

# PUBLICATIONS AND CONFERENCE PRESENTATIONS

## Publications

G. F. Albrecht, "Temporal Shape Analysis of Nd:YLiF Active Mode-Locked/Q-Switched Oscillator," *Opt. Commun.* **41**, 287-291 (1982).

D. Glocker and R. Wiseman, "A New Method for the Batch Production of Micro-Fresnel Zone Plates," *J. Vac. Sci. Technol.* **20**, 1098-1100 (1982).

D. A. Glocker, J. P. Drumheller, and J. R. Miller, "Ion Beam Sputter Deposition onto Levitated and Stalk-Mounted Laser Fusion Targets," *J. Vac. Sci. Technol.* **20**, 1331-1335 (1982).

T. F. Powers, "Improved Nonconcentricity Characterization of Transparent Laser Fusion Targets by Interferometry," *J. Vac. Sci. Technol.* **20**, 1355-1358 (1982).

B. A. Brinker and J. R. Miller, "Capillary Gas Filling of Inertial Fusion Targets," *J. Vac. Sci. Technol.* **20**, 1079-1081 (1982).

G. Mourou, W. Knox, and S. Williamson, "Picosecond High-Power Switching and Applications," *Laser Focus Magazine*, 97-106 (April 1982).

K. Tanaka, L. M. Goldman, W. Seka, M. C. Richardson, J. M. Soures, and E. A. Williams, "Stimulated Raman Scattering from UV-Laser-Produced Plasmas," *Phys. Rev. Lett.* **48**, 1179-1182 (1982).

B. Yaakobi, J. Delettrez, L. M. Goldman, R. L. McCrory, W. Seka, and J. M. Soures, "Preheat Measurements in UV-Laser Target Interaction," *Opt. Commun.* **41**, 355-359 (1982).

S. Williamson, G. F. Albrecht, and G. Mourou, "Laser-Triggered Cr:GaAs HV Sparkgap with High Trigger Sensitivity," *Rev. Sci. Instrum.* **53**, 867-870 (1982).

## Forthcoming Publications

G. Mourou and S. Williamson, "Picosecond Electron Diffraction," accepted for publication by *Applied Physics Letters*.

G. Mourou, W. Knox, and S. Williamson, "Advances in Picosecond Optoelectronics," accepted for publication by *S.P.I.E., Picosecond Lasers and Application*.

H. Kim, T. F. Powers, and J. Mason, "Real-Time Parylene Coating Thickness Measurement Using Optical Reflectometry," accepted for publication by *Journal of Vacuum Science Technology*.

C. P. Verdon and R. L. McCrory, "Nonlinear Effects of Multifrequency Hydrodynamic Instabilities on Ablatively Accelerated Thin Shells," accepted for publication by *Physics of Fluids*.

S. Kacenjar, S. Skupsky, A. Entenberg, L. M. Goldman, and M. C. Richardson, "Direct Measurement of the Fuel Density-Radius Product in Laser-Fusion Experiments," accepted for publication by *Physical Review Letters*.

B. Yaakobi, D. M. Villeneuve, M. C. Richardson, J. M. Soures, R. Hutchison, and S. Letzring, "X-Ray Spectroscopy Measurements of Laser-Compressed, Argon-Filled Shells," accepted for publication by *Optics Communications*.

G. Weyl, D. Rosen, J. Wilson, and W. Seka, "Laser-Induced Breakdown of Argon at 0.35  $\mu\text{m}$ ," accepted for publication by *Physical Review A: General Physics*.

R. W. Short, R. Bingham, and E. A. Williams, "Filamentation of Laser Light in Flowing Plasmas," accepted for publication by *Physics of Fluids*.

J. Reynolds, "Information Management Data Base for Fusion Targets," accepted for publication by *Journal of Vacuum Science and Technology*.

S. Sarraf, E. A. Williams, and L. M. Goldman, "Ion-Ion Two-Stream Instability in Multispecies Laser-Produced Plasma," accepted for publication by *Physical Review A: General Physics*.

