

# PUBLICATIONS AND CONFERENCE PRESENTATIONS

## Publications

R. R. Whitlock, S. P. Obenschain, J. Grun, J. A. Stamper, J. A. Sprague, B. V. Sweeney, B. H. Ripin, and R. S. Craxton, "Flash X Radiography of Laser-Accelerated Foils," *J. Appl. Phys.* **61**, 131–141 (1987).

B. Yaakobi, O. Barnouin, C. B. Collins, R. Epstein, A. Hauer, S. A. Letzring, F. J. Marshall, R. L. McCrory, M. C. Richardson, J. M. Soures, and S. Wagel, "Laser-Generated X-Ray Studies Relevant to Compression Diagnostics and Nuclear Level Excitation," *Laser Interaction and Related Plasma Phenomena*, edited by H. Hora and G. M. Miley (Plenum Press, NY, 1986), Vol. 7, pp. 89–108.

M. C. Richardson, P. W. McKenty, F. J. Marshall, C. P. Verdon, J. M. Soures, R. L. McCrory, O. Barnouin, R. S. Craxton, J. Delettrez, R. J. Hutchison, P. A. Jaanimagi, R. Keck, T. Kessler, H. Kim, S. A. Letzring, D. M. Roback, W. Seka, S. Skupsky, B. Yaakobi, S. M. Lane, and S. Prussin, "Ablatively Driven Targets Imploded with the 24-Beam OMEGA System," *Laser Interaction and Related Plasma Phenomena*, edited by H. Hora and G. H. Miley (Plenum Press, NY, 1986), Vol. 7, pp. 421–448.

M. C. Richardson, G. G. Gregory, R. L. Keck, S. A. Letzring, R. S. Marjoribanks, F. J. Marshall, G. Pien, J. S. Wark, B. Yaakobi, P. D. Goldstone, A. Hauer, G. S. Stradling, F. Ameduri, B. L. Henke, and P. A. Jaanimagi, "Time-Resolved X-Ray Diagnostics for High Density Plasma Physics Studies," *Laser Interaction and Related Plasma*

*Phenomena*, edited by H. Hora and G. H. Miley (Plenum Press, New York, 1986), Vol.7, pp. 179-211.

J. F. Whitaker, T. Norris, G. A. Mourou, and T. Y. Hsiang, "Pulse Dispersion and Shaping in Microstrip Lines," *IEEE Trans. Microwave Theory Tech.* **MTT-35**, 41-47 (1987).

J. C. Lee and S. D. Jacobs, "Refractive Index and  $\Delta n/\Delta T$  of Cr:Nd:GSGG at 1064 nm," *J. Appl. Phys.* **26**, 777 (1987).

J. M. Soures, R. L. McCrory, K. A. Cerqua, R. S. Craxton, R. Hutchison, S. D. Jacobs, T. Kessler, J. Kelly, G. Mourou, W. Seka, and D. Strickland, "High Power Laser Research and Development at the Laboratory for Laser Energetics," *Laser Research and Development in the Northeast* (SPIE, Bellingham, WA, 1986), Vol. 709, pp. 74-87.

M. Guardalben, A. Schmid, M. Loudiana, and J. T. Dickinson, "Photothermal Analysis of Synergistic Radiation Effects in ThF<sub>4</sub> Optical Thin Films," *Phys. Rev. B.* **35**, 4026-4030 (1987).

U. Feldman, J. O. Ekberg, C. M. Brown, J. F. Seely, and M. C. Richardson, "2 $\ell$ -3 $\ell'$  and 2 $\ell$ -4 $\ell'$  Transitions in Heliumlike and Hydrogenlike Silicon," *J. Opt. Soc. Am. B* **4**, 103-104 (1987).

J. O. Ekberg, J. F. Seely, C. M. Brown, U. Feldman, M. C. Richardson, and W. E. Behring, "Spectra and Energy Levels of Cu XXII, Cu XXIII, Cu XXIV, and Cu XXV," *J. Opt. Soc. Am B* **4**, 420-423 (1987).

H. Kim, "High Power Laser," *KSEA Letters* **15**, 13-20 (1987).

H. E. Elsayed-Ali, T. B. Norris, M. A. Pessot, and G. A. Mourou, "Time-Resolved Observation of Electron-Phonon Relaxation in Copper," *Phys. Rev. Lett.* **58**, 1212-1215 (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.).

P. Bado, M. Bouvier, and J. S. Coe, "Nd:YLF Mode-Locked Oscillator and Regenerative Amplifier," to be published in *Optics Letters*.

S. H. Batha and C. J. McKinstrie, "Energy Cascading in the Beat-Wave Accelerator," to be published in a special issue of *IEEE Transactions on Plasma Science on Plasma-Based High-Energy Accelerators*.

D. R. Dykaar, R. Sobolewski, T. Y. Hsiang, and G. A. Mourou, "Response of a Josephson Junction to a Stepped Voltage Pulse," to be published in *IEEE Transactions on Magnetics*.

