

General Atomics Facilities Overview



Presented by Jared Hund
General Atomics

2nd European Target Fabrication Workshop
27th & 28th October 2008
Cosener's House, Abingdon, UK.

GENERAL ATOMICS HEADQUARTERS ARE IN SAN DIEGO

FOUNDED:

1955 by General Dynamics

OWNERSHIP:

Privately held corporation

Neal and Linden Blue

EMPLOYEES:

~1900 in U.S.

BUSINESS:

High technology research, design, manufacturing, and production for industry and Government in the U.S. and Overseas

OTHER LOCATIONS:

Washington, D.C.

Denver, Colorado

Ft. Madison, Iowa

Grants, New Mexico

Panna Maria, Texas

Dresden, Germany

Mittewalde, Germany

Berlin, Germany

Zurich, Switzerland

Tokyo, Japan



General Atomics and Inertial Fusion Technology (IFT)

- General Atomics and GA- ASI and GA-ESI ~4000 employees



-General Atomics

~1800 employees



RECORD RAIL GUN SHOT - Photo shows a plug leaving the gun which

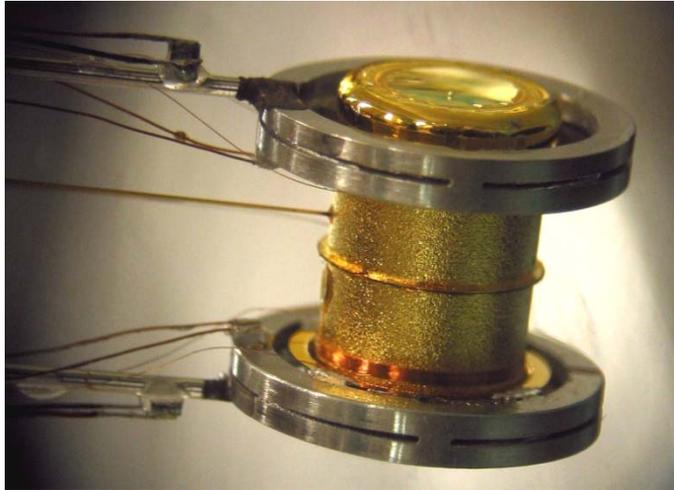


- Energy Division
- MFE DIII-D, Fission (Gas cooled reactors),
 - Inertial Fusion Technology

~450 employees

~100 employees

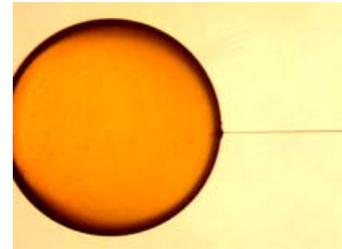
Many of the targets for the ICF program and the national labs are produced by GA



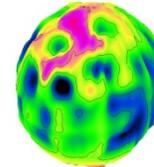
Many different materials.
Tolerance 40 millionth inch,
Continually changing



