Section 2
NATIONAL LASER USERS FACILITY NEWS

The first quarter of FY93 activity supported experiments from five NLUF users. Experiments from **H. Griem** (University of Maryland), **C. Hooper** (University of Florida), **J. Seely/U. Feldman** [Naval Research Laboratory (NRL)], **K. Mizuno/P. Drake** (Plasma Physics Research Institute), and **A. Honig** (Syracuse University) were scheduled and fielded on the OMEGA laser system. These experiments were scheduled as both dedicated laser time (A. Honig, H. Griem, and C. Hooper) and shots interleaved with LLE target shots (J. Seely and K. Mizuno). Instrumentation for these experiments was provided by the experimenters and by LLE.

H. Griem and **J. Moreno** from the University of Maryland completed their shots to study x-ray and XUV spectroscopy from high-density implosions. The targets used for this experiment were spherical plastic shells filled with Ne and D_2/Ne mixtures. Time-dependent line emission was measured with SPEAXS and a streak camera with a variable-space grating before the entrance slit. The proposed experiment was to measure the details of the line shapes as a function of core density.

C. Hooper did a similar series of experiments with Ar- and D_2/Ar-filled plastic shells. SPEAXS and a flat-crystal spectrograph built by NRL coupled to a streak camera were used to measure the time-dependent x-ray line shape of the Ar *k*-shell emission. These data are being analyzed by the group at the University of Florida and **P. Jaanimagi** at LLE.

J. Seely and U. Feldman developed two instruments and fielded a series of experiments using Xe- and Xe/D_2-filled plastic shells. A high-resolution flat-crystal spectrograph was developed as a front end for a large-format x-ray streak camera. The high resolution was needed to measure the time-dependent line spectroscopy of the xenon *L*-shell emission from imploded targets. This work was done in collaboration with scientists from LLNL and used a diagnostic that will be used for OMEGA Upgrade target implosions. This group has also developed a high-resolution Cassegrain XUV microscope. The instrument resolution was measured at two magnifications with Kodak 101 and Kodak 104 films.

K. Mizuno and P. Drake continued the development of a diagnostic to measure Thompson scattering from the ion-acoustic decay instability. This experiment used the long-scale-length plasmas generated on the OMEGA laser for plasma-interaction experiments. One OMEGA beam was used as the Thompson scattering probe beam. Time-dependent optical and UV spectroscopy was used to characterize the plasma and measure the scattered light.

A. Honig continued his development of a cryogenic target-handling system. This effort is needed for his research into fusion of spin-polarized HD and D_2 targets.

ACKNOWLEDGEMENT

This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under agreement No. DE-FC03-92SF19460.