

## OVERVIEW OF PETAL, THE MULTI-PETAWATT PROJECT IN THE LMJ FACILITY

N. Blanchot, G. Behar, T. Berthier, S. Bouillet, J.C. Chapuis, C. Chappuis, S. Chardavoine, J.F. Charrier, S. Chicot, H. Coïc, C. Damiens Dupont, J. Duthu, P. Garcia, J.P. Goossens, F. Granet, C. Grosset-Grange, P. Guerin, O. Hartmann, B. Hebrard, L. Hilsz, T. Lacombe, E. Lavastre, J. Luce, F. Macias, E. Mazataud, T. Morgaint, S. Noailles, J. Néauport, P. Patelli, E. Perrot-Minnot, C. Present, D. Raffestin, B. Remy, A. Roques, C. Rouyer, N. Santacreu, D. Valla and F. Laniesse  
CEA-CESTA, Commissariat à l'Énergie Atomique et aux Énergies alternatives, Centre d'Études Scientifiques et Techniques d'Aquitaine, 15 Avenue des Sablières CS 60001, 33116 LE BARP Cedex, France  
[nathalie.blanchot@cea.fr](mailto:nathalie.blanchot@cea.fr)

Petawatt Aquitaine Laser (PETAL) [1] will allow unique experiments in the field of ultrahigh intensity sciences, extreme plasma physics, astrophysics, radiography, and fast ignition by a combination of its own multipetawatt kilojoule beam and the nanosecond multikilojoule beams of the Laser Mégajoule (LMJ). The PETAL facility is designed and constructed by the french Commissariat à l'énergie Atomique et aux énergies alternatives (CEA) to deliver energy of 3 kJ in 500 fs at the wavelength of 1053 nm and is an additional short pulse beam to the Laser MegaJoule (LMJ) facility. PETAL energy will be limited to 1 kJ at the beginning due to the damage threshold of the final optics.

The advancement of the project and the main performances will be presented. The last experimental results will be shown: the first kJ shots in the amplifier section with large spectrum front end, the alignment of the synthetic aperture compression scheme and the first PW shots, the performances of the parabola measured before implementation in the vacuum box.



**Figure 1 : PETAL in the LMJ Building with compression stage (left) and vacuum transport and focusing box (right).**

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- (1) N. Blanchot et al., "Overview of PETAL, the multi-Petawatt project in the LMJ facility", presented at Eighth-International-Conference-on-Inertial-Fusion-Sciences-and-Applications-IFSA-2011, Bordeaux , 6-11 September 2011; E.P.J. web of conference, 29, 07001 (2013)