

# PUBLICATIONS AND CONFERENCE PRESENTATIONS

## Publications

- A. Simon and R. W. Short, "Alternative Analysis of CO<sub>2</sub>-Laser-Produced Plasma Waves," *Phys. Fluids* **31**, 3371-3374 (1988).
- E. M. Epperlein, G. J. Rickard, and A. R. Bell, "Two-Dimensional Nonlocal Electron Transport in Laser-Produced Plasmas," *Phys. Rev. Lett.* **61**, 2453-2456 (1988).
- D. J. Harter and P. Bado, "Wavelength Tunable Alexandrite Regenerative Amplifier," *Appl. Opt.* **22**, 4392-4395 (1988).
- J. S. Coe, P. Maine, and P. Bado, "Regenerative Amplification of Picosecond Pulses in Nd:YLF: Effect of Gain Narrowing and Gain Saturation," *J. Opt. Soc. Am. B* **5**, 2560-2563 (1988).
- K. Meyer, M. Pessot, G. Mourou, R. Grondin, and S. Chamoun, "Subpicosecond Photoconductivity Overshoot in Gallium Arsenide Observed by Electro-Optic Sampling," *Appl. Phys. Lett.* **53**, 2254-2256 (1988).
- S. H. Batha, R. Bahr, L. M. Goldman, W. Seka, and A. Simon, "Observations of Enhanced Thomson Scattering," *Phys. Fluids* **31**, 3667-3674 (1988).
- A. Simon, S. Radin, and R. W. Short, "Long-Time Simulation of the Single-Mode Bump-on-Tail Instability," *Phys. Fluids* **31**, 3649-3659 (1988).

J. C. Lee, J. H. Kelly, D. L. Smith, and S. D. Jacobs, "Gain Squaring in a Cr:Nd:GSGG Active Mirror Amplifier Using a Cholesteric Liquid Crystal Mirror." *IEEE J. Quantum Electron.* **24**, 2238–2242 (1988).

B. Yaakobi, D. Shvarts, T. Boehly, P. Audebert, R. Epstein, B. Boswell, M. C. Richardson, and J. M. Soures, "X-Ray Laser Studies at LLE," *IEEE Trans. Plasma Sci.* **16**, 505–511 (1988).

P. A. Jaanimagi, D. K. Bradley, J. Duff, G. G. Gregory, and M. C. Richardson, "Time-Resolving X-Ray Diagnostics for ICF," *Rev. Sci. Instrum.* **59**, 1854 (1988).

D. K. Bradley, P. A. Jaanimagi, J. Delettrez, C. P. Verdon, F. Marshall, J. D. Kilkenny, and P. Bell, "X-Ray Gated Images of Imploded Microballoons," *High Speed Photography, Videography, and Photonics VI*, (SPIE, Bellingham, WA, 1988), Vol. 981, pp. 176–185.

P. A. Jaanimagi, D. D. Meyerhofer, and M. C. Richardson, "Diagnosing One Picosecond Duration Ultra-High Brightness Sources," *High Speed Photography, Videography, and Photonics VI*, (SPIE, Bellingham, WA, 1988), Vol. 981, pp. 146–152.

## Forthcoming Publications

A. Simon and R. W. Short, "Comments on 'Studies of Raman Scattering from Overdense Targets Irradiated of Several Kilojoules of 0.53-micron Laser Light'," to be published in *Physics of Fluids*.

H. G. Kim, "Recent Progress in Laser Fusion," to be published in the *Proceedings of the First KSEA Northeast Regional Conference*, Lehigh University, Bethlehem, PA.

M. Pessot, J. Squier, P. Bado, G. Mourou, and D. J. Harter, "Chirped Pulse Amplification of 300 fs Pulses in an Alexandrite Regenerative Amplifier," to be published in *IEEE Journal of Quantum Electronics*.

Y. F. Maa and S. H. Chen, "Synthesis of Thermotropic Liquid Crystalline Side-Chain Polymers Via Chemical Modification of Polymeric Carboxylic Acids," to be published in *Macromolecules*.

M. L. Tsai, S. H. Chen, K. L. Marshall, and S. D. Jacobs, "Thermotropic and Optical Properties of Chiral Nematic Polymers," to be published in *International Journal of Thermophysics*.

