A Three-Dimensional Zakharov Model of the Two-Plasmon-Decay Instability in Inhomogeneous Plasmas Driven by Multiple Laser Beams J. ZHANG, J.F. MYATT, A.V. MAXIMOV, R.W. SHORT, Laboratory for Laser Energetics, U. of Rochester, D.F. DUBOIS, LANL and Lodestar Research Corp., D.A. RUSSELL, Lodestar Research Corp., H.X. VU, U. of California, San Diego — A three-dimensional extended Zakharov model of the two-plasmon-decay instability[1] is described and its validity verified in the regime of linear instability by comparison with multibeam growth-rate calculations. The nonlinear saturated state described by the model is shown to be sensitive to the geometry and polarization of the driving laser beams. Several cases relevant to spherical and polar-drive targets on OMEGA are shown and the implications for future experiments on the National Ignition Facility are discussed. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-08NA28302.

[1] D. F. DuBois, D. A. Russell, and H. A. Rose, Phys. Rev. Lett. **74**, 3983 (1995); D. A. Russell and D. F. DuBois, Phys. Rev. Lett. **86**, 428 (2001).

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