Abstract Submitted
for the DPP12 Meeting of
The American Physical Society

Laser-Plasma Interaction Experiments in MM-Long Gas-Filled Hohlraums on the LIL Facility PAUL-EDOUARD MASSON-LABORDE, PASCAL LOISEAU, CHRISTOPHE ROUSSEAUX, MICHEL CASANOVA, DENIS TEYCHENNE, GAEL HUSER, MARIE-CHRISTINE MONTEIL, CEA, DAM, DIF
— In 2011, a laser-plasma interaction campaign has been conducted using gas-filled hohlraums on the LIL facility, which is a prototype of one quadruplet of the upcoming french laser megajoule. In order to mimic plasma conditions relevant for ignition in the indirect drive scheme, different targets have been designed: one relevant to the gold bubble expansion seen by the outer beams in ignition hohlraum, which could be sensitive to the stimulated Brillouin scattering (SBS), and one relevant to the inner beams with long distance of propagation and sensitive to the stimulated Raman scattering (SRS). In this talk, we will discuss this last configuration. While different optical smoothing techniques have been used during the campaign, two different lengths for the target have also been used: 4mm and 1.5mm long both with 6ns pulse long and a maximum energy of 15kJ. Large levels of SRS have been obtained in this campaign with a backscattered energy fraction of 20% of the incident laser energy. Calculated spectra will be compared to experimental results and discussed with paraxial simulations carried out with the code Hera. Finally, PIC simulations based on the plasma conditions of the cavity will be discussed in order to understand experimental SRS spectrum.

Paul-Edouard Masson-Laborde
CEA, DAM, DIF

Date submitted: 11 Jul 2012 Electronic form version 1.4