

PUBLICATIONS AND CONFERENCE PRESENTATIONS

Publications

W. Watson, "Vacuum-Assisted Contaminated-Particulate Removal," *J. Vac. Sci. Technol. A* **6**, 2568-2570 (1988).

R. L. McCrory, J. M. Soures, C. P. Verdon, F. J. Marshall, S. A. Letzring, S. Skupsky, T. J. Kessler, R. L. Kremens, J. P. Knauer, H. Kim, J. Delettrez, R. L. Keck, and D. K. Bradley, "Laser-Driven Implosion of Thermonuclear Fuel to 20 to 40 g cm⁻³," *Nature* **335**, 225-230 (1988).

S. D. Jacobs, K. A. Cerqua, K. L. Marshall, A. Schmid, M. J. Guardalben, and K. J. Skerrett, "Liquid-Crystal Laser Optics: Design, Fabrication, and Performance," *J. Opt. Soc. Am. B* **5**, 1962-1979 (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," *Laser Optics for Intracavity and Extracavity Applications* (SPIE, Bellingham, WA, 1988), Vol. 895, pp. 120-151.

K. L. Marshall, A. W. Schmid, D. J. Smith, A. A. Bevin, M. J. Guardalben, and S. D. Jacobs, "Performance of Protective Polymeric Coatings for Nonlinear Optical Materials," *J. Appl. Phys.* **64**, 2279-2285 (1988).

P. C. Cheng, H. G. Kim, D. M. Shinozaki, K. H. Tan, and M. D. Wittman, "X-Ray Microscopy—Its Application to Biological Sciences," *X-Ray Microscopy II, Proceedings of the International Symposium 1987*, edited by D. Sayre, M. Howells, J. Kirz, and

- H. Rarback (Springer-Verlag, Berlin, Heidelberg, New York, London, Paris, Tokyo, 1988), pp. 356–364.
- R. Q. Gram, C. K. Immesoete, H. Kim, and L. Forsley, "Bounce-Coated Ablation Layers on Fusion Targets," *J. Vac. Sci. Technol. A* **6**, 2998–3001 (1988).
- S. Goldsmith, J. C. Moreno, H. R. Griem, L. Cohen, and M. C. Richardson, "Relative Ion Expansion Velocity in Laser-Produced Plasmas," *J. Appl. Phys.* **64**, 581–585 (1988).
- W. E. Behring, J. H. Underwood, C. M. Brown, U. Feldman, J. F. Seely, F. J. Marshall, and M. C. Richardson, "Grazing Incidence Technique to Obtain Spatially Resolved Spectra from Laser Heated Plasmas," *Appl. Opt.* **27**, 2762–2767 (1988).
- J. F. Whitaker, G. A. Mourou, T. C. L. G. Sollner, and W. D. Goodhue, "Picosecond Switching Time Measurement of a Resonant Tunneling Diode," *Appl. Phys. Lett.* **53**, 385–387 (1988).
- C. A. Amsden, S. E. Gilman, S. D. Jacobs, and J. S. Torok, "Measurement of the Thermal Conductivity of Dielectric Thin Solid Films with a Thermal Comparator," *The Optical Interference Coatings 1988 Technical Digest* **6**, 78–81 (1988).
- S. H. Chen and Y. F. Maa, "A Reexamination of the Synthesis of Liquid Crystalline Side-Chain Polyacrylates via Liquid-Liquid Phase Transfer Catalysis," *Macromolecules* **21**, 904–907 (April 1988).
- S. H. Chen and Y. F. Maa, "Preparation of Liquid Crystalline Side-Chain Polyacrylate by Chemically Modifying Poly(sodium acrylate) in Hexamethylphosphoramide," *Macromolecules* **21**, 2697–2699 (1988).
- C. Bamber, W. Donaldson, T. Juhasz, L. Kingsley, and A. C. Melissinos, "Radial Compression of Picosecond Electrical Pulses," *Particle Accelerators* **23**, 255–263 (1988).

Forthcoming Publications

- A. Simon, S. Radin, and R. W. Short, "Long-Time Simulation of the Single-Mode Bump-on-Tail Instability," to be published in *Physics of Fluids*.
- J. S. Coe, P. Maine, and P. Bado, "Regenerative Amplification of Picosecond Pulses in Nd:YLF: Effect of Gain Narrowing and Gain Saturation," to be published in the *Journal of the Optical Society of America B*.
- S. H. Batha, R. Bahr, L. M. Goldman, W. Seka, and A. Simon, "Observations of Enhanced Thomson Scattering," to be published in *Physics of Fluids*.
- 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*.

R. L. McCrory, "Computer Modelling and Simulation in ICF," to be published in *Il Nouvo Cimento*.

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.