## Conference Presentations

J. A. Abate, S. D. Jacobs, W. S. Piskorowski, and T. P. Pottenger, "Spatially Resolved Characterization of Thin Films," presented at the Annual Meeting of the Conference on Lasers and Electro-Optics, Phoenix, Arizona, April 1982.

G. F. Albrecht, "Temporal Shape Analysis of Mode-Locked/Q-Switched  $\text{Nd}^{3+}$  Laser Pulses," presented at the Annual Meeting of the Conference on Lasers and Electro-Optics, Phoenix, Arizona, April 1982.

T. Sizer II, J. D. Kafka, and G. Mourou, "Generation and Amplification of Seventy Femtoseconds Using a Frequency-Doubled Nd:YAG Pumping Source," presented at the Annual Meeting of the Conference on Lasers and Electro-Optics, Phoenix, Arizona, April 1982.

J. M. Forsyth, "Applications of Laser-Produced Plasma X-Ray Radiation in Structural Kinetic Studies," presented at the Annual Meeting of the Conference on Lasers and Electro-Optics, Phoenix, Arizona, April 1982.

J. Hoose, R. Hopkins, L. Lund, S. Kumpan, and W. Friedman, "Phase and Intensity Measurements of the Omega Laser System," presented at the Annual Meeting of the Conference on Lasers and Electro-Optics, Phoenix, Arizona, April 1982.

M. C. Richardson, B. Yaakobi, J. Delettrez, D. M. Villeneuve, S. Letzring, A. Entenberg, R. S. Marjoribanks, S. Kacendar, and J. M. Soures, "Final Core Conditions of Symmetrically Imploded Large-Aspect-Ratio Targets," presented at the Annual Meeting of the Conference on Lasers and Electro-Optics, Phoenix, Arizona, April 1982.

J. M. Soures, "Short-Wavelength Direct-Drive Laser Fusion: A Status Report," invited paper presented at the Annual Meeting of the Conference on Lasers and Electro-Optics, Phoenix, Arizona, April 1982.

J. M. Soures, "Laser-Matter Interaction Studies at the University of Rochester Laboratory for Laser Energetics," presented at the Japan-U.S. Seminar on Theory and Application of Multiply-Ionized Plasmas Produced by Laser and Particle Beams, Nara, Japan, May 1982.

L. D. Lund, "Construction of the Omega Laser System," presented at the Optical Society Spring Meeting on Applied Optics, Rochester, New York, May 1982.

A. Simon, E. Williams, T. Dewandre, and R. L. McCrory, "Improved Threshold Criteria for the Inhomogeneous  $2\omega_p$  Instability," presented at the Twelfth Annual Conference on Anomalous Absorption of Electromagnetic Waves, Sante Fe, New Mexico, May 1982.

D. M. Villeneuve, W. Friedman, J. Hoose, M. C. Richardson, S. Letzring, R. Hutchison, K. Lee, S. Skupsky, R. L. McCrory, and J. M. Soures, "Irradiation Uniformity of Spherical Targets on OMEGA," presented at the Twelfth Annual Conference on Anomalous Absorption of Electromagnetic Waves, Sante Fe, New Mexico, May 1982.

R. S. Craxton and R. L. McCrory, "Two-Dimensional Hydrodynamic Effects in Single Beam Laser-Plasma Interaction Experiments," presented at the Twelfth Annual Conference on Anomalous Absorption of Electromagnetic Waves, Sante Fe, New Mexico, May 1982.

J. Delettrez, B. Yaakobi, M. C. Richardson, T. Boehly, R. S. Marjoribanks, S. Letzring, R. Hutchison, R. L. McCrory, J. M. Soures, and G. D. Enright, "Energy Transport and Partitioning in Nanosecond One-Micron Spherical Target Irradiation Experiments," presented at

