

PUBLICATIONS AND CONFERENCE PRESENTATIONS

Publications

A. Simon and R. W. Short, "Comments on 'Motion of an Electron Bunch Through a Plasma'," *Phys. Fluids* **31**, 217 (1988).

H. E. Elsayed-Ali and G. A. Mourou, "Picosecond Reflection High-Energy Electron Diffraction," *Appl Phys. Lett.* **52**, 103-104 (1988).

D. R. Dykaar, R. Sobolewski, J. M. Chwalek, T. Y. Hsiang, and G. A. Mourou, "Electro-Optic Sampler for Characterization of Devices in a Cryogenic Environment," *Advances in Cryogenic Engineering Vol. 33*, edited by R. W. Fast (Plenum, NY, 1988), pp. 1097-1104.

J. S. Wark, R. R. Whitlock, A. Hauer, J. E. Swain, and P. J. Solone, "Short-Pulse X-Ray Diffraction from Laser-Shocked Crystals," *Shock Waves in Condensed Matter 1987*, edited by S. C. Schmidt and N. C. Holmes (Elsevier Science Publishers B. V., 1988), pp. 781-786.

J. F. Whitaker, R. Sobolewski, D. R. Dykaar, T. Y. Hsiang, and G. A. Mourou, "Propagation Model for Ultrafast Signals on Superconducting Dispersive Striplines," *IEEE Trans. Microwave Theory Tech.* **36**, 277-285 (1988).

D. J. Smith, "Modeling of Nodular Defects in Thin Films for Various Deposition Techniques," *Modeling of Optical Thin Films* (SPIE, Bellingham, WA, 1988), Vol. 821, pp. 120-128.

P. A. Jaanimagi, J. Duff, G. G. Gregory, R. L. Keck, M. C. Richardson, W. Seka, D. J. Bowley, S. Majumdar, and J. Wright, "Multi-Channel Optical Streak Cameras," *High Speed Photography*,

Videography, and Photonics V (SPIE, Bellingham, WA, 1988), Vol. 832, pp. 236–246.

P. A. Jaanimagi, J. Delettrez, G. G. Gregory, R. S. Marjoribanks, M. C. Richardson, D. K. Bradley, and B. L. Henke, "Application of X-Ray Streak Cameras for Fusion Diagnostics," *High Speed Photography, Videography, and Photonics V* (SPIE, Bellingham, WA, 1988), Vol. 832, pp. 368–375.

G. G. Gregory, P. A. Jaanimagi, P. W. McKenty, S. A. Letzring, and M. C. Richardson, "Precision Alignment Technique for Time-Resolved X-Ray Photography," *High Speed Photography, Videography, and Photonics V* (SPIE, Bellingham, WA, 1988), Vol. 831, pp. 383–391.

D. Shvarts, B. Yaakobi, P. Audebert, T. Boehly, B. Boswell, D. Bradley, R. S. Craxton, R. Epstein, M. C. Richardson, and J. M. Soures, "Studies of New Geometries for X-Ray Laser Experiments," *X Rays from Laser Plasmas* (SPIE, Bellingham, WA, 1988), Vol. 831, pp. 283–292.

R. S. Marjoribanks, M. C. Richardson, P. R. Audebert, D. K. Bradley, G. G. Gregory, and P. A. Jaanimagi, "Time-Resolved Spectroscopy for Detailed Studies ($\lambda/\Delta\lambda > 1000$) of Weak X-Ray Emitters in Laser Plasmas," *X Rays from Laser Plasmas* (SPIE, Bellingham, WA, 1988), Vol. 831, pp. 185–198.

P. C. Cheng, H. Kim, and M. D. Wittman, "Microradiography with Laser-Produced Plasma Sources – Surface Roughness on PMMA Resist," *X Rays from Laser Plasmas* (SPIE, Bellingham, WA, 1988), Vol. 831, pp. 217–223.

P. A. Jaanimagi, G. G. Gregory, S. A. Letzring, R. S. Marjoribanks, and M. C. Richardson, "Time-Resolved Grating Spectrograph Incorporating a Reflection Photocathode for Soft X-Ray Spectroscopy," *X Rays from Laser Plasmas* (SPIE, Bellingham, WA, 1988), Vol. 831, pp. 179–184.

P. Audebert, D. K. Bradley, M. C. Richardson, R. Epstein, P. A. Jaanimagi, O. Barnouin, J. Delettrez, B. Yaakobi, F. J. Marshall, and B. L. Henke, "Time and Space Resolved X-Ray Spectra of Imploding Laser Fusion Targets," *X Rays from Laser Plasmas* (SPIE, Bellingham, WA, 1988), Vol. 831, pp. 9–17.

J. C. Lee, S. D. Jacobs, and R. J. Gingold, "Nd:YAG Laser with Cholesteric Liquid Crystal Cavity Mirrors," *Advances in Nonlinear Polymers and Inorganic Crystals, Liquid Crystals, and Laser Media* (SPIE, Bellingham, WA, 1988), Vol. 824, pp. 7–17.

T. Boehly, P. Audebert, D. Shvarts, B. Yaakobi, B. Boswell, D. Bradley, R. S. Craxton, R. Epstein, M. C. Richardson, and J. M. Soures, "Experimental Studies of New Geometries for X-Ray Laser Experiments," *X Rays from Laser Plasmas* (SPIE, Bellingham, WA, 1988), Vol. 831, pp. 305–320.

