

Abstract Submitted
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Nonlinearity of the Two-Plasmon Decay Instability as Reflected in the Half-Harmonic Emission from Imploding Direct-Drive Targets W. SEKA, J.F. MYATT, J. ZHANG, R.W. SHORT, D.H. FROULA, D.T. MICHEL, A.V. MAXIMOV, Laboratory for Laser Energetics, U. of Rochester, D.F. DUBOIS, D.A. RUSSELL, Lodestar Research, H.X. VU, U. of California, San Diego — The half-harmonic spectra from imploding direct-drive targets show clear evidence of the absolute two-plasmon-decay (TPD) instability near $n_c/4$. This is followed by a rapid nonlinear evolution to lower densities covering the convective TPD regime all the way to the Landau cutoff. This evolution is not temporally resolved by our diagnostics but the spectral signatures are clear evidence for the nonlinearity. Simulations using a 3-D Zakharov code support these conclusions. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0001944.

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