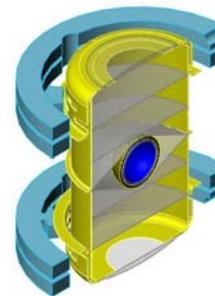
Hohlraum



**Capsules
W/fill tube**



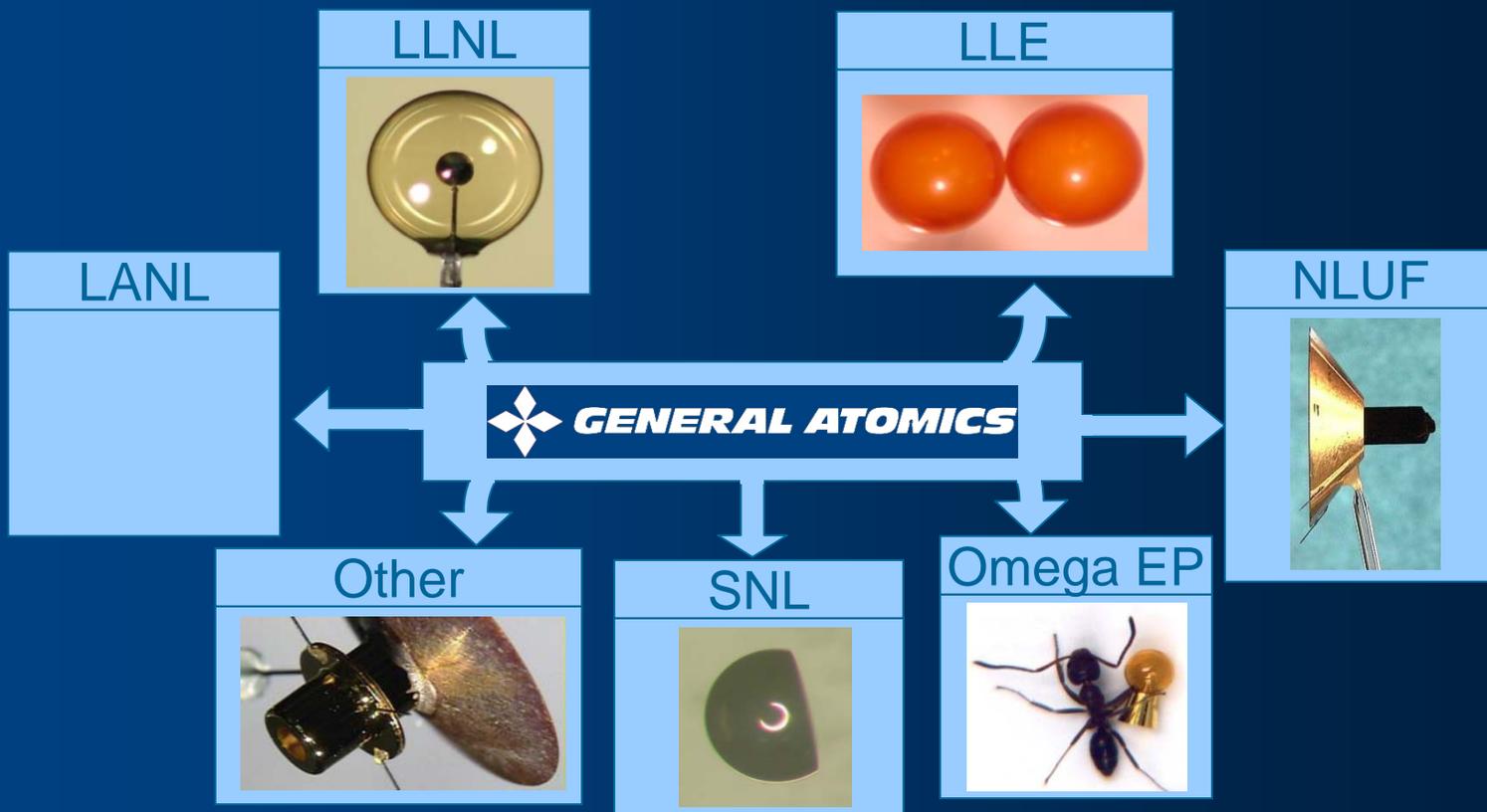
Characterization



Assembly

GA produces thousands of targets per year for all the labs

The targets fabricated cover a wide range of designs for the different programs



As well as some ongoing projects and collaborations with European facilities

NIF target components and subassemblies have been developed and are in pilot production