R. L. McCrory and C. P. Verdon, "Computer Modelling and Simulation in ICF," to be published in *Il Nuovo Cimento*.

F. W. Smith, S. Gupta, H. Q. Le, M. Frankel, V. Diadiuk, M. A. Hollis, D. R. Dykaar, G. A. Mourou, T. Y. Hsiang, and A. R. Calawa, "Picosecond GaAs-Based Photoconductive Optoelectronic Detectors," to be published in *Applied Physics Letters*.

S. Skupsky and T. Kessler, "A Source of Hot Spots in Frequency-Tripled Laser Light," to be published in *Optics Communications*.

J. C. Lee, A. Schmid, and S. D. Jacobs, "Effects of Anchoring Under Intense Optical Fields in a Cholesteric Liquid Crystal," to be published in *Molecular Crystals and Liquid Crystals*.

R. Epstein, "The Design and Optimization of Recombination XUV Lasers," to be published in *Physics of Fluids*.

E. M. Epperlein, G. J. Rickard, and A. R. Bell, "A Code for the Solution of the Vlasov-Fokker-Planck Equation in 1-D or 2-D," to be published in *Computer Physics Communications*.

W. R. Donaldson, "Radial Line Structure Experiments," to be published in the *Proceedings of the 4th Workshop: Pulse Power Techniques for Future Accelerators*, Erice, Sicily, 3-10 March 1988.

P. Maine and G. Mourou, "Amplification of 1 ns Pulses in Nd:Glass Followed by Compression to 1 ps," to be published in *Optics Letters*.

P. C. Cheng, S. P. Newberry, H. Kim, and M. D. Wittman, "X-Ray Contact Microradiography and Shadow Projection X-Ray Microscopy," to be published in the *European Journal of Cell Biology*.

R. L. McCrory, J. M. Soures, C. Verdon, M. Richardson, P. Audebert, D. Bradley, J. Delettrez, L. Goldman, R. Hutchison, S. Jacobs, P. Jaanimagi, R. Keck, H. Kim, T. Kessler, J. Knauer, R. Kremens, S. Letzring, F. Marshall, P. McKenty, W. Seka, S. Skupsky, and B. Yaakobi, "High-Density Laser-Fusion Experiments at the Laboratory for Laser Energetics," to be published in the *Proceedings of the 8th International Workshop on Laser Interaction and Related Plasma Phenomena*.

G. Mourou, "Picosecond Electro-Optic Sampling," to be published in the *Proceedings of the High Speed Electronics Conference*, Stockholm, Sweden, August 1986.

R. L. McCrory and J. M. Soures, "Inertially Confined Fusion," to be published in *Applications of Laser Plasmas*, Chapter 7.

O. Barnouin, B. Yaakobi, J. Delettrez, R. Epstein, P. Jaanimagi, and L. M. Goldman, "Experimental and Numerical Study of Thermal Transport in 24-Beam Ultraviolet Irradiation of Spherical Targets," to be published in the *Journal of Applied Physics*.

S. Krishnamurthy and S. H. Chen, "Purification of Thermotropic Liquid Crystalline Siloxane Oligimer with Supercritical Carbon Dioxide," to be published in *Makromol. Chem.*

## Conference Presentations

N. Sampat and S. Swales, "Real-Time Image Processing Techniques Used in Studying Cryogenically Cooled Laser Fusion Targets," presented at the 5th Annual International Electronic Imaging Exposition and Conference, Boston, MA. 3-6 October 1988.

R. L. McCrory, J. M. Soures, C. P. Verdon, F. J. Marshall, S. A. Letzring, S. Skupsky, R. L. Kremens, J. P. Knauer, H. Kim, J. Delettrez, R. L. Keck, and D. K. Bradley, "Direct-Drive Laser Implosion of DT to 20–40 g/cm<sup>3</sup>," presented at the 19th ECLIM Conference, Madrid, Spain. 3–7 October 1988.

