

Abstract Submitted
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Particle-In-Cell Simulations of Stimulated Raman and Compton Scattering for $k\lambda_d$ from 0.2 to 2¹ ROMAN LEE, BENJAMIN WINJUM, FRANK TSUNG, WARREN MORI, UCLA — We use the particle-in-cell code OSIRIS to study how backward stimulated Raman scattering (SRS) and stimulated Compton scattering, and forward SRS compete and how they are affected by external magnetic fields. The parameter space covered includes regimes of near threshold, weakly coupled, and strongly coupled growth. We have previously shown how small magnetic fields can significantly modify the evolution of backward stimulated Raman scattering (SRS) in the kinetic regime due to the enhanced dissipation of nonlinear electron plasma waves propagating perpendicular to magnetic fields [1]. The transition from Raman scattering to Compton scattering has been explored in [2], and the competition between forward and backward Raman scattering has been explored in [3]. Driven by the collaboration between UCLA, UCSD and LLNL on the Titan LPI project, we continue this work, examining a range of experimentally possible parameters that could cover a wide range of $k\lambda_d$ growth regimes.

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