UNIVERSITY OF ROCHESTER
LABORATORY FOR LASER ENERGETICS

Volume 83
April–June 2000
DOE/SF/19460-357

LLE Review

Quarterly Report

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Contents

In Brief

This volume of the LLE Review, covering April–June 2000, features an article by F. J. Marshall, T. Ohki, D. McInnis, Z. Ninkov, and J. Carbone, who detail the conversion of the OMEGA time-integrated x-ray diagnostics to electronic readout using direct-detection x-ray cameras [charge-injection devices (CID's)]. Pinhole and x-ray microscope images are shown along with inferred calibration measurements of the CID cameras. Currently, the same cameras are being used to obtain x-ray spectra in a TIM-based spectrometer, extending their use to all time-integrated imaging and spectroscopic x-ray instruments used on OMEGA.

Additional highlights of the research presented in this issue are

- V. A. Smalyuk, B. Yaakobi, F. J. Marshall, and D. D. Meyerhofer investigate the spatial structure of the temperature and density of target-shell plasmas at peak compression (stagnation). This is accomplished by examining the energy dependence of the x-ray emission using narrow-band x-ray filters and the known absorption properties of the shell dopant (Ti).

- F. Séquin, C. K. Li, D. G. Hicks, J. A. Frenje, K. M. Green, R. D. Petrasso, J. M. Soures, V. Yu. Glebov, C. Stoeckl, P. B. Radha, D. D. Meyerhofer, S. Roberts, C. Sorce, T. C. Sangster, M. D. Cable, S. Padalino, and K. Fletcher detail the physics and instrumentation used to obtain and interpret secondary D-^{3}He proton spectra from current gas-filled-target and future cryogenic-target experiments. Through a novel extension of existing charged-particle detection techniques with track detectors, the authors demonstrate the ability to obtain secondary proton spectra with increased sensitivity.

- M. Guardelben, L. Ning, N. Jain, D. Battaglia, and K. Marshall compare the utility of a novel liquid-crystal-based, point-diffraction interferometer (LCPDI) with the commercial standard phase-shifting interferometer and conclude that the LCPDI is a viable low-cost alternative.

- A. B. Shorey, S. D. Jacobs, W. I. Kordonski, and R. F. Gans detail the mechanisms of glass polishing using the magnetorheological finishing (MRF) technique currently being studied in the Center for Optics Manufacturing (COM). Material-removal experiments show that the nanohardness of carbonyl iron (CI) is important in MRF with nonaqueous MR fluids with no nonmagnetic abrasives, but is relatively unimportant in aqueous MR fluids and/or when nonmagnetic abrasives are present.

Frederic J. Marshall
Editor