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Two-Plasmon-Decay Instability Driven by Incoherent

Laser Irradiation A.V. MAXIMOV, J. MYATT, R.W. SHORT, W. SEKA, C. STOECKL, Laboratory for Laser Energetics, U. of Rochester — Two-plasmon-decay (TPD) instability is an important source of hot electrons observed in direct-drive inertial confinement fusion experiments on the OMEGA Laser System.¹ A model for the TPD instability driven by incoherent laser beams in inhomogeneous plasmas has been developed that modifies the results of the three-wave TPD model² for the instability thresholds. The influence of low-frequency plasma perturbations caused by the beating of electromagnetic and plasma waves on TPD through the modification of the density profile is considered. The developed TPD model is applied for conditions typical of the experiments on OMEGA. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement DE-FC52-92SF19460.

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

²A. Simon *et al.*, Phys. Fluids **26**, 3107 (1983).

Prefer Oral Session
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