

## PUBLICATIONS AND CONFERENCE PRESENTATIONS

### Publications

R. S. Craxton, "Theory of High Efficiency Third Harmonic Generation of High-Power Nd:Glass Laser Radiation," *Opt. Comm.* **34**, 474-478 (1980).

W. Seka, S. Jacobs, J. Rizzo, R. Boni, and R. S. Craxton, "Demonstration of High Efficiency Third Harmonic Conversion of High Power Nd:Glass Laser Radiation," *Opt. Comm.* **34**, 469-473 (1980).

M. Stavola, M. Sceats, and G. Mourou "Picosecond Switching of a Multi-Kilovolt DC Bias With Laser-Activated Silicon at Low Temperature," *Opt. Comm.* **34**, 409-412 (1980).

M. Stavola, G. Mourou, and W. Knox, "Picosecond Time Delay Fluorimetry Using a Jitter-Free Streak Camera," *Opt. Comm.* **34**, 404-408 (1980).

J. Eastman, "The Scanning Fizeau Interferometer: An Automated Instrument For Characterizing Optical Surfaces," *Opt. Eng.* **19**, 810-814 (1980).

J. Kelly, D. Brown and K. Teegarden, "Time-Resolved Spectroscopy of Large Bore Xe Flashlamps For Use In Large Aperture Amplifiers," *App. Opt.* **19**, 3817-3823 (1980).

J. Hoose, "White Light AC Interferometry for Multiple Laser Path Length Equalization," *Opt. Eng.* **19**, 825-827 (1980).

K. Tanaka and L. Goldman, "Observations of Brillouin Sidescatter in Laser-Produced Plasmas," *Phys. Rev. Let.* **45**, 1558-1561 (1980).

B. Yaakobi, H. Deckman, P. Bourke, S. Letzring, and J. Soures, "X-Ray Absorption Fine-Structure Measurement Using a Laser-Compressed Target as a Source," *App. Phys. Lett.* **37**, 767-769 (1980).

## Forthcoming Publications

D. Berwald, and J. Maniscalco, "Laser Fusion Breeder Fueled Electricity Generation System," submitted to *Nuclear Technology*.

D. Berwald, and J. Maniscalco, "An Economics Method for Symbiotic Fusion-Fission Electricity," submitted *Nuclear Technology*.

W. Knox, W. Friedman, and G. Mourou, "A Simple Silicon Switch-Driven Psec Streak Camera," accepted by *Applied Physics Letters*.

R. S. Craxton and R. McCrory, "Two-Dimensional Calculations of Non-Spherical Laser Fusion Implosions," submitted to *Nuclear Fusion*.

C. Harrison, D. Turner, J. Wilson, M. DeWyngaert, and D. Hinkle, "Laser Cross-Linking of RNA Polymerase and DNA," submitted to the *Journal of the American Chemical Society*.

S. Skupsky, and S. Kacenjar, "Measuring Fuel  $\rho R$  for Inertial Fusion Experiments Using Neutron Elastic-Scattering Reactions," accepted by the *Journal of Applied Physics*.

T. Dewandre, J. Albritton and E. Williams, "Fast-Ion Production by Suprathermal Electrons in Laser Fusion Plasmas," accepted by *Physics of Fluids*.

M. True, J. Albritton, and E. Williams, "Doppler Shift of Laser Light Reflected from Expanding Plasmas," accepted by *Physics of Fluids*.

R. McCrory, L. Montierth, R. Morse and C. Verdon, "Nonlinear Evolution of Ablation-Driven Rayleigh-Taylor Instability," submitted to *Physical Review Letters*.

R. McCrory, L. Montierth, R. Morse and C. Verdon, "Taylor Instability in Fusion Targets," submitted to *Laser Interactions and Relative Plasma Phenomena, Vol. V*. Plenum Press.

J. Soures, T. Bristow, H. Deckman, J. Delettrez, A. Entenberg, W. Friedman, J. Forsyth, Y. Gazit, G. Halpern, F. Kalk, R. McCrory, D. Peiffer, J. Rizzo, S. Skupsky, E. Thorsos, B. Yaakobi and T. Yamanaka, "A Review of High Density Laser-Driven Implosion Experiments at the Laboratory for Laser Energetics," submitted to *Laser Interactions and Relative Phenomena, Vol. V*. Plenum Press.

