

Abstract Submitted
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Usefulness of a Rugby-shaped hohlraum in a Laser MégaJoule (LMJ) 40-quad configuration G. MALINIE, M. VANDENBOOMGAERDE, J. BASTIAN, D. GALMICHE, S. LAFFITE, S. LIBERATORE, CEA, BP 12, 91680 Bruyères le Châtel, France — The LMJ setup will consist of 60 quads in a 3-cone configuration, at angles 33.2° , 49° and 59.5° . First ignition attempts in indirect drive are planned to be made on the way to the completion of the full facility, with only 40 quads in a 2-cone configuration, at angles 33.2° and 49° . By analytic considerations, we show that in a 40-quad configuration, the angular location of the hohlraum outer irradiating ring, as seen from the capsule, must be closer to the laser entrance hole than with the full LMJ. The use of a Rugby-shaped hohlraum instead of a cylinder therefore allows to keep a correct symmetry while reducing the wall surface, which improves the global energetic efficiency of the target. Simplified 2D numerical simulations of Rugby hohlraums are presented, achieving a yield of about 30 MJ with our 1.215 mm-radius, CH-uniform-ablator capsule. These results suggests this kind of hohlraum might be an interesting candidate for 40-quad ignition experiments. Work on optimizing the present design and refining the numerical simulations is currently pursued.

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