

Abstract Submitted
for the DPP09 Meeting of
The American Physical Society

Laser-Plasma Interaction Experiments in Gas-Filled Hohlräume at the LIL Facility¹ PAUL-EDOUARD MASSON-LABORDE, CEA, DAM, DIF, F-91297 Arpajon, France, PASCAL LOISEAU, CEA, DAM, DIF, MICHEL CASANOVA, CHRISTOPHE ROUSSEAU, DENIS TEYCHENNE, STEPHANE LAFFITE, GAEL HUSER, CEA, DAM, DIF, F-91297 Arpajon, France — The first laser-plasma interaction campaign conducted at the LIL facility, using gas-filled hohlraums, ended in spring 09. Two different gas-filled hohlraums have been designed in order to mimic plasma conditions expected along two particular beam paths in ignition hohlraums. The targets consist of 3- or 4-millimeters long, 1 atm neo-pentane gas-filled gold hohlraums. The LIL quadruplet is aligned with the hohlraum's axis and delivers a 6-ns long pulse with 15 kJ at 3ω . Optical smoothing is achieved by longitudinal dispersion and a phase plate giving a near 10^{15} W/cm² mean intensity on the focal spot at maximum power. Plasma conditions from hydrodynamic calculations allow to calculate SBS and SRS linear gain with the PIRANAH code. The calculated spectra are compared to experimental results. We use the paraxial code HERA to investigate the propagation of the LIL quad. Finally, 1D and 2D PIC simulations based on the plasma conditions of the cavity will be discussed in order to understand experimental SRS spectrum.

¹paul-edouard.masson-laborde@cea.fr

Paul-Edouard Masson-Laborde
CEA, DAM, DIF, F-91297 Arpajon, France

Date submitted: 08 Sep 2009

Electronic form version 1.4