

Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

Angular Dependence of Two-Plasmon Decay in Multibeam Direct-Drive Irradiation Geometries R.W. SHORT, Laboratory for Laser Energetics, U. of Rochester — Experimental observations of half-harmonic and hard x-ray emission on OMEGA have shown that two-plasmon-decay (TPD) signals depend on the collective rather than the single-beam intensity.¹ When a plasmon wave vector forms equal angles with several pump beams it can be driven through the TPD process by all of those beams. Such plasmons will reach nonlinear amplitudes first and therefore are likely to be responsible for the preponderance of hot electrons. Here we study this process as a function of the angle between this common plasmon wave vector and the density gradient. This angle will determine the anisotropy of the hot electrons generated by this plasmon and, therefore, influence their effectiveness in coupling to the compressed target core to cause preheat.^{2,3} This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-08NA28302.

¹C. Stoeckl *et al.*, Phys. Rev. Lett. **90**, 235002 (2003).

²J. A. Delettrez *et al.*, Bull. Am. Phys. Soc. **53**, 248 (2008).

³J. Myatt *et al.*, Bull. Am. Phys. Soc. **54** (15), 145 (2009).

R.W. Short
Laboratory for Laser Energetics, U. of Rochester

Date submitted: 13 Jul 2010

Electronic form version 1.4