

Abstract Submitted  
for the DPP09 Meeting of  
The American Physical Society

**Optimizing implosion yields using rugby-shaped hohlraums<sup>1</sup>** HYE-SOOK PARK, H. ROBEY, P. AMENDT, LLNL, F. PHILIPPE, A. CASNER, T. CAILLAUD, J.-L. BOURGADE, O. LANDOAS, CEA, C.K. LI, R. PETRASSO, F. SEGUIN, M. ROSENBERG, MIT, V. YU. GLEBOV, LLE — We present the first experimental results on optimizing capsule implosion experiments by using rugby-shaped hohlraums [1] on the Omega laser, University of Rochester. This campaign compared D<sub>2</sub>-filled capsule performance between standard cylindrical Au hohlraums and rugby-shaped hohlraums for demonstrating the energetics advantages of the rugby geometry. Not only did the rugby-shaped hohlraums show nearly 20% more x-ray drive energy over the cylindrical hohlraums, but also the high-performance design of the capsules provided nearly 20 times more DD neutrons than in any previous Omega hohlraum campaigns, thereby enabling use of neutron temporal diagnostics. Comparison with simulations on neutron burn histories, x-ray core imaging, backscattered laser light and radiation temperature are presented. [1] P. Amendt *et al.*, Phys. Plasmas 15, 012702 (2008)

<sup>1</sup>This work was performed under the auspices of the Lawrence Livermore National Security, LLC, (LLNS) under Contract No. DE-AC52-07NA27344.

Hye-Sook Park  
LLNL

Date submitted: 24 Jul 2009

Electronic form version 1.4