Abstract Submitted
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Investigating Self-Induced Relativistic Transparency in Plasmas with Ultrafast High Intensity Laser Pulses[1] BRENDAN STASSEL, BRANDON RUSSELL, PAUL T. CAMPBELL, HONGMEI TANG, ANATOLY MAKSIMCHUK, LOUISE WILLINGALE, Univ of Michigan - Ann Arbor — We model high intensity laser plasma interactions on thin film and solid targets to study the self-induced relativistic transparency regime. The 2D OSIRIS 4.0 particle-in-cell simulations were designed to model the HERCULES laser pulse. The wavelength λ was 800 nm, pulse duration was 30 fs, and the normalized vector potential a_0 was varied between 0.5 and 30. Also, the target thickness was varied between 50 nm and 200 nm. In preparation for experiments with HERCULES, an analysis of the data is presented along with a study of the transmitted and reflected laser characteristics, and electron spectra.

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