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Relative Significance of the Stimulated Raman Scattering and Two-Plasmon–Decay Instabilities at Quarter-Critical Density R.W. SHORT, H. WEN, A.V. MAXIMOV, J.F. MYATT, W. SEKA, Laboratory for Laser Energetics, U. of Rochester — In direct-drive experiments on OMEGA, correlated signals of half-harmonic light and hot-electron production have usually been ascribed to two-plasmon decay (TPD). However, as scale lengths and temperatures increase, absolute stimulated Raman scattering (SRS) is expected to play a larger role in generating hot electrons and half-harmonic light. This may already be occurring in more-recent OMEGA experiments.[1] Both instabilities occur at quarter-critical density, and for obliquely incident light, they can merge into a "hybrid" instability with a threshold differing from SRS and TPD thresholds considered separately.[2] This talk analyzes how the thresholds of the quarter-critical instabilities vary with the incidence angle and polarization of the incident light, as well as the plasma parameters, and the expected significance for direct-drive experiments. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0001944.

[1]W. Seka *et al.*, Phys. Rev. Lett. **112**, 145001 (2014).
[2]B. B. Afeyan and E. A. Williams, Phys. Plasmas **4**, 3845 (1997).

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