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Broadband Mitigation of Laser–Plasma Instabilities for Inertial Confinement Fusion RUSSELL FOLLETT, JOHN SHAW, DUSTIN FROULA, CRISTOPHE DORRER, ANDREI MAXIMOV, ANDREY SOLODOV, JOHN PALASTRO, University of Rochester, JASON MYATT, University of Alberta, JASON BATES, JIM WEAVER, Naval Research Laboratory — Laser–plasma instabilities such as cross-beam energy transfer, stimulated Raman scattering, and two-plasmon decay present a major challenge for laser-driven inertial confinement fusion (ICF). A promising path toward mitigation of these instabilities is through the use of broadband drive lasers. The laser–plasma simulation environment (*LPSE*) code is used to investigate the mitigation of these instabilities for conditions relevant to both direct- and indirect-drive ICF. The simulations indicate that lasers with ˜1% bandwidth can be used to suppress both the absolute and convective forms of the instabilities. A broadband laser based on optical parametric amplification, with sufficient energy and bandwidth to validate these predictions, is currently being developed at LLE. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0003856.

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