Section 3
NATIONAL LASER USERS FACILITY NEWS

NLUF activity during the third quarter of FY91 included Thomson-scattering experiments by **K. Mizuno**; an investigation of how to manufacture targets filled with multiple gasses for **J. Moreno** and **C. Hooper**, and a review of proposals for FY92. These activities used the GDL laser facility, required support from the LLE target fabrication group, and used LLE facilities for the NLUF steering committee meeting.

Experiments by K. Mizuno of the Plasma Physics Research Center are in support of **J. De Groot's** (University of California, Davis) NLUF research effort. This work has developed a multichannel detector to measure Thomson scattering from laser-produced plasmas. The GDL laser is used to generate a hot, dense plasma and a second laser is used to probe this plasma. The probe laser for these measurements is a frequency-quadrupled Nd:YLF laser synchronized to GDL. The Thomson-scattered probe radiation is used to study the density profile of the plasma near the critical surface for the incident GDL beam. The first set of experiments was used to check out the new multichannel detector and to determine how difficult it would be to set up the experiment. Work will continue as instrumentation is improved.

Two groups would like to field targets filled with a mixture of D_2 gas plus a noble gas for their NLUF experiments. They are **H. Griem's** group at the University of Maryland and C. Hooper's group at the University of Florida. J. Moreno is leading the experiments for H. Griem and plans to use targets

filled with a mixture of D_2 and Ne to study the atomics physics of compressed cores. The primary diagnostic will be time-dependent measurements of the Ne emission in the XUV and x-ray parts of the spectrum. C. Hooper is continuing to study the properties of hot, dense matter by doing high-resolution temporal and spectral measurements of x rays. He plans to use targets filled with mixtures of D_2 and Ar and to measure the line shapes of the *k*-shell Ar emission. Both of these experiments require the availability of multi-gas targets. The LLE target fabrication group has been studying techniques needed to manufacture these targets.

The NLUF steering committee met on 14 June 1991 to review the seven proposals submitted to DOE for FY92. Details of the technical review will be discussed after the steering committee has approved the minutes of the meeting.

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