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Kinetic and Fluid Models of the Filamentation Instability of Relativistic Electron Beams for Fast-Ignition Conditions R.W. SHORT, J. MYATT, Laboratory for Laser Energetics, U. of Rochester — Filamentation of relativistic electron beams is a problem of much current interest due to its relevance to the fast-ignition approach to laser-driven fusion, in which such beams must propagate through several hundred microns of dense plasma. Several recent papers have given calculations of temporal growth rates for filamentation based on various fluid and kinetic models.[1,2,3] However, in the fast-ignition scenario it is expected that the instability will amplify as the beam propagates into the plasma, and thus it is of interest to analyze the spatial-growth properties of filamentation. This talk will present results for spatial growth and the related phenomenon of absolute instability of filamentation, and compare fluid and kinetic models of the instability This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement DE-FC52-92SF19460.

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