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A Laser–Plasma Interaction Model for Cross-Beam Energy Transfer A.V. MAXIMOV, J.F. MYATT, R.W. SHORT, I.V. IGUMENSHCHEV, W. SEKA, Laboratory for Laser Energetics, U. of Rochester — Interaction between multiple crossing laser beams is a common feature in direct-drive inertial confinement fusion (ICF) plasmas. Hydrodynamic simulations of direct-drive ICF target evolution¹ have shown that cross-beam energy transfer (CBET) has a strong effect on the coupling of laser energy to the target. A laser–plasma interaction (LPI) approach for CBET has been developed based on the model² of nonparaxial propagation of multiple laser beams coupled to the plasma response. The effects of laser incoherence have been considered, leading to an interaction that occurs mostly in high-intensity laser speckles. Crossing laser beams can drive common ion-acoustic waves and scatter off them, increasing the level of light scattering. Implementation of the LPI CBET model in hydrodynamic modeling is discussed. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0001944.

¹I. V. Igumenshchev *et al.*, Phys. Plasmas **19**, 056314 (2012).

²A. V. Maximov *et al.*, Phys. Plasmas **11**, 2994 (2004).

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