High-order harmonic generation driven by two-color 800-400 and 800-266 nm laser fields[1] T. SEVERT, J. TROß, G. KOLLIOPOULOS, P. TIMILSINA, C. TRALLERO-HERRERO*, I. BEN-ITZHAK, J.R. Macdonald Laboratory, Physics Department, Kansas State University, Manhattan, KS 66506, USA
— We study the generation of high-order harmonics in argon driven by two-color laser fields. In particular, we compare the flux of each harmonic-order driven by single-color 800 nm, 400 nm, and 266 nm fields as well as two-color 800-400 nm, and 800-266 nm fields. For commonly generated photon energies, the two-color laser fields outperform the single color 800 nm driver in the 14-35 eV spectral region, enhancing the flux by 2-25 times, depending on the harmonic order. On the other hand, the single color 400 nm and 266 nm laser-fields produced comparable fluxes to their two-color counterparts. Additionally, we determined that the divergence of the 800-266 nm field is 2-3 times less than all the other driving fields, leading to a higher photon flux along the propagation axis. We also briefly highlight the phase dependence of the high-order harmonics generated by the two-color fields and explore phase shifts between the harmonics and total ionization rate.

* Current address Physics Department, University of Connecticut, Storrs, CT 06269, USA.

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Travis Severt
Kansas State University

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