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Two-Dimensional Analysis of Crossed-Beam Energy Transfer (CBET) in Direct-Drive ICF Implosions J.A. MAROZAS, T.J.B. COLLINS, D.H. EDGELL, I.V. IGUMENSHCHEV, J.F. MYATT, Laboratory for Laser Energetics, U. of Rochester — Crossed-beam energy transfer (CBET) causes pump and probe beams to exchange energy via stimulated Brillouin scattering.[1] Experimental backscattered streaked spectra suggest that CBET can result in a significant energy loss. One-dimensional *LILAC* simulations,[2] modeling CBET, show that it occurs primarily in the central portion of the far-field spot, resulting in decreased absorption near the critical surface via energy transfer into the tails of outgoing crossing beams. CBET is incorporated into the 2-D hydrodynamics code *DRACO*[3] as an integral part of the full 3-D ray trace. CBET is treated self-consistently as a feedback on the hydrodynamic evolution. *DRACO* simulation results employing CBET will be discussed and compared to experimental results. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-08NA28302.

[1]W. L. Kruer, *The Physics of Laser Plasma Interactions*, Frontiers in Physics (Westview Press, Boulder, CO, 2003), p. 45.
[2]I. V. Igumenshchev *et al.*, Phys. Plasmas **17**, 122708 (2010).
[3]P. B. Radha *et al.*, Phys. Plasmas **12**, 056307 (2005).

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