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Wavelength Detuning Cross-Beam Energy Transfer Mitigation for Polar Direct Drive and Symmetric Direct Drive J.A. MAROZAS, T.J.B. COLLINS, P.W. MCKENTY, P.B. RADHA, M. HOHENBERGER, M.J. ROSENBERG, Laboratory for Laser Energetics, U. of Rochester — Cross-beam energy transfer (CBET) results from two-beam energy exchange via stimulated Brillouin scattering,[1] which reduces absorbed light and implosion velocity, alters time-resolved scattered-light spectra, and redistributes absorbed and scattered light. These effects reduce target performance in polar direct drive (PDD) and symmetric direct drive (SDD) at the National Ignition Facility (NIF) and on the OMEGA Laser System. The CBET package (*Adaawam*) incorporated into the 2-D hydrodynamics code *DRACO* is an integral part of the 3-D ray-trace package (*Mazinisin*). Detuning the initial laser wavelength ($\mathrm{d}\lambda_0$) reduces the CBET interaction volume, which can be combined with other mitigation domains (e.g., spatial and temporal). Recent PDD experiments on the NIF explored this option using a cone-swapping technique with $\mathrm{d}\lambda_0 = \pm 2.34$ Å UV, which are compared with *DRACO* simulations. *DRACO* simulations of wavelength detuning in SDD on OMEGA predict the expected mitigation using OMEGA's three main amplifier chains in both near-term $\mathrm{d}\lambda_0 = \{-3, 0, +3\}$-Å and long-term $\mathrm{d}\lambda_0 = \{-6, 0, +6\}$-Å UV configurations. The detuning simulations predict improved performance and changes in 2-D and 3-D morphology in both PDD and SDD. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0001944.

[1]C. J. Randall *et al.*, Phys. Fluids **24**, 1474 (1981).

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