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Smoothing by Spectral Dispersion (SSD) for Multiple-Picket Pulses on OMEGA and the NIF J.A. MAROZAS, J.D. ZUEGEL, T.J.B. COLLINS, Laboratory for Laser Energetics, U. of Rochester — Recent target designs (for both OMEGA and the NIF) use multiple-picket pulses that are better suited to experimental shock tuning. The short time duration of the pickets poses numerous challenges in designing an optimal beam-smoothing system: (1) laser imprint can occur in multiple short time periods; (2) SSD continuously repositions the energy centroid of the focal spot (effectively mispointing all spots on target in synchronization), which can be considerable when there is not adequate bandwidth dispersion across the beam; and (3) a temporal shear imposed on the beam by NIF's SSD system could substantially distort the picket shape. These aspects of SSD for multiple-picket pulses are examined using 2-D *DRACO* hydrodynamic simulations with imprint for both OMEGA and NIF target designs. A 1-D Multi-FM SSD design that resolves these issues is proposed and will be tested on OMEGA EP before deployment on the NIF. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-08NA28302.

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