W. R. Donaldson, "Optical Probes for the Characterization of Surface Breakdown," *Space Structures, Power, and Power Conditioning* (SPIE, Bellingham, WA, 1988), Vol. 871, pp. 157–164.

R. L. McCrory, "Status of Inertial Confinement Fusion – Panel Discussion," *J. Fusion Energy* **6**, 383–386 (1987).

P. Maine, D. Strickland, P. Bado, M. Pessot, and G. Mourou, "Generation of Ultrahigh Peak Power Pulses by Chirped Pulse Amplification," *IEEE J. Quantum Electron.* **24**, 398-403 (1988).

J. Lambropoulos, "Thermal Stresses During Quenching of Short Glass Cylinders," *J. Am. Ceram. Soc.* **71**, C-24-C-25 (1988).

J. C. Moreno, H. R. Greim, S. Goldsmith, A. Krumbein, R. Epstein, P. A. Jaanimagi, M. C. Richardson, and B. Yaakobi, "Thermal Transport Studies of 351-nm Laser-Produced Plasmas Using Extreme Ultraviolet Spectroscopy," *J. Appl. Phys.*, **63**, 674-680 (1988).

R. Sobolewski, D. R. Dykaar, T. Y. Hsiang, C. Vanneste, and C. C. Chi, "Chaos in Pulse-Driven Josephson Junctions," *Phys. Rev. B.* **37**, 3778-3781 (1988).

G. Mourou, "High Speed Circuit Testing Using Ultrafast Optical Techniques," *Microelectronic Engineering* **7**, 343-349 (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."

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*.

P. C. Cheng, H. 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*.

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

K. A. Cerqua, M. J. Shoup III, D. L. Smith, S. D. Jacobs, and J. H. Kelly, "Strengthened Phosphate Glass in a High Rep Rate Active-Mirror Amplifier Geometry," to be published in *Applied Optics*.

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," to be published in *IEEE Transactions in Plasma Physics*.

D. R. Dykaar, J. Chwalek, J. F. Whitaker, R. Sobolewski, T. Y. Hsiang, G. A. Mourou, D. K. Lathrop, S. E. Russek, and R. A. Buhrman, "High Frequency Characterization of Thin-Film Y-Ba-Cu Oxide Superconducting Transmission Lines," to be published in *Applied Physics Letters*.

R. Q. Gram, C. K. Immesoete, H. Kim, and L. Forsley, "Bounce-Coated Ablation Layers on Fusion Targets," to be published in the *Journal of Vacuum Science and Technology*.

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*.

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.

Conference Presentations

The following presentations were made at SPIE's OE-LASE '88, Los Angeles, CA, 10-17 January 1988:

S. D. Jacobs, K. A. Cerqua, K. L. Marshall, A. Schmid, M. J. Guardalben, and K. J. Skerrett, "Liquid Crystal Optics for Laser Systems."

M. C. Richardson, P. A. Jaanimagi, H. Chen, R. S. Marjoribanks, D. K. Bradley, J. F. Seely, U. Feldman, C. Brown, J. Underwood, and B. Henke, "Space- and Time-Resolved Diagnostics of Soft X-Ray Emission from Short-Pulse Laser Plasmas."

R. L. McCrory, J. M. Soures, C. P. Verdon, P. Audebert, D. Bradley, J. Deletrez, R. Hutchison, S. D. Jacobs, P. Jaanimagi, R. Keck, H. Kim, T. Kessler, J. Knauer, R. Kremens, S. Letzring, F. Marshall, P. McKenty, M. C. Richardson, A. Simon, R. Short, S. Skupsky, and B. Yaakobi, "High-Pressure Laser-Fusion Compression Results."

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."

P. Maine, D. Strickland, and G. Mourou, "Tabletop Terawatt Laser by Chirped Pulse Amplification."

W. R. Donaldson, "Optical Probes for the Characterization of Surface Breakdown."

G. Mourou, "Future Applications of High Tc Superconductors in High Speed Electronics and Communications," presented at the World Conference on Superconductivity, Houston, TX, 21-24 February 1988.

W. R. Donaldson, "Radial Line Structure Experiments," presented at the 4th Workshop: Pulse Power Techniques for Future Accelerators, Erice, Sicily, 3-10 March 1988.

The following presentations were made at the 7th Topical Conference on High Temperature Plasma Diagnostics, Napa, CA, 13-17 March 1988:

P. A. Jaanimagi, D. K. Bradley, J. Duff, G. G. Gregory, and M. C. Richardson, "Time-Resolving X-Ray Diagnostics for ICF" (invited paper).

M. C. Richardson, D. K. Bradley, P. A. Jaanimagi, J. Delettrez, R. Epstein, C. F. Hooper, R. C. Mancini, and D. Kilcrease, "X-Ray Diagnosis of High Density Compression of Ar-Filled Polymer Shell Targets."

The following presentations were made at SPIE's Advances in Semiconductors and Superconductors: Physics and Device Applications Conference, Newport Beach, CA, 13-18 March 1988:

G. Mourou, D. Dykaar, J. Chwalek, and J. Whitaker, "High-Temperature Superconductors for High-Speed Interconnects and Communications."

G. Mourou, D. Dykaar, J. Whitaker, and K. Meyer, "Ultrafast Optics for High Speed Electronics."

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-FC08-85DP40200.