

Section 3

NATIONAL LASER USERS FACILITY NEWS

The three major activities during the second quarter of FY90 were as follows: (1) support for **A. Honig** of Syracuse University; (2) target fabrication for **C. Hooper** of the University of Florida; and (3) the preparation for review of proposals for FY91.

A. Honig is building a cold-insertion target handler for the OMEGA cryogenic target positioner. This device will allow the insertion of targets prepared outside the OMEGA target chamber at liquid-helium temperatures. Cryogenic targets can thus be prepared and characterized and then inserted for laser shots, in a process similar to the handling of gas targets. This positioner is critical to the spin-polarized target experiments of the Syracuse research group and will find application in a wide variety of ICF target experiments. The cold-insertion handler is expected to be fitted to the OMEGA target chamber during the third quarter of FY90.

Plastic argon-filled microballoons are being constructed for C. Hooper, using the microencapsulation technique. The shell diameters will be about 250 μm and thus better suited to uniform illumination than the 400- μm -diam targets used in December 1987. Argon fill pressures will vary between 1 and 10 atm so that a range of convergence ratios can be studied. These experiments are being modeled with the *LILAC* hydrodynamics code at LLE and will be used to study high-density laser-driven implosions.

The DOE deadline for FY91 proposals was 1 March 1990. This was changed from last year so that principal investigators could be notified in May of the results of the steering committee review. Table 42.II lists the 11 proposals received for FY91. Ten of these request DOE funding and one requests GDL laser time. The steering committee met at the end of April to review the scientific merit of the proposals. The results of the technical review were sent to DOE to select proposals for funding and for notification of all principal investigators. Members of the committee are listed in Table 42.III. The new members for this year are **P. Goldstone** (LANL) and **R. Turner** (LLNL).

Table 42.II: Proposals for FY91 NLUF experiments.

Number	Organization	Title	P.I. Name
162	University of Florida	Time-Resolved Emission and Absorption Spectroscopy of High-Density Plasmas in Spherical and Planar Geometry	C. F. Hooper
163	Lockheed MSC	Time-Dependent Study of the Ionization Dynamics in a Laser-Produced Plasma from a Supersonic Gas Jet	P. Filbert
164	Lockheed MSC	Study of the Sodium-Neon Photopumped X-Ray Laser Using High-Power Laser Irradiation of High-Density Planar Gas Jet to Create the Neon Lasant	P. Filbert
165	University of Wisconsin-Madison	Experimental Determination of Non-LTE Radiative Transfer Effects in High-Temperature, Moderate-Density Plasmas	J. MacFarlane
166	Syracuse University	Fusion with Highly Spin Polarized HD and D ₂	A. Honig
167	University of Maryland	Experimental Studies of Radiative Properties of High Energy Density Matter	H. Griem
168	US DOC, National Institute Standards and Technology	Atomic Structure of Ni-Like, Soft X-Ray Lasing Ions	J. Reader
169	University of California/Davis	Development of a New Plasma Diagnostic of the Critical Surface and Studies of the Ion Acoustic Decay Instability Using Collective Thomson Scattering	J. S. DeGroot
170	Naval Research Laboratory	X-Ray Line Coincidence Diagnosis of Core-Shell Mixing in ICF Target Implosions	J. Apruzese
171	Naval Research Laboratory	XUV Spectroscopy Studies at the OMEGA Laser	J. Seely
172	Rensselaer	Futuristic Propulsion System	L. Myrabo

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Table 42.III: Voting members of the NLUF Steering Committee.

Dr. K. Matzen	Sandia National Laboratory
Dr. E. Spiller	IBM Watson Research Center
Dr. K. Hill	Princeton Plasma Research
Dr. J. Perez	Auburn University
Dr. P. Goldstone	Los Alamos National Laboratory
Dr. R. Turner	Lawrence Livermore National Laboratory

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ACKNOWLEDGMENT

This work was supported by the U.S. Department of Energy Division of Inertial Fusion under agreement No. DE-FC03-85DP40200.