

Section 3

NATIONAL LASER USERS FACILITY NEWS

NLUF activity for the fourth quarter of FY91 was centered around experiments conducted on GDL. These were done by groups from the University of Illinois (UI) and from the National Institute of Standards and Testing (NIST). Groups from the University of Maryland and from the University of Florida visited to discuss future scheduling of experiments on OMEGA.

The Air Force Office of Scientific Research is funding an experiment on GDL being conducted by UI. This experiment is being done in collaboration with LLE scientists and is studying the change in the characteristics of metals caused by a laser-generated shock wave. The samples are prepared by the Department of Materials Science and Engineering at UI, irradiated with the GDL laser, and returned to UI for detailed micro-analysis. Other diagnostics for this experiment are fielded by both LLE and UI scientists.

J. Reader from NIST has set up a high-resolution XUV spectrograph to measure the line radiation from laser-produced plasmas. The spectrograph is a McPhearsen grazing incidence XUV spectrograph. The target chamber is attached to the instrument and an external lens is used to focus the laser onto the target. The spectra are recorded on Kodak 101 glass plates that have been pre-exposed with a calibration spectrum. This instrument has provided some of the highest resolution measurements of line radiation from laser-produced plasmas to date. It is expected that there will be at least one more set of exposures taken before the instrument is returned to NIST.

On separate occasions, groups from the University of Maryland and the University of Florida visited the laboratory to discuss future OMEGA experiments. Both experiments will use noble-gas-seeded targets to study the line radiation from hot, dense matter. D₂ targets seeded with neon are planned for **H. Griem's** group from the University of Maryland. Time-dependent and time-integrated spectra are to be recorded and analyzed. D₂ targets seeded with argon are being planned for **C. Hooper's** group from the University of Florida. Time-resolved spectra will be recorded with two separate crystal spectrographs. Both groups are waiting for the targets to be constructed before experiments can be scheduled for OMEGA.

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