J. Knauer, J. M. Soures, R. L. McCrory, D. Bradley, R. S. Craxton, J. Delettrez, R. Epstein, P. Jaanimagi, R. Keck, R. Kremens, S. Letzring, F. J. Marshall, M. C. Richardson, W. Seka, R. Short, S. Skupsky, C. Verdon, and B. Yaakobi, "Diagnostics for Laser-Fusion High-Density Implosion Experiments," presented at the American Vacuum Society Conference, Atlanta, GA, 3–9 October 1988 (invited talk).

T. Kessler, R. S. Craxton, W. Donaldson, J. Kelly, S. Letzring, and S. Skupsky, "Phase Conversion for a Laser Microfusion Facility," presented at the 8th Topical Meeting on the Technology of Fusion Energy, Salt Lake City, UT, 9–13 October 1988.

R. L. McCrory, J. M. Soures, C. P. Verdon, F. J. Marshall, S. A. Letzring, T. J. Kessler, J. P. Knauer, H. Kim, S. D. Jacobs, R. L. Kremens, S. Skupsky, R. L. Keck, D. K. Bradley, W. D. Seka, B. Yaakobi, P. A. Jaanimagi, J. A. Delettrez, and P. W. McKenty, "High Density Direct-Drive Cryogenic Implosion Experiments," presented at the 12th International IAEA Conference on Plasma Physics and Controlled Nuclear Fusion Research, Nice, France, 12–19 October 1988.

M. Guardalben, A. Bevin, K. Marshall, A. Schmid, and F. Kreuzer, "1053-nm High-Field Effect in Monomeric and Polymeric Conjugated Systems," presented at the Symposium on Optical Materials for High Power Lasers, Boulder, CO, 16–28 October 1988.

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The following presentations were made at the 30th Annual APS Conference, Hollywood, FL, 31 October–4 November 1988:

S. Batha, D. D. Meyerhofer, W. Seka, A. Simon, and L. M. Goldman, "Observations of Raman Up-Scatter in a Long Scale-Length Plasma."

T. Boehly, B. Yaakobi, D. Shvarts, P. Audebert, R. Epstein, D. D. Meyerhofer, M. C. Richardson, M. Russotto, J. M. Soures, and J. Wang, "X-Ray Laser Studies at LLE."

D. K. Bradley, J. Delettrez, C. Hestdalen, P. A. Jaanimagi, J. P. Knauer, F. J. Marshall, C. P. Verdon, J. D. Kilkenny, and P. Bell, "X-Ray Imaging of Microballoons Imploded by the OMEGA Laser System."

R. S. Craxton, "Simulations of X-Ray Amplified Spontaneous Emission From Line-Focus Laser-Produced Plasmas."

J. Delettrez, D. D. Meyerhofer, R. Epstein, J. P. Matte, H. Pepin, J. Kiefer, M. Chaker, and P. Audebert, "Modeling of the Interaction of 1-ps Laser Pulses with Solid Targets at One Micron."

E. M. Epperlein and R. Short, "Nonlocal Electron Transport Effects on the Filamentation of Laser Beams."

R. Epstein, S. Skupsky, and J. Delettrez, "Measuring High Compression in Laser Fusion Experiments Using the Energy Spectrum of Knock-On Particles."

P. A. Jaanimagi, D. K. Bradley, J. Delettrez, T. Kessler, P. W. McKenty, M. C. Richardson, S. Skupsky, and C. P. Verdon, "Studies of Time-Resolved Illumination Uniformity on OMEGA."

R. L. Keck, S. Skupsky, J. P. Knauer, R. L. Kremens, F. J. Marshall, and C. P. Verdon, "Target  $\rho R$  Measurements of OMEGA Implosions Via the 'Knock-On' Technique."

J. P. Knauer, R. L. McCrory, J. M. Soures, C. P. Verdon, F. J. Marshall, S. A. Letzring, T. J. Kessler, H. Kim, S. D. Jacobs, R. L. Kremens, S. Skupsky, R. L. Keck, D. K. Bradley, W. D. Seka, B. Yaakobi, P. A. Jaanimagi, J. A. Delettrez, P. W. McKenty, and M. C. Richardson, "OMEGA Implosions of Gas Filled CH Shells and CH Coated GMB's."

S. A. Letzring, T. J. Kessler, H. Kim, R. Gram, and M. Wittman, "Experimental Apparatus for Producing and Measuring Cryogenic Fuel-Filled Targets on the OMEGA Laser System."

