

Abstract Submitted  
for the DPP06 Meeting of  
The American Physical Society

**The LIL facility: A testbed for LMJ and an experimental tool for laser-matter interaction** FRANCOIS JEQUIER, JEAN-MICHEL DI-NICOLA, GASTON THIELL, XAVIER JULIEN, HERVE GRAILLOT, CHRISTOPHE FERAI, OLIVIER LUTZ, JEAN-PAUL GOOSSENS, ERIC JOURNOT, CEA/CESTA TEAM — The Laser MegaJoule (LMJ) under construction at CEA-CESTA in France is designed to produce 240 beams, 1.8 MJ - 500 TW of ultraviolet light for high energy density physics experiments and thermonuclear burn of DT targets. The first step of LMJ program consisted in the construction of a full scale prototype the “Ligne d’Intégration Laser” (LIL) which was developed to demonstrate LMJ performances and qualify its components as well as maintenance procedures. Commissioned in 2002, LIL facility mainly includes a laser bay which houses a bundle of 8 laser beams similar to the LMJ ones and a target bay where are located the  $1\omega-3\omega$  conversion system, the focusing gratings and the 4.5-meter diameter target chamber equipped with plasma diagnostics. From June 2002 to December 2005 about 300 high energy shots were performed on LIL most of them with a quad. Performances obtained at  $1\omega$  ( $1.053 \mu\text{m}$ ) and  $3\omega$  ( $0.35 \mu\text{m}$ ) showed that LIL meets the LMJ requirements in terms of energy, power and focal spot. The first plasma experiments started in december 2004. This paper describes the LIL facility, the results obtained during laser qualification phase and presents recent results obtained on focal spot characterisation. A brief status of the LMJ construction progress is also presented.

Francois Jequier

Date submitted: 20 Jul 2006

Electronic form version 1.4