

Section 3

NATIONAL LASER USERS FACILITY NEWS

Scientists from the Naval Research Laboratory (NRL), Plasma Physics Research Institute, University of Florida, and University of Syracuse visited the laboratory during the fourth quarter of FY92. Their primary activity was to plan target shots for FY93. **A. Honig** from the University of Syracuse and **K. Mizuno** from the Plasma Physics Research Institute also did preliminary target shots. The planned experiments need to be coordinated with the LLE experimental program during the next quarter since the OMEGA laser-system upgrade will begin 18 December 1992.

J. Seely from NRL visited to discuss the high-resolution spectrograph they are building for the spectroscopy experiments to be conducted during the first quarter of FY93. **P. Jaanimagi** and **B. Yaakobi** from LLE participated in the initial design of this instrument: a flat-crystal spectrograph coupled to a streak camera able to record the time dependence of the x-ray line shapes. Diagnostic gases are to be added to the D₂ fuel, and x-ray emission from these gases will be used to characterize the target implosion.

K. Mizuno tested the Thomson scattering detector that will be used for the experiments proposed by **J. DeGroot** of the University of California at Davis. This diagnostic is designed to measure the properties of the plasma near the critical surface (where the plasma frequency equals the laser frequency). The detector was tested during a series of long-scale-length plasma experiments conducted by **W. Seka** of LLE.

C. Hooper from the University of Florida visited to discuss the argon spectroscopy experiments planned for the next quarter. He plans to use the spectrograph being built by NRL, which will allow him to measure the line shapes of the argon emission more accurately than in his previous experiments. These data will be compared with the calculations being done at the University of Florida, and the comparison will be used to characterize the conditions of the imploded core.

A. Honig transported the first of his cryogenic targets from Syracuse to be shot on the OMEGA laser. The first shot was to be on a target delivered frozen to the target-chamber center and then allowed to warm to a gaseous state before the laser irradiation. This was done to try to establish that a target could be delivered cold to the target-chamber center, and then the yield from the gaseous target could be used to establish a baseline for subsequent target shots. The experiment was not completed.

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