R. S. Marjoribanks, M. C. Richardson, D. K. Bradley, J. Delettrez, R. Epstein, G. G. Gregory, and P. A. Jaanimagi, "Time-Resolved Ionization Studies in UV-Laser-Produced Plasmas."

F. J. Marshall, S. A. Letzring, C. P. Verdon, S. Skupsky, R. L. Keck, J. P. Knauer, R. L. Kremens, D. K. Bradley, T. Kessler, J. Delettrez, H. Kim, R. L. McCrory, and J. M. Soures, "Cryogenic Target Implosion Experiments with OMEGA."

P. W. McKenty, S. Skupsky, C. P. Verdon, and R. L. McCrory, "Numerical Evaluation of Time-Dependent Ablation Pressure Nonuniformities in Imploding ICF Targets."

D. D. Meyerhofer, R. Bahr, S. Batha, H. Chen, M. Richardson, and S. Uchida, "Backscattering Measurements During High Intensity, 1 ps, Laser-Solid Interactions."

M. C. Richardson, D. K. Bradley, J. Delettrez, R. Epstein, P. A. Jaanimagi, B. Yaakobi, C. F. Hooper, R. C. Mancini, D. Kilcrease, and L. Woltz, "Time-Resolved, X-Ray Diagnosis of Compressed Ar-Filled Polymer Shell Targets."

R. W. Short, "Raman Forward Scatter in Long-Scale-Length Low-Temperature Plasmas."

A. Simon and R. W. Short, "Saturated Plasma Wave Model of Raman Scattering Experiments."

S. Skupsky, R. S. Craxton, T. Kessler, S. Letzring, R. Short, and J. M. Soures, "Laser Beam Smoothing by Spectral Dispersion (SSD)."

J. M. Soures, "High-Density, Direct-Drive Target Implosion Experiments" (invited talk).

C. P. Verdon, F. J. Marshall, S. Letzring, D. K. Bradley, J. Delettrez, R. L. Keck, J. P. Knauer, R. L. Kremens, R. L. McCrory, S. Skupsky,

and J. M. Soures, "Theoretical Interpretation of OMEGA High Density Implosion Experiments."

J. Wang, T. Boehly, B. Yaakobi, D. Shvarts, P. Audebert, R. Epstein, D. D. Meyerhofer, M. C. Richardson, M. Russotto, and J. M. Soures, "Analysis of Multiple-Foil XRL Experiments."

R. C. Mancini, C. F. Hooper, D. Kilcrease, L. Woltz, M. C. Richardson, D. K. Bradley, J. Delettrez, R. Epstein, P. A. Jaanimagi, and B. Yaakobi, "Broadening of Satellite and Resonance Lines from High-Density Laser Implosion Experiments."

J. C. Moreno, S. Goldsmith, H. R. Griem, R. Epstein, J. Knauer, and P. Jaanimagi, "Radiation Cooling in Laser-Produced Plasmas due to High-Z Layers."

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A. Lindquist, S. D. Jacobs, and V. Plotsker, "Chemo-Mechanical Polishing of Phosphate Glass as a Pretreatment of Rapid Final Polishing," presented at the Workshop on Optical Fabrication and Testing, Santa Clara, CA, 2-4 November 1988.

H. Kim, "Recent Progress in Laser Fusion," presented at the First KSEA Northeast Regional Conference, Lehigh University, Bethlehem, PA, 5 November 1988.

S. D. Jacobs, "Optical Materials for Laser Applications," presented at the American Institute of Chemical Engineering Conference, Washington, DC, 27 November-2 December 1988.

M. Pessot, J. Squier, G. Mourou, and D. Harter, "Generation of 100 fs, 20 GW Pulses in Alexandrite Using Chirped Pulse Amplification," presented at the Optical Society of America Annual Meeting, Sunnyvale, CA, 31 November-4 December 1988.

#### ACKNOWLEDGMENT

The work described in this volume includes current research at the Laboratory for Laser Energetics, which is supported by Empire State Electric Energy Research Corporation, New York State Energy Research and Development Authority, Ontario Hydro, the University of Rochester, and the U.S. Department of Energy Office of Inertial Fusion under agreement No. DE-FC03-85DP40200.