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," to be published in the *IEEE Journal of Quantum Electronics*.

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," to be published in the *Review of Scientific Instruments*.

A. Simon and R. W. Short, "Alternative Analysis of CO₂-Laser-Produced Plasma Waves," to be published in *Physics of Fluids*.

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*.

The following papers are to be published in the *Proceedings of SPIE's 32nd International Technical Symposium on Optical and Optoelectronic Applied Science and Engineering* (SPIE, Bellingham, WA, 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."

P. A. Jaanimagi, D. D. Meyerhofer, and M. C. Richardson, "Diagnosing One Picosecond Duration Ultra-High Brightness Sources."

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*.

E. M. Epperlein, G. J. Rickard, and A. R. Bell, "Two-Dimensional Nonlocal Electron Transport in Laser-Produced Plasmas," to be published in *Physical Review Letters*.

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

The following presentations were made at the 6th International Conference of Ultrafast Phenomena, Kyoto, Japan, 12-15 July 1988:

J. F. Whitaker, G. A. Mourou, T. C. L. G. Sollner, and W. D. Goodhue, "Tunneling-Time Measurements of a Resonant Tunneling Diode."

G. Mourou, D. Dykaar, J. Chwalek, J. Whitaker, and T. Hsiang, "Superconducting Lines for Interconnects and Communication."

P. Maine, D. Strickland, P. Bado, and G. Mourou, "Terawatt Pulses Obtained by Chirped Pulse Amplification."

The following presentations were made at IQEC '88 XVI International Conference on Quantum Electronics, Tokyo, Japan, 18-21 July 1988:

J. F. Whitaker, G. A. Mourou, T. C. L. G. Sollner, and W. D. Goodhue, "Switching-Time Measurements of a Resonant-Tunneling Diode."

P. Maine, D. Strickland, P. Bado, M. Pessot, J. Squier, G. Mourou, and D. Harter, "Ultrahigh Peak Power Pulses from Solids Using Chirped Pulse Amplification."

H. E. Elsayed-Ali and G. A. Mourou, "Picosecond Reflection High-Energy Electron Diffraction."

J. M. Chwalek, D. R. Dykaar, J. F. Whitaker, R. Sobolewski, T. Y. Hsiang, G. Mourou, D. K. Lathrop, S. E. Russek, and R. A. Buhrman, "Propagation Characteristics of Picosecond Electrical Transients on Thin Film $\text{YBa}_2\text{Cu}_3\text{O}_{7-y}$ Transmission Lines."

J. Noh, H. Elsayed-Ali, and G. Mourou, "Transport of SiO_2 on the Picosecond and Femtosecond Time Scales," presented at the SDI/IST-Funded Research Program on Reliable Advanced Electronic Systems, Arlington, VA, 27-28 July 1988.

R. L. McCrory, "High Power Laser Systems Applications to ICF," presented at the 35th Scottish Universities Summer School in Physics, St. Andrews, Scotland, 12-20 August 1988.

The following presentations were made at SPIE's 32nd International Technical Symposium on Optical and Optoelectronic Applied Science and Engineering, San Diego, CA, 14-19 August 1988:

D. K. Bradley, P. A. Jaanimagi, J. Deletrez, C. P. Verdon, F. Marshall, J. D. Kilkenny, and P. Bell, "X-Ray Gated Images of Imploded Microballoons,"

P. A. Jaanimagi, D. D. Meyerhofer, and M. C. Richardson, "Diagnosing One Picosecond Duration Ultra-High Brightness Sources."

The following presentations were made at the 1988 Applied Superconductivity Conference, San Francisco, CA, 21-25 August 1988:

P. H. Ballentine, M. A. Fisher, A. M. Kadin, and W. R. Donaldson, "Microlithography of High-Temperature Superconducting Films: Laser Ablation versus Wet Etching."

D. R. Dykaar, R. Sobolewski, and T. Y. Hsiang, "Picosecond Switching Dynamics of a Josephson Tunnel Junction."

D. R. Dykaar, J. M. Chwalek, R. Sobolewski, J. F. Whitaker, T. Y. Hsiang, G. A. Mourou, D. K. Lathrop, S. E. Russek, and R. A. Buhrman, "Picosecond Pulse Propagation on Superconducting Transmission Lines."

R. L. Mccrory, "Computer Modeling and Simulation in ICF," presented at the International School of Plasma Physics /Inertial Confinement Fusion Course and Workshop, Varenna, Italy, 6-16 September 1988.

D. Shire, T. Jackson, P. Tasker, D. Radulescu, L. Eastman, and G. Mourou, "Characterization of Traveling-Wave MODFET's by Electro-Optic Sampling," presented at the 15th Annual International Symposium on GaAs and Related Compounds, Atlanta, GA, 11-14 September 1988.

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