

# PUBLICATIONS AND CONFERENCE PRESENTATIONS

## Publications

T. Jackson, J. Nees, R. Vallee, and G. Mourou, "Novel Method for Ultrahigh-Frequency Electro-Optic Time-Domain Reflectometry," *Electron. Lett.* **23**, 1130-1131 (1987).

R. W. Short, W. Seka, and R. Bahr, "Stimulated Raman Scattering in Self-Focused Light Filaments in Laser-Produced Plasmas," *Phys. Fluids* **30**, 3245-3251 (1987).

J. Delettrez, R. Epstein, M. C. Richardson, P. A. Jaanimagi, and B. L. Henke, "Effect of Laser Illumination Nonuniformity on the Analysis of Time-Resolved X-Ray Measurements in UV Spherical Transport Experiments," *Phys. Rev. A* **36**, 3926-3934 (1987).

T. Y. Hsiang, J. F. Whitaker, R. Sobolewski, D. R. Dykaar, and G. A. Mourou, "Propagation Characteristics of Picosecond Electrical Transients on Coplanar Striplines," *Appl. Phys. Lett.* **51**, 1551-1553 (1987).

J. H. Kelly, D. L. Smith, J. C. Lee, S. D. Jacobs, D. J. Smith, J. C. Lambropoulos, and M. J. Shoup III, "High-Repetition-Rate Cr:Nd:GSGG Active-Mirror Amplifier," *Opt. Lett.* **12**, 996-998 (1987).

S. Skupsky, " 'Coulomb Logarithm' for Inverse-Bremsstrahlung Laser Absorption," *Phys. Rev. A* **36**, 5701-5712 (1987).

B. Yaakobi, "X-Ray Lasers: A Progress Report," *Photonics* **21**, 65 (1987).

R. L. McCrory, J. M. Soures, P. Audebert, O. Barnouin, R. S. Craxton, J. Delettrez, R. Epstein, L. Forsley, R. J. Hutchison, P. Jaanimagi, S. Jacobs, R. L. Keck, T. Kessler, H. Kim, R. Kremens, S. A. Letzring, R. S. Marjoribanks, F. Marshall, P. McKenty, G. A. Mourou, M. C. Richardson, W. Seka, R. W. Short, A. Simon, S. Skupsky, C. Verdon, J. Wark, B. Yaakobi, S. E. Bodner, J. P. Dahlburg, M. Emery, J. Gerdner, J. Grun, T. Lee, C. Manka, E. McLean, S. Obenschain, B. Ripin, and J. Stamper, "Direct-Drive Laser Fusion in the United States of America," *Plasma Physics and Controlled Nuclear Fusion Research 1986* (International Atomic Energy Agency, Vienna, 1987), Vol. 3, pp. 47-54.

J. F. Whitaker, R. Sobolewski, D. R. Dykaar, T. Y. Hsiang, and G. A. Mourou, "Subpicosecond Pulse Propagation on Superconducting Striplines," *Proceedings of the 18th International Conference on Low Temperature Physics*, Kyoto, Japan, 1987; *ibid.*, *Japanese Journal of Applied Physics* **26**, Supplement 26-3 (1987).

J. C. Lee, S. D. Jacobs, and A. Schmid, "Retro-Self-Focusing and Pinholing Effect in a Cholesteric Liquid Crystal," *Mol. Cryst. Liq. Cryst.* **150b**, 617-629 (1987).

J. Nees and S. Williamson, "A Technique for Wing Suppressed IR Sampling," in *Picosecond Electronics and Optoelectronics II*, edited by F. J. Leonberger, C. H. Lee, F. Capasso, and H. Morkoc (Springer-Verlag, Berlin, Heidelberg, New York, London, Paris, Tokyo, 1987), pp. 33-35; G. Mourou, K. Meyer, J. Whitaker, M. Pessot, R. Grondin, and C. Caruso, "Ultrafast Optics Applied to Modern Device Research," *ibid.*, pp. 40-48; R. Sobolewski, D. R. Dykaar, T. Y. Hsiang, and G. A. Mourou, "Picosecond Switching in Josephson Tunnel Junctions," *ibid.*, pp. 177-180; W. R. Donaldson, "High-Speed, High-Repetition-Rate, High-Voltage Photoconductive Switching," *ibid.*, pp. 241-244.

J. C. Moreno, S. Goldsmith, H. R. Griem, L. Cohen, and M. C. Richardson, "Identification of New Ti XXI and Ti XIX Transitions Emitted by Laser-Produced Plasmas," *J. Opt. Soc. Am. B* **4**, 1931-1933 (1987).

## Forthcoming Publications

The following papers are to be published in the *Proceedings of the 17th Annual Boulder Damage Symposium*, Boulder, CO, October 1985:

K. A. Cerqua, S. D. Jacobs, B. L. McIntyre, and W. Zhong, "Ion Exchange Strengthening of Nd-Doped Phosphate Laser Glass."