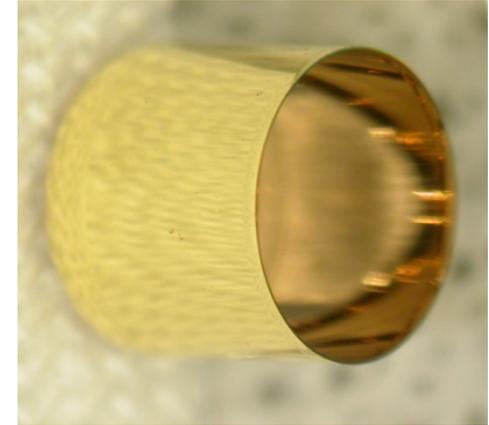
Capsules



Capsule/Fill Tube Assy



U/AuB Hohlräum



Si Arm / TMP Subassembly



Al can



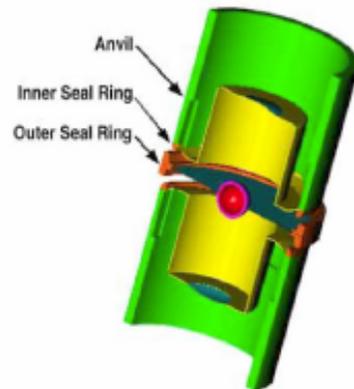
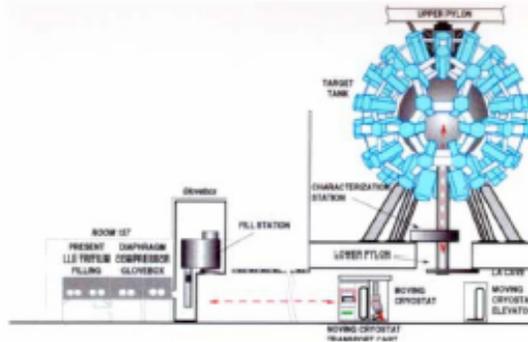
Diagnostic Band



Yield and robustness being determined in pilot production

GA also provides design and engineering service and equipment for laser facilities

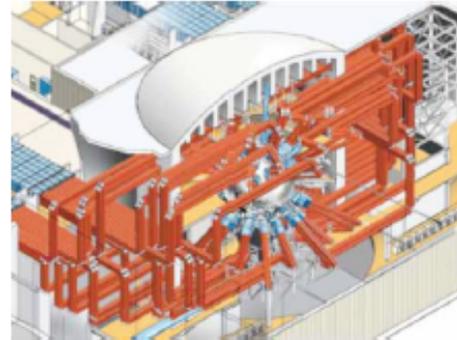
Omega Cryogenic Target Handling System



Z2X-Machine Cryotarget System Design

043-03/rs/3-3-03

NIF targets, Targets Handling, etc.

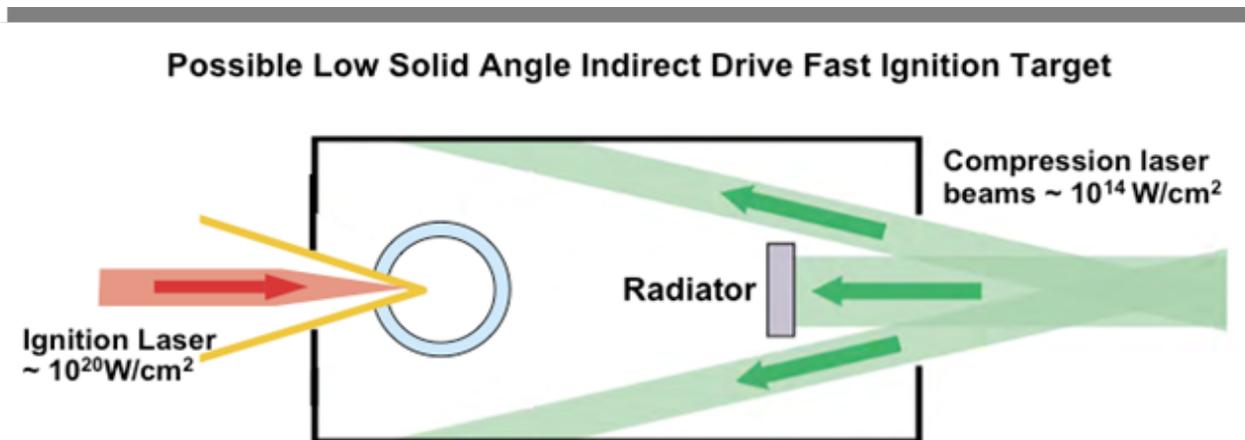


Z-Machine Conceptual Design



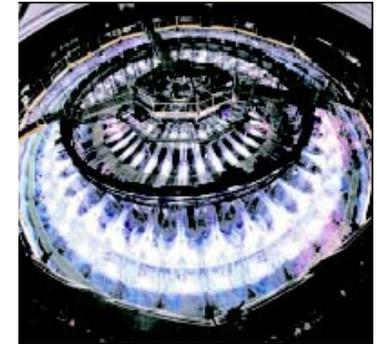
Synergistic target Fabrication Work for fusion energy and others

- Microshell production development is done for the High Average Power Laser (HAPL) Program for Naval Research Lab (IFE)
- Radiation transport targets made for AWE-UK
- Fast ignition targets made for DOE's OFES
- Targets for other Science campaigns (HEDS) for LLNL use on OMEGA.
- Other target fabrication contracts with the Rutherford Laboratory (UK), LLNL-LIFE, France, and Japan.



