IN BRIEF

This volume of the LLE Review contains articles on upgrade of the GDL system, theoretical advances in the laser fusion effort, improved target fabrication capabilities, x-ray laser research, developments in the picosecond optics research of the LLE advanced technology program, and on the National Laser Users Facility activities for October–December 1984.

The following are some highlights of the work described in this issue:

- The second group of six OMEGA beams has been converted from an IR (1054-nm) to a UV (351-nm) output, and output energy of the 12 frequency-tripled beams has reached 1056 J.
- GDL has been upgraded with four 25-cm-diameter active mirror amplifiers to generate in excess of 300 J at 1054 nm in 1-ns pulses.
- Six Brewster-angle linear polarizers in GDL have been replaced with liquid crystal polarizers. The liquid crystal polarizers eliminate some disadvantages associated with the Brewster-angle polarizers and provide effective optical isolation and back reflection protection.
- A simplified electron thermal transport theory has been developed. This model is self-consistent and gives the heat flux as a nonlocal convolution of given density and temperature profiles.
- During the sputter coating process of pusher layer deposition, pulsed nitrogen gas has been injected. As a result, columnar growth of the

film formation has been completely suppressed, and a very smooth surface finish has been obtained.

- Two novel approaches to the development of a linear uniform medium suitable for x-ray gain conditions have been investigated. This initial investigation has provided some interesting data from which future studies can optimize the production of linear plasma.
- A technique has been demonstrated which can characterize very high-speed semiconductor devices. The method is capable of characterizing the response of microstructures with a temporal resolution of a fraction of a picosecond.
- High-repetition-rate amplification of ultrashort optical pulses to the microjoule level has been achieved using a recently developed kHz Nd:YAG regenerative amplifier and a synchronously pumped CPM dye laser.

CONTENTS

Thomas Boehly, a graduate student in mechanical engineering, prepares plasma and light calorimeters for laser-plasma experiments in the GDL target chamber. These experiments measure the hydrodynamic efficiency of planar targets.