- the Twelfth Annual Conference on Anomalous Absorption of Electromagnetic Waves, Sante Fe, New Mexico, May 1982.
- R. Epstein and R. S. Craxton, "First-Order Refractive Effects of Density Fluctuations on Light Rays in a Plasma," presented at the Twelfth Annual Conference on Anomalous Absorption of Electromagnetic Waves, Sante Fe, New Mexico, May 1982.
- R. L. Keck, L. M. Goldman, M. C. Richardson, W. Seka, K. Tanaka, D. Villeneuve, and E. A. Williams, "Coronal Electron Temperature Measurements in UV-Laser Plasmas," presented at the Twelfth Annual Conference on Anomalous Absorption of Electromagnetic Waves, Sante Fe, New Mexico, May 1982.
- P. Koch and E. A. Williams, "The Raman Instability Can Be Absolute Below Quarter-Critical," presented at the Twelfth Annual Conference on Anomalous Absorption of Electromagnetic Waves, Sante Fe, New Mexico, May 1982.
- R. L. McCrory, C. P. Verdon, K. Lee, J. Delettrez, M. C. Richardson, D. M. Villeneuve, and J. M. Soures, "Theoretical Interpretation of Multi-Dimensional Effects of OMEGA Uniformity Experiments," presented at the Twelfth Annual Conference on Anomalous Absorption of Electromagnetic Waves, Sante Fe, New Mexico, May 1982.
- M. C. Richardson, S. Letzring, D. M. Villeneuve, B. Yaakobi, A. Entenberg, S. Kacenjar, R. Marjoribanks, R. Hutchison, J. Delettrez, R. L. McCrory, and J. M. Soures, "Uniform Compression of Large-Aspect-Ratio Targets Driven by Nanosecond, 24-Beam Laser Pulses from OMEGA," presented at the Twelfth Annual Conference on Anomalous Absorption of Electromagnetic Waves, Sante Fe, New Mexico, May 1982.
- J. E. Rizzo, S. Letzring, and M. C. Richardson, "Harmonic Emission from Uniformly Illuminated Spherical Targets," presented at the Twelfth Annual Conference on Anomalous Absorption of Electromagnetic Waves, Sante Fe, New Mexico, May 1982.
- W. Seka, L. M. Goldman, M. C. Richardson, J. M. Soures, D. M. Villeneuve, B. Yaakobi, R. S. Craxton, J. Delettrez, R. L. McCrory, R. Short, E. A. Williams, T. Boehly, R. L. Keck, K. Tanaka, and R. Boni, "Nonlinear Interaction Mechanisms in UV-Laser Plasmas," presented at the Twelfth Annual Conference on Anomalous Absorption of Electromagnetic Waves, Sante Fe, New Mexico, May 1982.
- R. W. Short and E. A. Williams, "Frequency-Broadening Arising from Filamentation in a Laser-Plasma Corona," presented at the Twelfth Annual Conference on Anomalous Absorption of Electromagnetic Waves, Sante Fe, New Mexico, May 1982.
- S. Skupsky and K. Lee, "Uniformity of Illumination and Thermal Smoothing for Laser-Driven Fusion," presented at the Twelfth Annual Conference on Anomalous Absorption of Electromagnetic Waves, Sante Fe, New Mexico, May 1982.
- E. A. Williams and R. W. Short, "Stimulated Brillouin Scattering of Multi-Line Laser Light in a Flowing Plasma Corona," presented at the Twelfth Annual Conference on Anomalous Absorption of Electromagnetic Waves, Sante Fe, New Mexico, May 1982.

J. Delettrez, B. Yaakobi, M. C. Richardson, T. Boehly, R. S. Marjoribanks, S. Letzring, R. Hutchison, R. McCrory, and J. Soures, "Energy Transport and Partitioning in Nanosecond One-Micron Spherical Target Irradiation Experiments," presented at the 1982 IEEE International Conference on Plasma Science, Ottawa, Ontario, Canada, May 1982.

S. Kacenjar, L. M. Goldman, S. Skupsky, A. Entenberg, M. C. Richardson, and J. M. Soures, "Direct Measurement of Core Density-Radius Product of Laser Fusion Targets," presented at 1982 IEEE International Conference on Plasma Science, Ottawa, Ontario, Canada, May 1982.

