IN BRIEF

This volume of the LLE Review, covering the period October–December 1987, contains descriptions of the implementation of distributed phase plates for improved irradiation uniformity and the implementation of a cryogenic target capability on the OMEGA facility. The section on advanced technology has reports on the design and optimization of recombination x-ray lasers and a near-infrared dichroic dye for use in both active and passive liquid-crystal devices. Finally, the activities of the National Laser Users Facility and the GDL and OMEGA laser facilities are summarized.

The highlights of this issue are

- Distributed phase plates, implemented on OMEGA, have made the target-plane illumination uniformity insensitive to near-field phase and intensity errors that previously produced hot spots on target.
- An integrated system for producing, positioning, protecting, and documenting microballoons containing a frozen DT layer was put into operation on the OMEGA target chamber.
- Recent modeling results using a new, explicit nonlocal treatment of the Doppler-enhanced escape probability of the resonance radiation has shown short-pulse illumination and cylindrical expansion to be very important for producing net gain in carbon recombination x-ray lasers.

• A near-infrared-absorbing, liquid-crystalline dye has been shown to exhibit dichroic behavior in nematic liquid-crystal hosts. This dye has superior optical absorbance in the 1-µm-wavelength region and excellent solubility in nematic hosts. These properties make this dye/host combination particularly interesting for device applications such as blocking filters, shutters, and modulators for the near infrared.

CONTENTS

IN BRIFF	Page
III DICIEI	
CONTEN	TSv
Section 1 1.A	PROGRESS IN LASER FUSION
1. B	Phase Plates1 An Advanced Cryogenic Target-Positioning
	System
Section 2 2.A	ADVANCED TECHNOLOGY DEVELOPMENTS 19 The Design and Optimization of Recombination
2.B	X-Ray Lasers
Section 3	NATIONAL LASER USERS FACILITY NEWS45
Section 4 4.A 4.B	LASER SYSTEM REPORT.47GDL Facility Report.47OMEGA Facility Report.47
PUBLICA	TIONS AND CONFERENCE PRESENTATIONS



Phase conversion of the OMEGA laser system has increased the level of irradiation uniformity on target. William Castle, a member of the Optical Engineering Group, uses high-resolution interferometry to test distributed phase plates.