

Abstract Submitted
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Particle-in-Cell Simulations of the $2\omega_p$ /HFHI Instability¹ FRANK TSUNG, UCLA, B.B. AFEYAN, Polymath Research Inc., W.B. MORI, UCLA — A particle-in-cell code OSIRIS is used to investigate the two plasmon instability in nonuniform plasmas using various density profiles relevant to inertial confinement fusion (ICF). Our simulations show that for systems not too far above threshold, the agreements between theory and simulations are excellent. Furthermore, for ICF relevant systems, the high-frequency hybrid instability (HFHI), where one of the daughter waves can have mixed polarization, is important. Building on these experiences, we have begun to investigate nonlinear effects on a longer timescale, such as the saturation mechanism, the spectrum of the fast electrons at saturation, the relaxation and recurrence of the instability, and ion effects.

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