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Investigation of hydrodynamic instabilities in the presence of a background magnetic field at the LULI laser facility MARIO MANUEL, General Atomics, GABRIEL RIGON, BRUNO ALBERTAZZI, THIBAULT MICHEL, PAUL MABEY, MICHEL KOENIG, Laboratoire pour l'utilisation des lasers intenses, ALEXIS CASNER, Centre Lasers Intenses et Applications, SALLEE KLEIN, CAROLYN KURANZ, University of Michigan, BENJAMIN KHIAR, University of Chicago — Magnetic fields can play an important role in the evolution of hydrodynamic instabilities in many different physical systems, ranging from small inertial confinement fusion (ICF) experiments to astronomically large supernova remnants (SNRs), like the Crab Nebula. Of particular interest are the Richtmyer-Meshkov (RM), Rayleigh-Taylor (RT), and Kelvin-Helmholtz (KH) instabilities, as all three are relevant to magnetized ICF concepts and astrophysical systems, such as the interaction of shock waves with interstellar clouds and in the shells of SNRs. This talk will cover recent experiments performed at the Laboratoire pour L'Utilisation des Lasers Intenses (LULI) aimed at developing a platform to study B-field effects on blast-wave-driven hydrodynamic instabilities that will provide insight to the magnetic effects in high-energy-density (HED) plasma systems. Preliminary experimental results will be shown and discussed. This material is based upon work supported by the U.S. Department of Energy, Office of Science, Office of Fusion Energy Sciences High-Energy-Density Laboratory Plasma Science Program under Award Number DE-SC0018993.

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