R. S. Marjoribanks, M. C. Richardson, S. A. Letzring, and J. Delettrez, "Time-Resolved X-Ray Spectroscopy of OMEGA Laser-Driven Symmetric Compressions," presented at the 1982 IEEE International Conference on Plasma Science, Ottawa, Ontario, Canada, May 1982.

M. C. Richardson, D. M. Villeneuve, B. Yaakobi, J. Delettrez, S. Skupsky, W. Friedman, J. Hoose, S. Letzring, J. Rizzo, R. L. McCrory, and J. M. Soures, "Twenty-Four Beam Nanosecond Irradiation Experiments with Spherical Targets," presented at the 1982 IEEE International Conference on Plasma Science, Ottawa, Ontario, Canada, May 1982.

W. Seka, "UV-Laser Matter Interaction Processes," presented at the 1982 IEEE International Conference on Plasma Science, Ottawa, Ontario, Canada, May 1982.

R. Leary, "Managing Size and Complexity in Large FORTH Applications," presented at the 1982 Rochester FORTH Conference, Rochester, New York, May 1982.

S. Zoeller, T. Sizer, and J. Kafka, "Measurement of Amplified Femtosecond Pulses," presented at the 1982 Rochester FORTH Conference, Rochester, New York, May 1982.

M. C. Richardson, "Recent Progress in the Direct-Drive Approach to Laser Fusion," invited paper presented at the Annual Meeting of the Plasma Physics Division, Oxford, England, June 1982.

T. M. Nordlund, "Subnanosecond Fluorescence Measurements of Tryptophan and Tyrosine Motions," presented at the Tenth Annual American Society for Photobiology, Vancouver, B.C., June 1982.

J. D. Kafka, T. Sizer II, C. W. Gabel, and G. Mourou, "Synchronous Amplification of Seventy Femtosecond Pulses Using a Frequency-Doubled Nd:YAG Pumping Source," presented at the Third Topical Meeting on Picosecond Phenomena III, Garmisch-Partenkirchen, Federal Republic of Germany, June 1982.

W. Knox, T. M. Nordlund, and G. Mourou, "Jitter-Free Streak Camera System," presented at the Third Topical Meeting on Picosecond Phenomena III, Garmisch-Partenkirchen, Federal Republic of Germany, June 1982.

S. Williamson and G. Mourou, "Electron Diffraction in the Picosecond Domain," invited talk at the Third Topical Meeting on Picosecond Phenomena III, Garmisch-Partenkirchen, Federal Republic of Germany, June 1982.

J. Kafka, T. Sizer II, I. N. Duling, C. W. Gabel, and G. Mourou, "Synchronous Amplification of 70 Femtosecond Pulses Using a Frequency-Doubled Nd:YAG Pumping Source," invited talk at the Third Topical Meeting on Picosecond Phenomena III, Garmisch-Partenkirchen, Federal Republic of Germany, June 1982.

T. E. Orlowski, B. A. Weinstein, W. H. Knox, T. M. Nordlund, and G. Mourou, "Picosecond Radiative and Non-Radiative Recombination in Amorphous  $AS_2S_3$ ," presented at the Third Topical Meeting on Picosecond Phenomena III, Garmisch-Partenkirchen, Federal Republic of Germany, June 1982.

W. Knox, G. Mourou, and T. M. Nordlund, "Application of Jitter-Free Streak Camera in Solid State Physics, Biophysics and Chemistry," presented at the Twelfth International Quantum Electronics Conference, Munich, Germany, June 1982.

G. R. Baker, D. I. Meiron, S. A. Orszag, R. L. McCrory, and C. P. Verdon, "Iterative Boundary Integral Methods for Free Surface Flow Problems in Two and Three Dimension," invited talk at the Twelfth International Quantum Electronics Conference, Munich, Germany, June 1982.

T. Sizer II, J. D. Kafka, I. N. Duling, C. W. Gabel, and G. Mourou, "Generation and Amplification of 70 Femtosecond Pulses Using a Frequency-Doubled Nd:YAG Pumping Source," presented at the Twelfth International Quantum Electronics Conference, Munich, Germany, June 1982.

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