B. Liao, D. J. Smith, and B. L. McIntyre, "The Development of Nodular Defects in Optical Coatings."

D. J. Smith, B. Krakauer, C. J. Hayden, A. W. Schmid, and M. J. Guardalben, "Yttrium-Oxide-Based Anti-Reflection Coating for High Power Lasers at 351 nm."

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B. Yaakobi, "X-Ray Diagnostic Methods for Laser-Imploded Targets" and "Thermal Transport, Mass Ablation, and Preheat in Laser-Target Experiments," to be published in the *Proceedings of the Spring College on Radiation in Plasmas*, Trieste, Italy, June 1985 (World Scientific Publishing Co.).

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.

K. A. Cerqua, J. Hayden, and W. C. LaCourse, "Stress Measurements in SOL-GEL Films," to be published in the *Journal of Non-Crystalline Solids*.

J. F. Whitaker, R. Sobolewski, D. R. Dykaar, T. Y. Hsiang, and G. A. Mourou, "Propagation Model for Ultrafast Signals on Superconducting Dispersive Striplines," to be published in a special issue of *IEEE Transactions on Microwave Theory and Techniques*.

P. Maine, D. Strickland, P. Bado, M. Pessot, and G. Mourou, "Generation of Ultrahigh-Peak-Power Pulses by Chirped Pulse Amplification," to be published in the *IEEE Journal of Quantum Electronics*.

W. Watson, "Vacuum-Assisted Contaminated Particulate Removal," to be published in the *Journal of Vacuum Science and Technology*.

A. Simon and R. W. Short, "Comments on 'Motion of an Electron Bunch Through a Plasma'," to be published in *Physics of Fluids*.

H. E. Elsayed-Ali and G. A. Mourou, "Picosecond Reflection High-Energy Electron Diffraction," to be published in *Applied Physics Letters*.

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P. C. Cheng, H. G. Kim, D. M. Shinozaki, K. H. Tan, and M. D. Wittman, "X-Ray Microscopy—Its Application to Biological Sciences," to be published in the *Proceedings of the X-Ray Microscopy Meeting '87*, Stony Brook, NY, September 1987 (Springer-Verlag).

K. L. Marshall and S. D. Jacobs, "Near-Infrared Dichroism of a Mesogenic Transition Metal Complex and Its Solubility in Nematic Hosts," to be published in *Molecular Crystals and Liquid Crystals*.

## Conference Presentations

The following presentations were made at Atomic Processes in Plasmas, Santa Fe, NM, 28 September–2 October 1987:

P. Audebert, T. Boehly, M. Russotto, D. Shvarts, J. M. Soures, and B. Yaakobi, "A Measurement of Counterstreaming Between Two Exploding-Foil Plasmas."

T. Boehly, D. Shvarts, P. Audebert, D. Bradley, R. S. Craxton, R. Epstein, M. Russotto, J. M. Soures, and B. Yaakobi, "X-Ray Laser Studies at LLE."

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H. Kim, "Parylene Ablation Layer Coating of Mechanically Non-Supported Inertial Fusion Targets," presented at the JOWOG 28A Workshop on Organic Coatings, LANL, Los Alamos, NM, 6-8 October 1987.

T. Kessler, D. Smith, N. Sampat, S. Swales, W. Castle, and M. Wohl, "Thin Film Distributed Phase Plates," presented at the Optical Society of America Annual Meeting and Workshop on Optical Fabrication and Testing, Rochester, NY, 20-23 October 1987.

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The following presentations were made at the 8th International Workshop on Laser Interaction and Related Plasma Phenomena, Monterey, CA 26-30 October 1987:

R. L. McCrory, "Ultra-High Pressure Ablative Compression Experiments on OMEGA" (invited paper).

M. C. Richardson, "High-Density Implosion Diagnostics."

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The following presentations were made at the American Physical Society Conference, San Diego, CA, 30 October-6 November 1987:

S. H. Batha, R. Bahr, L. M. Goldman, W. Seka, and A. Simon, "Observations of Enhanced Thomson Scattering."

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

B. Boswell, D. Shvarts, T. Boehly, and B. Yaakobi, "Effects of Refraction on Beam Propagation and Amplification in Various X-Ray Laser Geometries."

R. S. Craxton, W. Seka, and C. Gomez, "Computer Simulations of a Self-Focusing Experiment under Reactor-Like Conditions."

J. Delettrez, D. Bradley, R. Epstein, P. Jaanimagi, M. C. Richardson, and S. Skupsky, "Effects of Illumination Nonuniformity on the Interpretation of X-Ray Diagnostics in Glass Microballoon Implosions."

E. M. Epperlein, "2-D Nonlocal Electron Thermal Transport in Laser-Produced Plasmas."

R. Epstein, D. Shvarts, S. Skupsky, and B. Yaakobi, "The Design and Optimization of Recombination X-Ray Lasers."

L. M. Goldman, "Areal Density and Mix Measurement in IF Plasmas."

F. J. Marshall, S. Letzring, C. P. Verdon, R. Keck, H. Kim, J. Knauer, R. Kremens, S. Noyes, G. Pien, M. C. Richardson, F. Rister, M. Wittman, R. L. McCrory, and J. M. Soures, "Cryogenic Target Experiments on the OMEGA Laser."

