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Nonlinear Model for Start-Up Phase Pressure Perturbation Spectra from Time-Dependent Optically Smoothed ISI Laser Imprint¹ MICHAEL KESKINEN, A. SCHMITT, A.L. VELIKOVICH, Plasma Physics Division, Naval Research Laboratory — The spectrum of early time pressure perturbations, due to optically smoothed induced spatial incoherence (ISI) laser imprint, is computed for a planar target using a forced, dissipative model. The ISI laser deposition is computed using a time-dependent electromagnetic full wave Maxwell code. We find that the pressure spectrum evolves into a power law in which spectral power is transferred from large to smaller scales through a nonlinear cascade process. A nonlinear analytical model is also developed and compared with simulations using the forced, dissipative model. We also compare the model predictions with experimental observations.

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