G. Mourou, C.V. Stancampiano, and D. Blumenthal, "Picosecond Microwave Pulse Generation," submitted to *Applied Physics Letters*.

T. Nordlund and W. Knox, "Lifetime of Fluorescence From Light-Harvesting Chlorophyll a/b Proteins: Excitation Intensity Dependence," submitted to *Biophysical Journal*.

G. Harvey, G. Mourou and C. Gabel, "Synchronization of a Mode-Locked Nd:YAG-Argon-Ion Laser System," accepted by *Optics Communications*.

J. Kelly, D. Brown, J. Abate and K. Teegarden, "A Dynamic Pumping Model for Amplifier Performance Predictions," submitted to *Applied Optics*.

D. Brown, J. Abate, L. Lund and J. Waldbillig, "Passively-Switched Double-Pass Active Mirror System," submitted to *Applied Optics*.

J. Abate, L. Lund, D. Brown, S. Jacobs, S. Reformat, J. Kelly, M. Gavin, J. Waldbillig and O. Lewis, "Active Mirror: A Large Aperture, Medium-Repetition Rate Nd:Glass Amplifier," accepted by *Applied Optics*.

R. Turner and L. Goldman, "Evidence for Multiple Brillouin Modes in Laser-Plasma Backscatter Experiments," accepted by *Physics of Fluids*.

## Conference Presentations

W. Seka, "Progress in Laser Fusion Research," presented at the Fall Meeting of the Austrian Physical Society, September 1980.

H. Deckman, J. Dunsmuir and G. Halpern, "A Drill, Fill and Plug Technique for Fabricating Laser Fusion Targets," presented at the American Vacuum Society Meeting, October 1980.

H. Deckman, "Micromachining Applications for ICF Target Fabrication," presented at the American Vacuum Society Meeting, October 1980.

I. Goldstein and F. Kalk, "Oxygen Plasma Etching of Thick Polymer Layers," presented at the American Vacuum Society Meeting, October 1980.

I. Goldstein and J. Varon, "DC Deposition Source Dependence of the Surface Morphology of Copper Sputter-Coated Laser Fusion Targets," presented at the American Vacuum Society Meeting, October 1980.

L. Forsley, "A Relational Methodology for Process Control and Data Acquisition Using FORTH and CAMAC with DEC PDP 11 Architecture," presented at the Fall Decus U.S. Symposium, November 1980.

R. Bingham and C. Lashmore-Davies, "Filamentation Re-Visited," presented at the Annual Meeting of the APS Division of Plasma Physics, November 1980.

T. Bristow, J. Boles, J. Delettrez, A. Entenberg, J. Forsyth, S. Kumpan, S. Letzring, M. Lubin, R. McCrory, M. Richardson and J. Soures, "Initial Experiments on OMEGA," presented at the Annual Meeting of the APS Division of Plasma Physics, November 1980.

R. S. Craxton and R. McCrory, "Two-Dimensional Calculations of the Interaction of UV Laser Light with Low-Z Targets," presented at the Annual Meeting of the APS Division of Plasma Physics, November 1980.

J. Delettrez, T. Bristow, A. Entenberg, J. Soures and E. Thorsos, "Analysis of Exploding-Pusher Implosion Experiments," presented at the Annual Meeting of the APS Division of Plasma Physics, November 1980.

A. Entenberg, T. Bristow, J. Delettrez, Y. Gazit and J. Soures, "Ion Temperature Dependence on Specific Absorbed Energy in Six-Beam Symmetrical Implosion Experiments," presented at the Annual Meeting of the APS Division of Plasma Physics, November 1980.

R. Epstein, S. Skupsky and R. McCrory, "Improvements in the Treatment of Radiative Transfer in One-Dimensional Laser Fusion Simulations," presented at the Annual Meeting of the APS Division of Plasma Physics, November 1980.