GA Inertial Fusion Technology has expanded its capabilities to meet the needs of new facilities

- Three major new ICF facilities

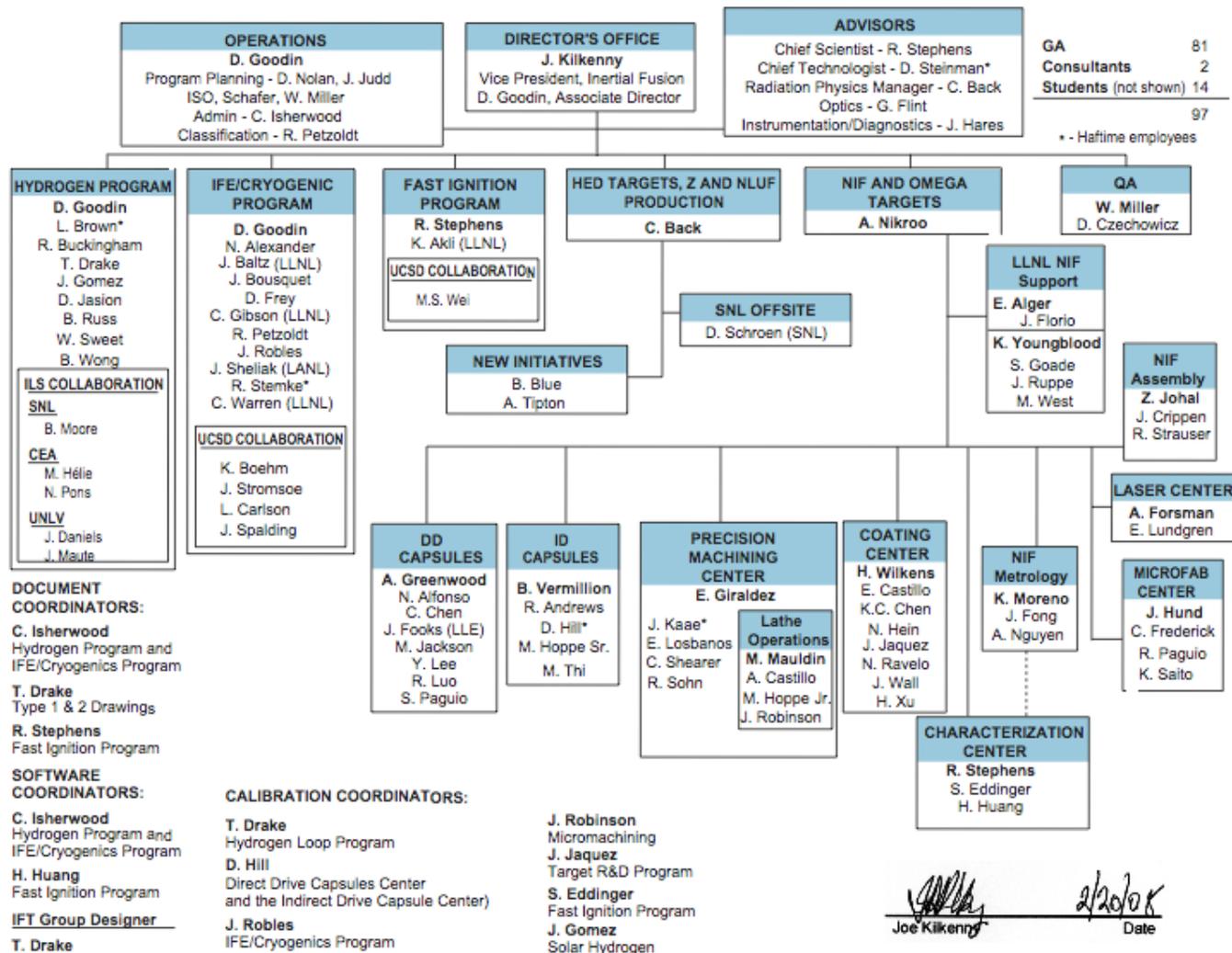


Z-R

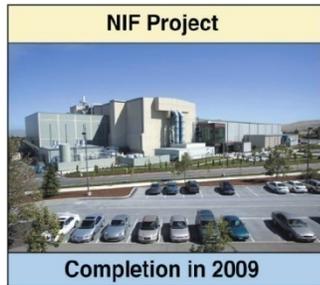
- The facilities use thousands of high precision targets/year
 - OMEGA ~ 4000 targets/year
 - ZR ~ 200 targets/year
 - NIF ~ many hundreds targets/year, starting 2008

