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The Role of Polarization in Relativistic High Harmonic Generation NICHOLAS BEIER, YARIN HEFFES, HUNTER ALLISON, MATTHEW STANFIELD, YASMEEN MUSTHAFI, SAHEL HAKIMI, AMINA HUSSEIN, FRANKLIN DOLLAR, University of California, Irvine — Relativistic laser-solid interactions are capable of driving numerous sources, including attosecond x-rays from relativistic high harmonic generation. The interaction is highly sensitive to numerous parameters of the laser-matter interactions, such as plasma density profile, laser contrast, wavelength, and angle of incidence. We perform a robust investigation on the role of polarization and selection rules for overdense, highly-relativistic, laser-matter interactions. We show that the spectrum produced has underlying features which are dependent on various aspects of the fundamental polarization state. This work is supported by NSF under Grant No. PHY-1753165, DMR-1548924, DGE-1633631, and CHE-0840513.

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