Abstract Submitted
for the DPP08 Meeting of
The American Physical Society

Experimental tests of Rayleigh-Taylor stabilization mechanisms with long pulse gas-filled halfraums on OMEGA A. CASNER, G. HUSER, M. VANDENBOOMGAERDE, S. LIBERATORE, L. MASSE, D. GALMICHE, CEA Centre DAM - Ile de France Bruyeres le Chatel F-91297 Arpajon cedex, France — Mitigation of Rayleigh-Taylor instabilities growth is a key issue on the road toward ignition. The graded doped ablator is a common concept for NIF [1] and LMJ [2] point designs. A complementary stabilization mechanism based on anisotropic thermal diffusion was theoretically underlined [3] for the ablative Rayleigh-Taylor instability. We will present the first ever experimental tests of these mechanisms. Indirect drive experiments were performed on the OMEGA laser facility with a long-pulse platform. We used in fact gas-filled halfraums and stack 15 drive beams along 2 cones to create a 7 ns long radiation drive. Halfraum energetics with E-IDI-300 phase plates was validated by dedicated shots along P5/P8 and is fairly reproduced by the simulations. These drive measurements allowed also to determine the graded doped planar emulator whose layers thicknesses and composition should be carefully optimized . Side-on and face-on data acquired with germanium-doped plastic samples (modulations wavelength 35 and 50 microns) will be presented and compared with FCI2 hydrocodes simulations. [1] S.W. Haan *et al.*, Phys. Plasmas **12**, 056316 (2005). [2] C C-Clérouin *et al* 2008 *J. Phys.: Conf. Ser.* **112** 022023 [3] L. Masse., Phys. Rev. Lett. 98, 245001 (2007).

Alexis Casner
CEA Centre DAM - Ile de France Bruyeres le Chatel
F-91297 Arpajon cedex, France

Date submitted: 14 Aug 2008 Electronic form version 1.4