P. W. McKenty, S. Skupsky, C. P. Verdon, and R. L. McCrory, "Evaluation of Time-Dependent Illumination Uniformity Patterns of Imploding Laser Fusion Targets."

S. Radin, R. W. Short, and A. Simon, "Long Time Simulations of the Single-Mode, Bump-on-Tail Instability."

M. C. Richardson, P. Audebert, D. Bradley, J. Delettrez, P. A. Jaanimagi, R. Keck, R. Kremens, F. J. Marshall, R. L. McCrory, P. W. McKenty, J. M. Soures, and C. P. Verdon, "High-Density, Gas-Filled Target Implosions."

W. Seka, T. Kessler, F. J. Marshall, M. C. Richardson, J. M. Soures, and R. Bahr, "Target Irradiation Uniformity Experiments with Spatial Phase Scramblers."

R. W. Short, "Self-Focusing of Hot Spots in Multiple-Beam Illumination Geometries."

A. Simon, R. W. Short, W. Seka, and L. M. Goldman, "Alternative Analysis of CO<sub>2</sub> Laser-Produced Plasma Waves."

S. Skupsky and T. Kessler, "A Source of Hot Spots in Frequency-Tripled Laser Light."

P. A. Jaanimagi, D. K. Bradley, J. Delettrez, C. Hestdalen, P. W. McKenty, M. C. Richardson, and C. P. Verdon, "Time-Resolved X-Ray Imaging of ICF Implosions."

S. A. Letzring, F. J. Marshall, R. Kremens, R. L. McCrory, G. Pien, J. M. Soures, C. P. Verdon, M. Wittman, R. Gram, T. Kessler, F. Rister, C. Hestdalen, D. Musinski, D. Dekker, M. Mruzek, J. Ankney, and W. J. Filmlee, "Design of and Initial Target Experiments with a Cryogenic Target Positioning System for the 24-Beam OMEGA System."

C. P. Verdon, "Hydrodynamic Stability of Ablatively Driven Pellet Implosions" (invited paper).

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N. Sampat and S. Swales, "Issues in Image Processing Software Development for a Multiuser, Multiprogramming Environment," presented at Electronic Imaging '87, World Trade Center, Boston, MA, 2-5 November 1987.

R. Q. Gram, C. K. Immesoete, H. Kim, and L. Forsley, "Bounce-Coated Ablation Layers on Fusion Targets," presented at the American Vacuum Society's 34th National Symposium and Topical Conference, Anaheim, CA, 2-6 November 1987.

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The following presentations were made at the American Chemical Society's 17th Northeast Regional Meeting, Rochester, NY 8-11 November 1987:

Y. F. Maa, S. H. Chen, and K. L. Marshall, "Chemical Modification of Polymeric Nucleophiles."

M. L. Tsai, S. H. Chen, and K. L. Marshall, "Liquid Crystalline Side-Chain Copolymers Exhibiting the Cholesteric Phase."

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S. D. Jacobs, K. J. Skerrett, S. F. B. Morse, R. J. Hutchison, A. Schmid, K. L. Marshall, K. A. Cerqua, M. J. Guardalben, and T. J. Kessler, "Performance of the Frequency-Tripled OMEGA High-

Peak-Power Nd:Glass Laser System with Liquid-Crystal Polarizers," presented at the 1987 International Conference on Lasers, Xiamen (Amoy), China, 15-19 November 1987.

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The following presentations were made at the Winter Meeting of the Materials Research Society, Boston, MA, 1-6 December 1987:

J. C. Lambropoulos, "Analysis of Thermal Stresses, Fracture, and Strengthening in Optical Glass for High-Average-Power Lasers."

J. C. Lambropoulos and B. Wilner, "The Effect of Laser-Induced Damage of Thermal and Mechanical Properties of Optical Materials in Thin Film Form."

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The following presentations were made at the Laser '87 Conference, Lake Tahoe, NV, 7-11 December 1987:

G. Ball, W. Seka, and S. Letzring, "Injection-Seeded Nd:YLF Q-Switched Laser."

J. F. Seely, U. Feldman, C. M. Brown, W. E. Behring, and M. C. Richardson, "High-Resolution XUV Spectroscopy Using the OMEGA Laser" (invited talk).

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G. Mourou, "High-Speed Circuit Testing Using Ultrafast Optical Techniques," presented at the First European Conference on Electron and Optical Beam Testing of Integrated Circuits, Grenoble, France, 9-11 December 1987.

J. F. Whitaker, G. A. Mourou, and K. A. Bhasin, "Millimeter Wave MMIC Characterization by Noncontact Electro-Optic Sampling," presented at the 12th International Conference on Infrared and Millimeter Waves, Grosvenor Resort, FL, 14-18 December 1987.

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