

PUBLICATIONS AND CONFERENCE PRESENTATIONS

Publications

D. R. Dykaar, R. Sobolewski, J. M. Chwalek, J. F. Whitaker, 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," *Appl. Phys. Lett.* **52**, 1444-1446 (1988).

K. A. Cerqua, J. E. Hayden, and W. C. LaCourse, "Stress Measurements in Sol-Gel Films," *J. Non-Cryst. Solids* **100**, 471-478 (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," *Short and Ultrashort Wavelength Lasers* (SPIE, Bellingham, WA, 1988), Vol. 875, pp. 9-19.

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 Geometry," *Appl. Opt.* **27**, 2567-2572 (1988).

P. Bado, M. Pessot, J. Squier, G. A. Mourou, and D. J. Harter, "Regenerative Amplification in Alexandrite of Pulses from Specialized Oscillators," *IEEE J. Quantum Electron.* **24**, 1167-1171 (1988).

J. F. Seely, U. Feldman, C. M. Brown, M. C. Richardson, D. D. Dietrich, and W. E. Behring, "Transitions in Na-Like and Mg-Like Ions of Ln, Sb, I, and Cs," *J. Opt. Soc. Am. B* **5**, 185 (1988).

K. L. Marshall and S. D. Jacobs, "Near-Infrared Dichroism of a

Mesogenic Transition Metal Complex and Its Solubility in Nematic Hosts," *Mol. Cryst. Liq. Cryst.* **159**, 197 (1988).

R. L. McCrory and J. M. Soures, "Fusion Progress Report: A Milestone Achieved," *The Scientist* **2**, 17-18 (1988).

Forthcoming Publications

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.

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).

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

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," to be published in *Nature*.

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*.

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," to be published in *The Optical Interference Coatings 1988 Technical Digest*.

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," to be published in *Applied Optics*.

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.

S. E. Goldsmith, J. C. Moreno, H. R. Griem, L. Cohen, and M. C. Richardson, "Relative Ion Expansion Velocity in Laser-Produced Plasmas," to be published in the *Journal of Applied Physics*.

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," to be published in the *Journal of Applied Physics*.

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," to be published in the *Journal of the Optical Society of America B*.

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*.

J. F. Whitaker, G. A. Mourou, T. C. L. G. Sollner, and W. D. Goodhue, "Switching-Time Measurements of a Resonant Tunneling Diode," to be published in *Applied Physical Letters*.

Conference Presentations

The following presentations were made at the 4th Topical Meeting on Optical Interference Coatings, Tucson, AZ, 12-15 April 1988:

C. J. Hayden and E. Spiller, "Large Area Coatings with Uniform Thickness Fabricated in a Small Vacuum Chamber."

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 following presentations were made at the Conference on Superconductivity and Applications, Buffalo, NY, 18-21 April 1988:

G. Mourou, D. Dykaar, J. Chwalek, and J. Whitaker, "Superconducting Interconnects."

D. R. Dykaar, J. M. Chwalek, J. F. Whitaker, R. Sobolewski, T. Y. Hsiang, and G. A. Mourou, "High-Frequency Characterization of Thin-Film Y-Ba-Cu Oxide Superconducting Transmission Lines: Experiment and Simulation."

The following presentations were made at CLEO '88, Anaheim, CA, 25–29 April 1988:

S. Williamson, "Millimeter Depth Resolution, Streak-Camera-Based Lidar."

P. Maine and G. Mourou, "Amplification of 1-ns Pulses in Nd:Glass Followed by Compression to 1 ps."

W. Donaldson and L. E. Kingsley, "Electro-Optic Imaging of Semiconductor Contact Fields."

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

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

M. Pessot, J. Squier, G. Mourou, P. Bado, and D. J. Harter, "Amplification of Femtosecond Pulses in an Alexandrite Regenerative Amplifier."

J. H. Kelly, D. L. Smith, J. C. Lee, S. D. Jacobs, M. J. Shoup III, and D. J. Smith, "An Improved Active Mirror Geometry Cr:Nd:GSGG Amplifier."

T. Kessler, W. Castle, N. Sampat, S. Skupsky, D. Smith, and S. Swales, "Phase Conversion for Fusion Lasers" (invited talk).

J. Nees, ">100-GHz Velocity-Matched Traveling Wave Modulator."

J. S. Coe, P. Bado, and P. Maine, "Gain Narrowing in a Nd:YLF cw-Pumped Regenerative Amplifier."

D. J. Smith, "Advances in Optical Coating Technology: New Applications and Improvements in Process and Measurement," presented at the 24th Annual Symposium of the New Mexico Chapter of the American Vacuum Society, Albuquerque, NM, 19–21 April 1988.

H. Kim, "Applications of High-Power Lasers," presented at the '88 Korea Congress on Science and Technology—Spring Workshop, Seoul, Korea, 10–12 May 1988.

W. R. Donaldson, P. Basseras, C. Bamber, and A. Melissinos, "Ultrafast High Power Switching: Techniques and Applications," presented at the Optically and Electron-Beam Controlled Semiconductor Switches Workshop, Norfolk, VA, 23–24 May 1988.

J. M. Chwalek, J. F. Whitaker, and D. R. Dykaar, "High-Frequency Characterization of Thin-Film Y-Ba-Cu Oxide Superconducting Transmission Lines: Experiment and Simulation," presented at the 1988 IEEE MTT-S International Microwave Symposium, New York, NY, 23–27 May 1988.

