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Sensitivity of Rayleigh-Taylor Instability growth rate due to thermal conductivity RYAN LEARN, TOMASZ PLEWA, Florida State University, ANDREY ZHIGLO, NSC Kharkhov Institute of Physics and Technology — In many high energy density and astrophysical systems, the heat conduction plays an important role in the system evolution by redistributing the heat and modifying flow morphology. Thermal conduction is known to induce fluid flows in systems where materials of different densities are in pressure equilibrium. In situations when gravity is present, material discontinuities might be subject to the Rayleigh-Taylor instability. In that case, and in presence of thermal conduction, one may expect the interplay between the thermal conduction and the Rayleigh-Taylor Instability. We explore this possibility and study Rayleigh-Taylor driven mixing in thermally conducting plasmas by means of multidimensional hydrodynamic simulations. The parameters used in our numerical experiments are based on proposed and completed experiments on the OMEGA and National Ignition Facility lasers.

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