

Experiments to investigate the effect of radiative losses on jet propagation and evolution

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Laboratory experiments have been performed at the LULI (France) and GEKKO XII (Japan) installations in order to investigate the effects of radiative cooling in the propagation of laser-driven plasma jets. These jets are created through laser irradiation of thin (~ 5 μm) conical shells of either gold, copper or aluminium. Through choosing targets of differing atomic number, the significance of radiative losses for the jet evolution is examined. The flows of interest are generated from the rear-face of the target, isolating the jet propagation region from the laser and allowing the introduction of an ambient medium. The experiment is diagnosed with a series of time-resolved optical diagnostics, allowing the evolution of the jet to be followed for extended periods in a single laser shot.