IN BRIEF

This volume of the LLE Review contains articles on the activities in the GDL and OMEGA laser facilities, some design changes to be implemented on the OMEGA laser, techniques for estimating UV target-irradiation uniformity, progress in fabricating polymer-shell targets, refined estimates of thermal electron transport in IR-irradiated targets, a program to develop a surgical instrument to excise arterial blockages with a laser, a new damage criterion for optical coatings, and NLUF activities for July-September 1984.

Some highlights of these articles are

- A new front end has been designed for OMEGA. Improved beam-profile control is incorporated into the configuration, and there is sufficient additional gain to implement fully active, mode-locked, Q-switched oscillators.
- We continue to extend our capabilities to estimate targetillumination uniformity. Reduction of equivalent-target-plane photographs is carried out with a higher degree of automation, and the beam-superposition code now accommodates azimuthal as well as radial intensity variations.
- Microencapsulation techniques have been employed to fabricate target-quality microballoons with several polymers. Some materials have been selected on the basis of their physical properties for further development.

- Progress has been made in establishing values for the flux limiter and preheat limits. This was done by comparing experimental results for 24-beam, 1054-nm target experiments with implosions modeled with the code *LILAC*. The ring structure in the x-ray microscope images is quite sensitive to the values of the two parameters and is best replicated with the flux limit equal to 0.05 and 16% of the absorbed energy in suprathermal electrons.
- An argon-ion laser was shown to be more effective than Nd:YAG for destroying cholesteric deposits on the walls of animal and human arteries. This laser will be incorporated into a fiber-optic delivery system to carry out internal removal of arterial blockages in living animals and humans.
- A new engineering damage criterion is proposed for thin-film coatings. This criterion is the appearance of multiple damage sites in an irradiated area visible to the unaided eye. The old criterion — the appearance of even a single, often microscopic, scattering center — is less relevant for the evaluation of coatings in LLE laser systems.

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Luther Whitaker, senior technical associate in the Target Fabrication Group, prepares to photograph a microballoon with the scanning electron microscope (SEM). SEM photographs appear in this and other issues of the LLE Review.