A. Simon and R. W. Short, "Nonlinear Aspects of Enhanced Plasma Wave Model of Raman Scattering," presented at the Joint US/USSR

Workshop on the Nonlinear Physics of Dense Plasma, Santa Fe, NM, 23–28 May 1988.

G. Mourou, D. Dykaar, J. Chwalek, J. Whitaker, and K. Meyer, "Ultrafast Optics for Superconducting and Semiconducting Electronics," presented at the 13th Nordic Semiconductor Meeting, Stockholm, Sweden, 5–8 June 1988.

M. L. Tsai, S. H. Chen, K. L. Marshall, and S. D. Jacobs, "Thermotropic and Optical Properties of Chiral Nematic Polymers," presented at the 10th Symposium on Thermophysical Properties, Gaithersburg, MD, 20–23 June 1988.

The following presentations were made at the 6th Target Fabrication Specialists' Meeting, Los Alamos, NM, 20–24 June 1988:

H. Kim and M. D. Wittman, "X-Ray Microscopy of Inertial Fusion Targets Using a Laser-Produced Plasma as an X-Ray Source."

H. Kim, R. Q. Gram, and J. M. Soares, "Ablation Layer Coating on Inertial Fusion Targets at University of Rochester's Laboratory for Laser Energetics."

S. Letzring, H. Kim, F. J. Marshall, R. L. McCrory, J. M. Soares, C. P. Verdon, R. Gram, C. Hestdalen, R. Keck, R. Kremens, G. Pien, O. Lopez-Raffo, F. Rister, and M. Wittman, "Development, Implementation, and Operational Characteristics of an Improved Cryogenic-Target-Positioning System."

The following presentations were made at the Upstate New York Chapter of the American Vacuum Society, Rochester, NY, 22–24 June 1988:

M. Jolly, C. A. Amsden, S. D. Jacobs, and S. E. Gilman, "Thermal Conductivity Measurements of Dielectric Thin-Film Optical Coatings."

C. J. Hayden and E. Spiller, "Large Area Coatings with Uniform Thickness Fabricated in a Small Vacuum Chamber."

R. S. Craxton, "Laser-Fusion Research: Progress and Prospects" (invited talk).

The following presentations were made at the 18th Annual Anomalous Absorption Conference, l'Estérel, Quebec, 26 June–14 July 1988:

S. H. Batha, D. D. Meyerhofer, W. Seka, A. Simon, L. M. Goldman, C. B. Darrow, R. P. Drake, and D. S. Montgomery, "Observations of Raman Up-Scatter in a Long-Scale-Length Plasma."

D. K. Bradley, J. Delettrez, R. Epstein, C. Hestdalen, and P. A. Jaanimagi, "Recent Experimental Measurements of Laser Burnthrough on Plastic-Coated Microballoons."

R. S. Craxton, "Two-Dimensional Hydrodynamics and Refraction in X-Ray Laser Experiments."

J. Delettrez, D. K. Bradley, R. Epstein, and P. A. Jaanimagi, "Theoretical Analysis of Burn-Through Experiments in Targets with Barrier Layers."

- E. M. Epperlein, "Non-Local Thermal Smoothing Effects in Laser-Produced Plasmas."
- G. G. Luther, S. H. Batha, and C. J. McKinstrie, "Efficiency Enhancement of the Conjugate Signal for a Collinear Four-Wave Mixing Process."
- F. J. Marshall, S. A. Letzring, C. P. Verdon, J. P. Knauer, D. K. Bradley, T. Kessler, J. Delettrez, H. Kim, J. M. Soures, and R. L. McCrory, "Cryogenic-Laser-Fusion-Target Implosion Studies Performed with the OMEGA UV Laser System."
- R. W. Short, "The Effect of Self-Focusing on Hot Spots in Multiple-Beam Illumination Geometries."
- A. Simon and R. W. Short, "Energy and Nonlinearity Considerations for the Enhanced Plasma Wave Model of Raman Scattering."
- R. Epstein, J. Delettrez, D. K. Bradley, P. A. Jaanimagi, and P. D. Goldstone, "Non-LTE Simulation of Time-Dependent Features of X-Ray Spectra from High-Z Targets."
- D. D. Meyerhofer, R. S. Craxton, and J. Delettrez, "Calculations of Collisional Energy Deposition in Short-Scale-Length Plasmas."
- S. V. Coggeshall, P. D. Goldstone, W. C. Mead, D. K. Bradley, P. A. Jaanimagi, J. Knauer, F. J. Marshall, G. Pien, and M. C. Richardson, "Simulations and Analysis of a Recent Spherical X-Ray Conversion Efficiency Experiment."
- P. D. Goldstone, J. A. Cobble, W. C. Mead, S. V. Coggeshall, D. K. Bradley, P. A. Jaanimagi, J. Knauer, F. J. Marshall, G. Pien, M. C. Richardson, J. F. Seely, and U. Feldman, "Observations of Symmetry-, Density-, and Z-Dependence of X-Ray Conversion."
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- D. R. Dykaar, J. M. Chwalek, J. F. Whitaker, R. Sobolewski, T. Y. Hsiang, and G. A. Mourou, "High Frequency Characterization of Thin-Film Y-Ba-Cu Oxide Superconducting Transmission Lines: Experiment and Simulation," was presented at the NATO Advanced Study Institute on Superconducting Electronics, Ciocco, Italy, 26 June-8 July 1988.

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