

National Ignition Campaign

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One of the grand challenges in science and engineering is the demonstration of inertial confinement fusion (ICF)—net energy gain through fusion ignition—in the laboratory. Lawrence Livermore National Laboratory, together with its partners in the National Ignition Campaign (NIC)—the University of Rochester Laboratory for Laser Energetics General Atomics, and Los Alamos and Sandia national laboratories—and collaborators such as the Massachusetts Institute of Technology, Lawrence Berkeley National Laboratory, NSTec, the U.K. Atomic Weapons Establishment, and the French Atomic Energy Commission, is tackling this challenge with ignition-related

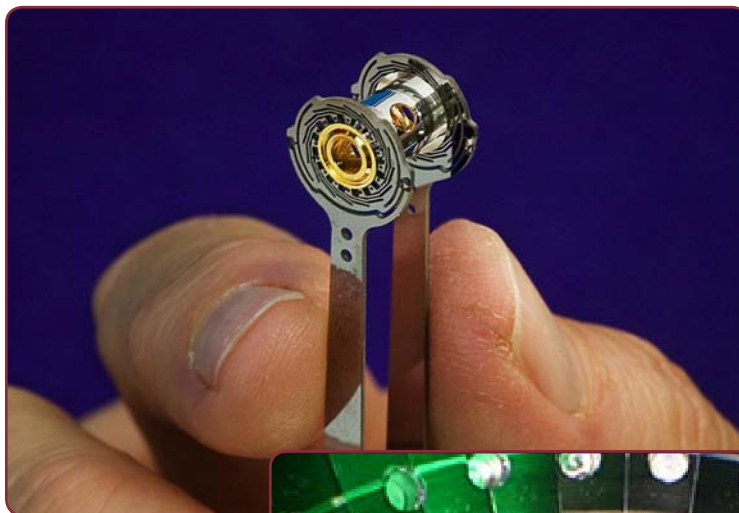
experiments on the National Ignition Facility. NIC is the “bridge” that will take NIF to routine operations as a highly flexible, high-energy-density (HED) science facility by 2013.

NIC’s ICF experiments will be designed to advance the National Nuclear Security Administration’s Stockpile Stewardship Program as well as basic HED science research in such fields as astrophysics, nuclear physics, radiation transport, materials dynamics, and hydrodynamics. Other experiments will enhance scientists’ understanding and development of ICF for safe, clean energy production.

NIC includes all of the experiments, hardware, and infrastructure needed to execute

the initial ignition experiments and to continue research on ignition in the following years. Key elements of NIC include target physics concept validation and equipment such as diagnostics and the cryogenic target system required for ignition experiments. ■

A NIC Hohlräum



Interior of the NIF Target Chamber



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Inside The Target Chamber

A technician inspects the Target Positioner, which holds the NIF target in the precise spot where all 192 laser beams converge.

