Inertial Confinement Fusion

ANNUAL REPORT

OCTOBER 1, 2000
THROUGH
SEPTEMBER 30, 2001

Schafer

GENERAL ATOMICS

The artwork on the front cover shows samples of the target components and systems GA has developed and fabricated as part of our role as ICF Target Support contractor. Shown are the ICF Program's experiments and examples of things we have provided for these experiments:

Clockwise from the top:

1. The target chamber of the Nike Laser at the Naval Research Laboratory, with planar targets on a Nike Target Mount (vertical) and a Cryogenic Target Mount (horizontal).

2. The Z machine in action at Sandia National Laboratories, Albuquerque, with a foam cone target and a foam target shell.

3. Inside the OMEGA Laser's target chamber at University of Rochester/Laboratory for Laser Energetics, with a variety of plastic capsules for direct and indirect drive experiments, and a view of the OMEGA Cryogenic Target System.

4. The National Ignition Facility Target System target chamber with half a cryogenic hohlraum and a prototype cryogenic parting joint for the NIF Cryogenic Target System.

DISCLAIMER

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INERTIAL CONFINEMENT FUSION TARGET COMPONENT FABRICATION AND TECHNOLOGY DEVELOPMENT SUPPORT

ANNUAL REPORT TO THE U.S. DEPARTMENT OF ENERGY

OCTOBER 1, 2000 THROUGH SEPTEMBER 30, 2001

by
PROJECT STAFF

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ACRONYMS

AES	Auger electron spectroscopic
AFM	atomic force microscope
CD_4	deuterated methane
CPL	cryogenic pressure loader
CRF	carbonized resorcinol-formaldehyde
CTARPOS	Cryogenic TARget POSitioner
CTM	cryogenic target mount
D_2TS	deuterium test system
DT	deuterium-tritium
DVB	divinyl benzine
EDAX	energy dispersive x-ray analysis
EOS	equation of state
FTIR	Fourier Transform Infrared
FWHM	full width half maximum
GDP	glow discharge polymer
GA	General Atomics
HD	hydrogen deuteride
HIRC	Hydrogen Isotopes Research Center
ICF	Inertial Confinement Fusion
IDL™	Interactive Data Language
IFE	Inertial Fusion Energy
IFT	Inertial Fusion Technology
IR	infrared
LANL	Los Alamos National Laboratory
LCS	local control system
LEH	laser entrance hole
LLNL	Lawrence Livermore National Laboratory

LVDT	linear variable differential transformers
NCTS	NIF Cryogenic Target System
NIF	National Ignition Facility
NNSA	National Nuclear Security Administration
NRL	Naval Research Laboratory
OCTHS	OMEGA Cryogenic Target Handling System
PAA	polyacrylic acid
PAMS	poly(α-methylstyrene)
PCHMS	polycyclohexylmethylsilylene C7H14Si
PMDA	pyromellitic dianhydride
PS	polystyrene
PSF	point spread function
PVA	polyvinyl alcohol
RF	resorcinol-formaldehyde
SEM	scanning electron microscope
Si-GDP	silicon-doped glow discharge polymer
SNL	Sandia National Laboratory
TARPOS	TARget POSitioner
TIC	target insertion cryostats
TPX	commercial designation of the polymer produced by the polymerization of 4-methylpentene-1
UR/LLE	University of Rochester/Laboratory for Laser Energetics
UV	ultraviolet
WBS	work breakdown structure
WETF	Weapons Engineering Tritium Facility
XRF	x-ray fluorescence

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