

Section 3

NATIONAL LASER USERS FACILITY NEWS

National Laser Users Facility (NLUF) activity during the first quarter of FY88 consisted of taking OMEGA target shots for four groups. Experimental data were taken for **J. S. DeGroot** (University of California, Davis), **C. F. Hooper** (University of Florida), **U. Feldman** (Naval Research Laboratory), and **P. Goldstone** (Los Alamos National Laboratory). In addition, proposals for FY89 were accepted.

Thirteen OMEGA target shots were taken for J. S. DeGroot's NLUF experiment during the first two weeks of October. High-intensity ($>10^{16}$ W/cm²) irradiation of CH spheres was used to study ion-acoustic decay instabilities in the corona of the plasma. This experiment is being done in collaboration with **W. Seka** (LLE). These initial shots pointed out improvements needed in the diagnostic instrumentation. Further shots on OMEGA will be scheduled as time becomes available.

Eighteen OMEGA target shots were taken for C. F. Hooper. **M. C. Richardson** (LLE) is collaborating with Prof. Hooper to study x-ray line emission from dense Ar and Ar-Kr plasmas. Plastic microballoons were filled with varying pressures of Ar and Ar-Kr mixtures and then imploded with the OMEGA laser. Time-dependent and time-integrated x-ray spectra were collected for these targets. The data are being analyzed at the University of Florida and LLE to understand the line emission from a dense plasma.

U. Feldman took four OMEGA target shots on spherical targets with layers of Pr, Gd, and Dy. The objective of these shots was to study Na-like line emission from atoms with Z's between 59 and 69. The NRL-NASA 3-m grazing-incidence spectrograph was used to collect XUV spectra from these targets.

A group of scientists from LANL led by P. Goldstone took 58 OMEGA target shots to measure the efficiency of converting absorbed laser energy into x-ray energy. Targets with layers of Ta, Au, Bi, and U were used to study x-ray conversion efficiency as a function of incident intensity. All available x-ray instrumentation on the OMEGA target chamber was used to measure the spectra and time dependence of x rays emitted by these high-Z targets.

Proposals for experiments to be done in FY89 were due to the NLUF manager by 15 December. These proposals will be reviewed by the steering committee during the second quarter of FY88 and principal investigators will be notified by the end of that fiscal quarter.

For more information regarding proposal guidelines and the resources available at the National Laser Users Facility, please contact

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ACKNOWLEDGMENT

This work was supported by the U.S. Department of Energy Office of Inertial Fusion under agreement No. DE-FC08-85DP40200.