H. L. Helfer and R. L. McCrory, "Some Properties of a Polarized OCP," to be published in *Strongly Coupled Plasmas*, edited by Forest Rogers and Hugh DeWitt (Plenum Press, New York).

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

S. M. Gracewski and R. Q. Gram, "Analysis of Forces on ICF Targets During Ablation Layer Coating," to be published in the *Journal of Vacuum Science and Technology*.

J. S. Wark, R. R. Whitlock, A. Hauer, J. E. Swain, and P. J. Stone, "Shock Launching in Silicon Using Pulsed X-Ray Diffraction," to be published in *Physical Review B*.

K. A. Cerqua, S. D. Jacobs, and A. Lindquist, "Ion-Exchange Strengthened Phosphate Laser Glass: Development and Applications," to be published in the *Journal of Non-Crystalline Solids*.

K. A. Cerqua, A. Lindquist, S. D. Jacobs, and J. Lambropoulos, "Strengthened Glass for High-Average-Power Laser Applications," to be published in the *Proceedings of SPIE's O-E LASE 1987 Conference*.

H. Kim and M. Wittman, "X-Ray Microscopy of Inertial Fusion Targets Using a Laser-Produced Plasma as an X-Ray Source," to be published in the *Journal of Vacuum Science and Technology*.

H. E. Elsayed-Ali and G. A. Mourou, "Phase Transitions in the Picosecond Time Domain," to be published in the *Proceedings of the 1986 Materials Research Society Meeting*, Boston, MA, December 1986.

W. R. Donaldson, "High-Speed, High-Repetition-Rate, High-Voltage Photoconductive Switching," to be published in the *Proceedings of the 2nd Topical Meeting on Picosecond Electronics and Optoelectronics*, Lake Tahoe, NV, January 1987.

G. Mourou, K. Meyer, J. Whitaker, M. Pessot, R. Grondin, and C. Caruso, "Ultrafast Optics Applied to Modern Device Research," to be published in the *Proceedings of the 2nd Topical Meeting on Picosecond Electronics and Optoelectronics*, Lake Tahoe, NV, January 1987.

R. W. Short, W. Seka, and R. Bahr, "Stimulated Raman Scattering in Self-Focused Light Filaments in Laser-Produced Plasmas," to be published in *Physics of Fluids*.

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," to be published in *Physical Review A*.

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

M. Pessot, P. Maine, and G. Mourou, "1000 Times Expansion/Compression of Optical Pulses for Chirped Pulse Amplification," to be published in *Optics Communications*.

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*.

## Conference Presentations

K. A. Cerqua, A. Lindquist, S. D. Jacobs, and J. Lambropoulos, "Strengthened Glass for High-Average-Power Laser Applications," presented at SPIE's Optoelectronics and Laser Applications in Science and Engineering 1987 Conference, Los Angeles, CA, January 1987.

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The following presentations were made at the 2nd Topical Meeting on Picosecond Electronics and Optoelectronics, Lake Tahoe, NV, January 1987:

J. Nees and S. Williamson, "A Technique for Wing-Suppressed IR Sampling."

W. R. Donaldson, "High-Speed, High-Repetition-Rate, High-Voltage Photoconductive Switching."

R. Sobolewski, D. R. Dykaar, T. Y. Hsiang, and G. A. Mourou, "Picosecond Switching in Josephson Tunnel Junctions."

G. A. Mourou, K. Meyer, J. Whitaker, M. Pessot, R. Grondin, and C. Caruso, "Ultrafast Optics Applied to Modern Device Research."

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The following presentations were made at the Ballistic Electrons for Transistors Conference, sponsored by the Engineering Foundation, Santa Barbara, CA, March 1987:

G. A. Mourou, "Direct Investigation of Nonequilibrium Transport Using Ultrafast Optical Techniques."

D. R. Dykaar, "Modern Device Characterization on the Picosecond Time Scale."

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D. R. Dykaar, R. Sobolewski, G. A. Mourou, and T. Y. Hsiang, "Time-Domain Characterization of Josephson Tunnel Junctions," presented at the American Physical Society Meeting, Baltimore, MD, March 1987.

G. Mourou, "Impact of Ultrafast Optics in High Speed Electronics," presented at SPIE's Novel Optoelectronic Devices Conference, The Hague, Netherlands, March/April 1987.

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The following presentations were made at the American Physical Society Meeting, New York City, NY, March 1987:

R. Sobolewski, D. R. Dykaar, T. Y. Hsiang, C. Vanneste, and C. C. Chi, "Observation of Chaotic Behavior in Josephson Junctions Periodically Kicked by Picosecond Pulses."

J. F. Whitaker, R. Sobolewski, D. R. Dykaar, G. A. Mourou, and T. Y. Hsiang, "Picosecond Pulse Propagation on Superconducting Microstrip and Coplanar Transmission Lines."

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