Inertial Fusion Technology is divided into several R&D and production centers

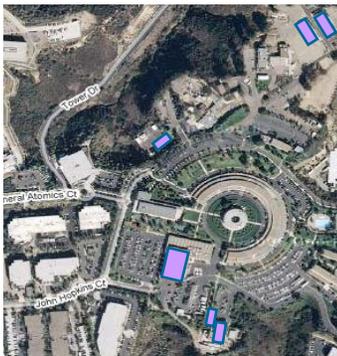
Inertial Fusion Technology



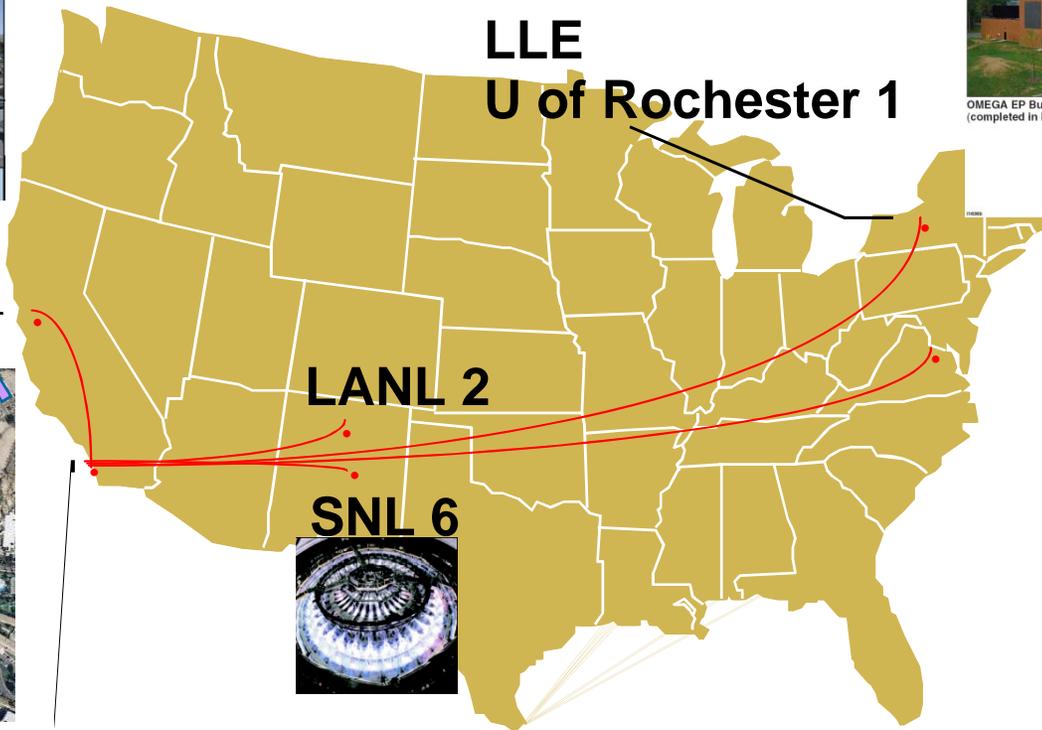
General Atomics Target Fabrication is mainly at La Jolla



Livermore 13



La Jolla 78
+ 22 students



GA has focus on target fabrication, corporate financial support and the flexible work force of private industry
- As well as worldwide collaborations

GA's role in IFE and rep-rated

1. GA is a major participant in target development for HAPL (direct-drive)
2. We are developing mass-production processes for a HAPL target
 - Near-term demo for each process step
 - Also evaluating "advanced" backup fab methods with UC Discovery Grant
3. We see rep-rated developments as "on the path" to IFE
4. GA/RAL collaboration for robotic assembly and for rep-rated target insertion
5. We expect to see major advances in rep-rated capability in the community in 2009

