

Abstract Submitted
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Hydrodynamic instability experiments in ICF, materials science, and astrophysics BRUCE A. REMINGTON, Lawrence Livermore National Laboratory — We have been developing high energy density (HED) experiments on high power inertial confinement fusion (ICF) lasers over the past two decades that span (1) the radiative hydrodynamics of ICF capsule physics; (2) the high pressure, high strain rate, solid-state dynamics relevant to novel concepts for ICF and hypervelocity impacts in space and on Earth; and (3) the shock driven turbulence of exploding stars (supernovae). These different regimes are separated by many orders of magnitude in length, time, and temperature, yet there are common threads that run through all of these phenomena, such as the occurrence of hydrodynamic instabilities. Examples from each of these three seemingly very disparate regimes are given, and the common theme of hydrodynamic instability evolution is explored.

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