

Abstract Submitted
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Different Aspects of the Two-Plasmon-Decay Instability in Direct-Drive ICF W. SEKA, D.H. EDGELL, J.F. MYATT, A.V. MAXIMOV, R.W. SHORT, Laboratory for Laser Energetics, U. of Rochester, D. RUSSELL, Lodestar, D. DUBOIS, LANL — The two-plasmon-decay (TPD) instability is observed in almost all OMEGA implosion experiments through its signature $\omega/2$ and $3\omega/2$ emission and frequently through hard xray emission above 40 keV. This instability presents many facets, one of which has long been known: the potential target preheat problem associated with the energetic-electron production. Recent evidence suggests that the fast-electron distribution is anisotropic and directed into the target. Progress in understanding the energetics of the instability, i.e., the relative partition of Langmuir wave energy into thermal and suprathermal particles, and the influence of profile steepening near $n_c/4$ on laser-energy deposition in spherical implosion experiments will be presented. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-08NA28302.

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