

LLNL
laser and optics
technologies have
broad application
to DoD missions



Twenty-five years development of single-shot high-energy solid-state lasers for fusion is culminating in the National Ignition Facility

Laser amplifiers
192-beam, single-shot laser facility, delivering 1.8 MJ at 0.35 μm

Optical switch

KDP crystals

Diffractive optics

We have also delivered small-scale advanced laser and optics systems for various clients



Advanced Imaging Testbed Laser
Air Force Research Lab,
Starfire Optical Range



Lick Observatory
Laser Guidestar and adaptive optic system

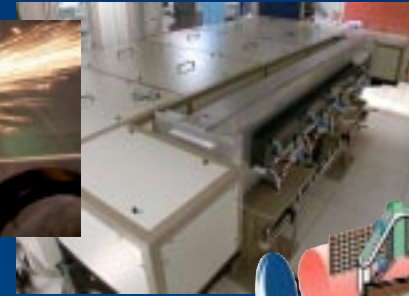


Y-12 Oak Ridge
Femtosecond laser precision-cutting tool



1 kW Yb:YAG laser illuminator prototype
sponsored by Boeing Co.

We are currently working on important DoD projects ...



10-kW laser testbed and rendering of 100-kW diode-pumped heat-capacity laser

High-Energy Laser Strategic Test Facility (HELSTF) Laser Project for the U.S. Army—

Together with Raytheon, Spectrolab, and Synoptics, we are developing an electrically powered, diode laser-pumped, solid-state laser weapon to be deployed on a mobile platform



Laser shot peening— With Metal Improvement Co., Inc., we are developing a shock-peening tool for inducing deep compressive stress in metal surfaces (jet-engine fan blade shown)



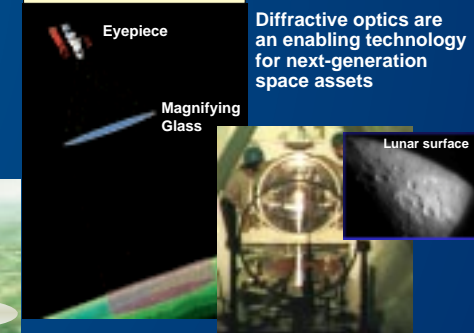
Hostile personnel easily detected with halo-free, night-vision system

... and have proposed several advanced concepts ...

Optical reconnaissances and target designation is enabled by short-pulse illumination and gated detection

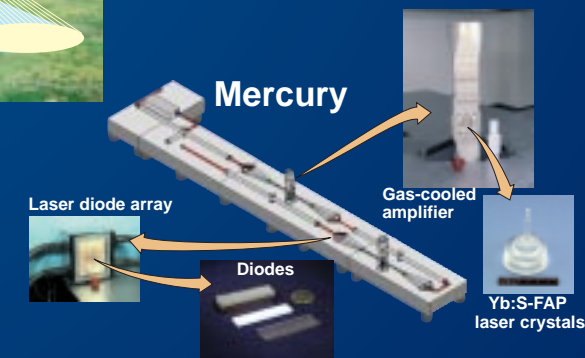


EYEGLASS Space Telescope



Diffraction optics are an enabling technology for next-generation space assets

...which have strong synergy with DOE needs



We are building a 100 J, 10 Hz diode-pumped solid-state laser as the first of a new generation of average-power laser drivers for energy and defense research

University of California



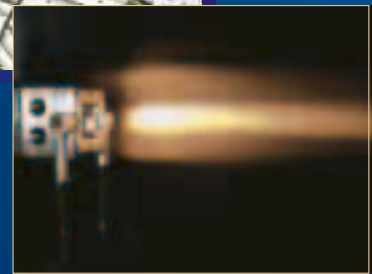
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Advanced imaging testbed laser



Heat capacity laser developments



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Laser Science
and Technology

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