Abstract Submitted
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Particle-in-cell Simulations of Stimulated Raman Scattering[1] B.J. WINJUM, J. FAHLEN, F.S. TSUNG, W.B. MORI, UCLA, D.E. HINKEL, A.B. LANGDON, LLNL — Using the full-PIC code OSIRIS, we have studied stimulated Raman scattering (SRS) over a wide range of parameters relevant to NIF. The role of beat-wave damping as a saturation mechanism is explored, as well as its relationship to other nonlinear effects which have previously been used to explain SRS behavior in NIF-relevant plasmas. Vu et al., have proposed that a nonlinear frequency shift due to the trapped particles detunes the instability, Brunner and Valeo argue that the trapped-particle instability is one of the dominant saturation mechanisms, while L. Yin et al., claim that electron beam acoustic modes are important. We will discuss the role played by each of these effects in OSIRIS simulations, as well as the importance of plasma wave convection on the recurrence of SRS reflectivity. We will also discuss how SRS behavior changes as the electron density and temperature are varied.

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