W. Friedman, S. Letzring, E. Thorsos and W. Seka, "Processing and Interpretation of X-Ray Streak Camera Images," presented at the Annual Meeting of the APS Division of Plasma Physics, November, 1980.

L. Goldman and S. Sarraf, "Effect of Prepulse on Non-Thermal ( $> 10$  KeV/Z) Ions in Laser Produced Plasma," presented at the Annual Meeting of the APS Division of Plasma Physics, November 1980.

S. Kacenjar, S. Skupsky, L. Goldman and A. Entenberg, "Measuring Fuel  $\rho R$  in Laser Fusion Using CR-39 Solid State Track Detectors," presented at the Annual Meeting of the APS Division of Plasma Physics, November 1980.

F. Kalk and J. Forsyth, "Effects of Nonlinearities on Image Fidelity in Zone Plate Coded Imaging," presented at the Annual Meeting of the APS Division of Plasma Physics, November 1980.

S. Letzring, E. Thorsos, W. Friedman, P. Bourke and A. Wilson, "X-Ray Imaging Measurements of Illumination Uniformity and Implosion Symmetry on ZETA," presented at the Annual Meeting of the APS Division of Plasma Physics, November 1980.

J. McAdoo and L. Goldman, "Dependence of MeV X-Rays on Laser Intensity in Laser Fusion Experiments," presented at the Annual Meeting of the APS Division of Plasma Physics, November 1980.

R. McCrory, R. Morse and C. Verdon, "Saturation of Ablation-Driven Rayleigh-Taylor Instability," presented at the Annual Meeting of the APS Division of Plasma Physics, November 1980.

B. Nicholson, W. Seka, L. Forsley and D. Blumenthal, "High Power UV ( $0.351 \mu\text{m}$ ) Laser-Plasma Absorption Studies," presented at the Annual Meeting of the APS Division of Plasma Physics, November 1980.

S. Sarraf, E. Williams and L. Goldman, "Ion-Ion Two-Stream Instability in Multispecies Streaming Plasma," presented at the Annual Meeting of the APS Division of Plasma Physics, November 1980.

W. Seka, T. Boehly, R. S. Craxton, L. Forsley, L. Goldman, S. Jacobs, R. Keck, B. Nicholson, R. McCrory, M. Richardson, J.

Rizzo, J. Soures and K. Tanaka, "Preliminary Results of Laser-Matter Interaction Experiments at 0.35  $\mu\text{m}$ ," presented at the Annual Meeting of the APS Division of Plasma Physics, November 1980.

R. Short and E. Williams, "Enhanced Specular Reflection From a Laser Plasma Source," presented at the Annual Meeting of the APS Division of Plasma Physics, November 1980.

S. Skupsky, B. Yaakobi and C. Hooper, "Simulation of X-Ray Spectra From the Implosion of Argon Filled Microballoons," presented at the Annual Meeting of the APS Division of Plasma Physics, November 1980.

K. Tanka and L. Goldman, "Observations of Brillouin Side-Scatter in Laser Produced Plasma," presented at the Annual Meeting of the APS Division of Plasma Physics, November 1980.

E. Thorsos, W. Seka, T. Bristow, A. Entenberg, W. Friedman, S. Letzring, J. Soures, J. Delettrez and R. McCrory, "Experimental Scaling Laws of Six-Beam Intermediate Density Microballoon Implosions," presented at the Annual Meeting of the APS Division of Plasma Physics, November 1980.

C. Verdon, R. McCrory and R. Morse, "Nonlinear Development and Saturation of Ablation-Driven Rayleigh-Taylor Instability in Thin Shells," presented at the Annual Meeting of the APS Division of Plasma Physics, November 1980.

E. Williams, M. True and J. Albritton, "Coupling of Hot Electrons to Laser Fusion Targets II," presented at the Annual Meeting of the APS Division of Plasma Physics, November 1980.

B. Yaakobi, S. Skupsky, W. Friedman, R. McCrory, H. Deckman, P. Bourke, S. Letzring and J. Soures, "High Density and Compression Ratio Measured Spectroscopically in Radiationally Cooled Targets," presented at the Annual Meeting of the APS Division of Plasma Physics, November 1980.

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