

Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

Saturation of Two-Plasmon Decay and Ion-Density Fluctuations R. YAN, A.V. MAXIMOV, C. REN, Laboratory for Laser Energetics, U. of Rochester, F.S. TSUNG, UCLA — Previous particle-in-cell (PIC) simulations showed that saturation of the two-plasmon-decay (TPD) instability correlates with background ion-density fluctuations (IDF).^{1,2} However, the mechanism that connects IDF to TPD growth is still unknown. We propose a model whereby IDF can modify TPD by coupling two otherwise independent pairs of plasmons. In homogeneous plasmas, this “4-plasmon” model shows that a large enough IDF can turn off a range of modes. We will present results from PIC and fluid simulations to illustrate how IDF can stop TPD growth in inhomogeneous plasmas. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-08NA28302.

¹A. B. Langdon, B. F. Lasinski, and W. L. Kruer, Phys. Rev. Lett. **43**, 133 (1979).

²Yan *et al.*, Phys. Rev. Lett. **103**, 175002 (2009).

R. Yan
Laboratory for Laser Energetics, U. of Rochester

Date submitted: 12 Jul 2010

Electronic form version 1.4