IN BRIEF

This volume of the LLE Review, covering the period October–December 1986, contains an analysis of the effect of laser illumination nonuniformity on the analysis of transport experiments; a review of measurements carried out with a high-resolution XUV spectrometer; a study of shock launching in silicon crystals; measurements of thermal conductivity in dielectric thin films; and the National Laser Users Facility activities for this period. Finally, the laser activities on GDL and OMEGA are summarized.

The following are highlights of the research reports contained in this issue:

- A method has been developed to study from simulations the effect of laser illumination nonuniformity on the interpretation of the transport experiments carried out with the 24 UV beams of OMEGA. The results indicate that laser illumination nonuniformity can lead to deduction of erroneously high values of the heat flux. Estimates of the levels of laser illumination nonuniformities are discussed.
- A high-resolution extreme UV spectrograph was used to study relativistic and quantum electrodynamic effects in high atomic number elements, to measure conditions in the coronal plasma, and to diagnose transitions in x-ray laser research.
- The temporal variation of lattice spacing due to shocks launched into laser-irradiated silicon crystals was studied by Bragg x-ray diffrac-

tometry with pulsed x rays. Lattice compression and the onset of rarefaction as the pressure pulse decayed were measured.

- A method has been developed for measuring the thermal conductivity of dielectric materials in thin-film form. We have found that thin films of SiO_2 and Al_2O_3, deposited on silicon substrates, exhibit thermal conductivities several orders of magnitude below those of their solid counterparts. MgF_2 films, however, seem to behave more like bulk single-crystal MgF_2.
- A 25th beam from the output of the GDL active mirror laser system has been transported through the laboratory to the OMEGA target bay and focused onto a target in the OMEGA chamber.

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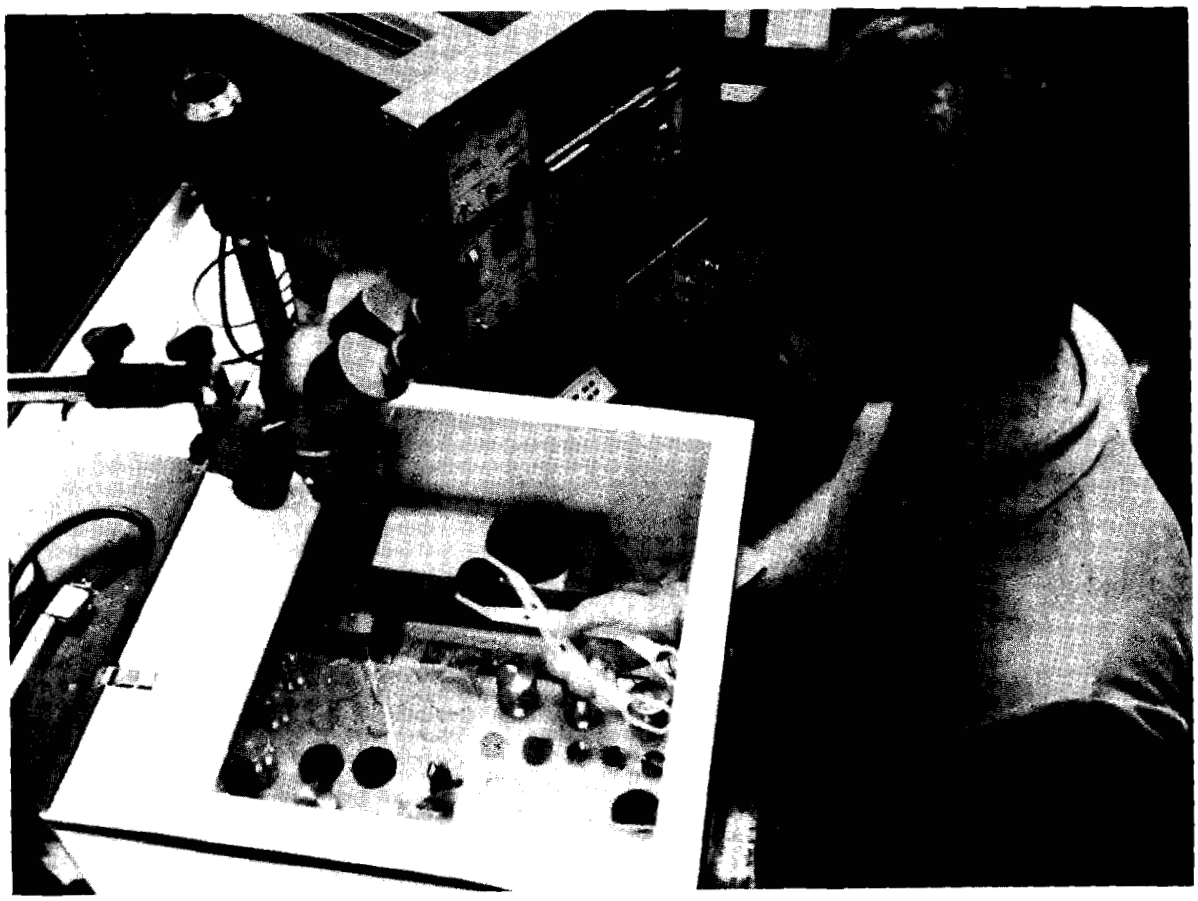

Undergraduate optics student Scott Gilman is loading samples into a high-precision thermal comparator apparatus. This instrument is used to measure the thermal conductivity in dielectric thin films.