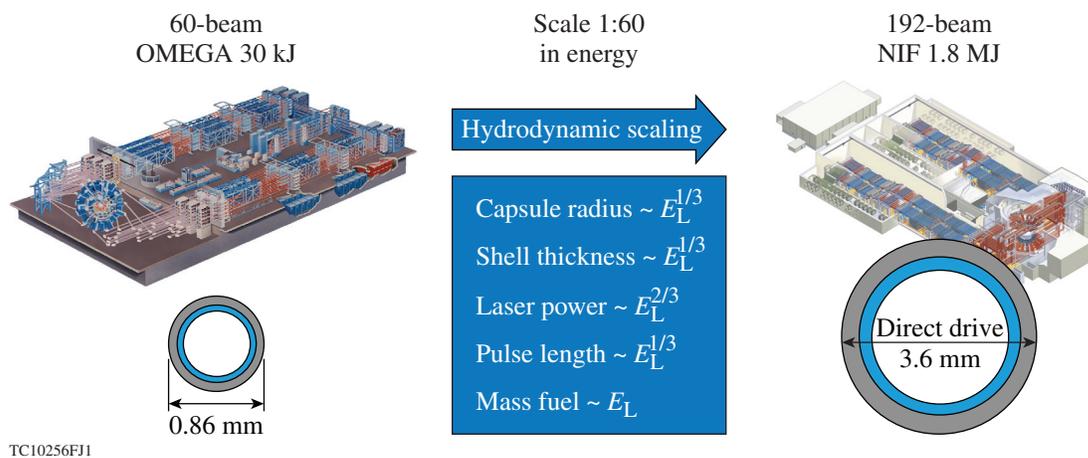


About the Cover:

The photograph on the cover features Ryan Nora, Department of Physics doctoral student, and his advisor Professor Riccardo Betti, LLE Scientist and Professor of Mechanical Engineering and Physics, sitting in the OMEGA viewing gallery with the target chamber visible behind the windows. Nora is the lead author of the featured article in this volume, which proposes a theory of hydrodynamic similarity that will guide LLE's design of direct-drive-implosion experiments on OMEGA. According to the theory presented, these experiments are hydrodynamically equivalent to implosions that would result in ignition if carried out on the National Ignition Facility (NIF).

The figure below illustrates the size difference between hydrodynamically equivalent implosion targets on OMEGA and the NIF. The size increase for the NIF target is based on the scaling relations shown in the figure. The particular extrapolation between the facilities shown in this figure applies to the case of a symmetric direct-drive-ignition implosion on the NIF. E_L is the total laser energy delivered to the target.



This report was prepared as an account of work conducted by the Laboratory for Laser Energetics and sponsored by New York State Energy Research and Development Authority, the University of Rochester, the U.S. Department of Energy, and other agencies. Neither the above-named sponsors nor any of their employees makes any warranty, expressed or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, mark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring

by the United States Government or any agency thereof or any other sponsor. Results reported in the LLE Review should not be taken as necessarily final results as they represent active research. The views and opinions of authors expressed herein do not necessarily state or reflect those of any of the above sponsoring entities.

The work described in this volume includes current research at the Laboratory for Laser Energetics, which is supported by New York State Energy Research and Development Authority, the University of Rochester, the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-NA0001944, and other agencies.

Printed in the United States of America

Available from

National Technical Information Services
U.S. Department of Commerce
5285 Port Royal Road
Springfield, VA 22161
www.ntis.gov

For questions or comments, contact Matthew Barczys, Editor, Laboratory for Laser Energetics, 250 East River Road, Rochester, NY 14623-1299, (585) 273-3732.

Worldwide-Web Home Page: <http://www.lle.rochester.edu/>
(Color online)