

Abstract Submitted
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Scaling and mitigating stimulated scattering and two plasmon decay in ignition-scale hohlraums¹ WILLIAM KRUER, UC Davis — Experiments [1] have now well established that stimulated Raman and Brillouin scattering can occur at significant levels in ignition-scale hohlraums. Calculations [2] further show that the two plasmon decay instability (and related high frequency instabilities near the quarter-critical density) can be a significant source of hot electron preheat. Overlapped beam effects such as cross beam energy transfer [3] play an important role in enhancing these instability levels. Some models for the scaling with laser energy are presented for the stimulated scattering and the laser energy at risk to the two plasmon decay instability. Ways to improve the calculation of cross beam energy transfer so as to avoid the use of ad hoc nonlinear limiters are discussed, as well as some ways to reduce the stimulated scattering.

[1] R. Town *et.al.*, Phys. Plasmas **18**, 056302 (2011) and references therein.

[2] W.L. Kruer *et. al.*, Journal of Physics Conference Series 244, 022020 (2010); E. Williams (private communication, 2011)

[3] P. Michel *et. al.*, Phys. Plasmas **17**, 056305 (2010) and references therein

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