



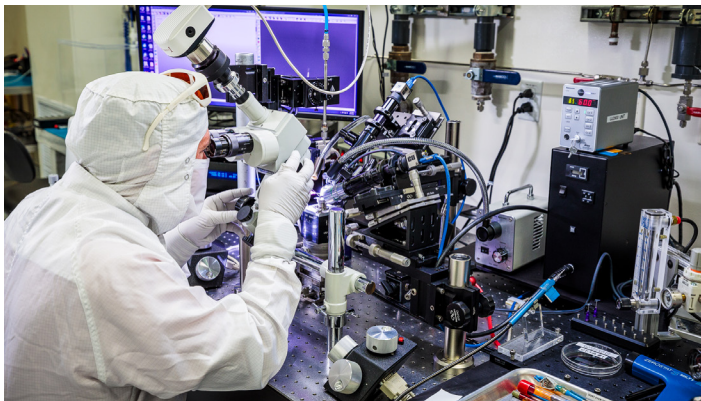
Image credit: LLNL

FACILITATING THE WORLD'S FIRST CONTROLLED FUSION IGNITION

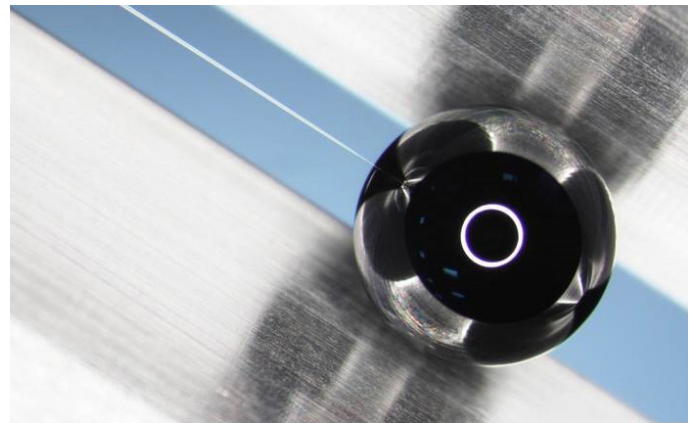
General Atomics (GA) is a longstanding partner of the National Nuclear Security Administration and the largest industrial participant in the U.S. Inertial Confinement Fusion (ICF) program. As a sole-source provider of cutting-edge diagnostics, processes, and equipment, GA has played a critical role in the science-based stockpile responsiveness mission for more than 25 years and provides more than 12,000 components yearly for experiments at the nation's ICF laboratories.

ACHIEVING IGNITION

- First controlled ignitions achieved in December 2022 and July 2023
- GA provided capsule processing services, capsule-fill tube-assembly and testing, and thermo-mechanical package assemblies and hohlraums
- GA scientists and engineers provided comprehensive metrology and characterization services
- Materials provided to Lawrence Livermore National Laboratory (LLNL) for final assembly and proofing
- Experiments produced 1.5x and 1.9x gains in fusion energy output



Target capsules are inspected during the metrology and characterization process.



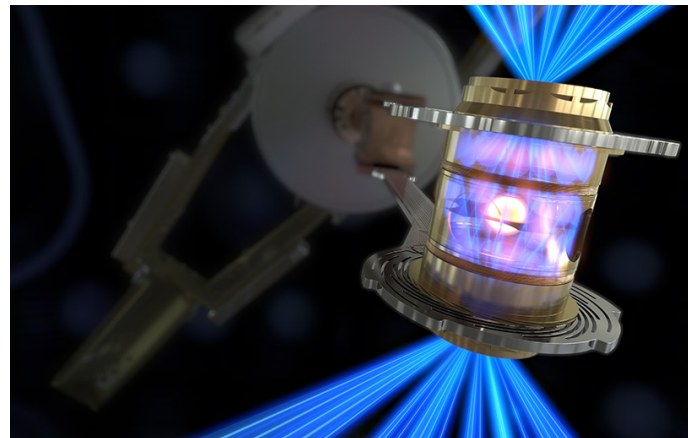
The 2mm target capsule used during the ICF experiment at NIF that achieved ignition in December 2022.

PRECISE TOLERANCES

- **2mm target capsule** – the size of a peppercorn
- **85-micron wall thickness** – the diameter of a human hair
- **2-micron fill tube** – 1/4th the diameter of a human red blood cell
- **50 nano-meter measurements** – the length a human fingernail grows in one minute

ABOUT THE NATIONAL IGNITION FACILITY

- The most precise and reproducible laser system in the world
- Focuses 192 laser beams onto a target capsule within a hohlraum target assembly
- Generates temperatures exceeding 180 million degrees Fahrenheit and pressures of 100 billion Earth atmospheres
- Rapidly compresses hydrogen fuel, causing the fuel atoms to fuse together within billionths of a second



An illustration of ignition at the National Ignition Facility. Image credit: LLNL

If you are seeking a partner for targets and components, please contact us:

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