

PUBLICATIONS AND CONFERENCE PRESENTATIONS

Publications

K. E. Meyer and G. A. Mourou, "Two-Dimensional E-Field Mapping with Subpicosecond Resolution," in *Picosecond Electronics and Optoelectronics*, edited by G. A. Mourou, D. M. Bloom, and C. H. Lee (Springer-Verlag, Berlin, Heidelberg, New York, Tokyo, 1985), pp. 46–49; S. Williamson and G. A. Mourou, "Picosecond Electro-Electron Optic Oscilloscope," *ibid.*, pp. 58–61; K. E. Meyer, D. R. Dykaar, and G. A. Mourou, "Characterization of TEGFETs and MESFETs Using the Electro-Optic Sampling Technique," *ibid.*, pp. 54–57; C. J. Kryzak, K. E. Meyer, and G. A. Mourou, "Transmission Line Designs with a Measured Step Response of 3 ps per Centimeter," *ibid.*, pp. 244–248; D. R. Dykaar, T. Y. Hsiang, and G. A. Mourou, "Development of a Picosecond Cryo-Sampler Using Electro-Optic Techniques," *ibid.*, pp. 249–252.

U. Feldman, J. F. Seeley, M. C. Richardson, W. E. Behring, and S. Goldsmith, "Transitions of the Type 2s-2p in Fluorine-Like and Oxygen-Like As, Se, Br, and Rb^x," *J. Opt. Soc. Am. B* **2**, 886–890 (1985).

P. Horn, P. Braunlich, and A. Schmid, "Photoacoustic Determination of Three-Photon Absorption Cross Sections in Thallium Halides at 1.06 μm ," *J. Opt. Soc. Am. B* **2**, 1095–1099 (1985).

D. P. Butler and T. Y. Hsiang, "Transient Relaxation of the Normal State Resistance of Tin Microstrips in the Presence of Current Bias," *J. Low Temp. Phys.* **61**, 69–78 (1985).

M. D. J. Burgess, R. Dragila, B. Luther-Davies, K. A. Nugent, A. J. Perry, G. J. Tallents, M. C. Richardson, and R. S. Craxton, "Characterization of Plasmas Produced by a Laser Line Focus," *J. Phys. Rev. A* **32**, 2899–2908 (1985).

D. Strickland and G. Mourou, "Compression of Amplified Chirped Pulses," *Opt. Commun.* **55**, 447–449 (1985).

J. F. Seely, C. M. Brown, U. Feldman, M. Richardson, B. Yaakobi, and W. E. Behring, "Evidence for Lasing on the 182-Å Transition of CVI in a Radiation-Cooled Plasma," *Opt. Commun.* **54**, 289–294 (1985).

R. L. McCrory and J. M. Soures, "Laser Fusion Experiments at the University of Rochester," *Nucl. Fusion* **25**, 1367–1372 (1985).

Forthcoming Publications

S. D. Jacobs, "Liquid Crystal Devices for Laser Systems," to be published in the *Journal of Fusion Energy*.

S. Williamson, G. Mourou, and J. C. M. Li, "Time-Resolved Laser-Induced Phase Transformation in Aluminum," to be published in the *Proceedings of MRS Symposium on Energy Beam-Solid Interactions and Transient Thermal Processing*.

B. Yaakobi, R. D. Frankel, J. M. Forsyth, and J. M. Soures, "Laser-Generated X-Ray Source for Time-Resolved Biological and Material Structure Studies," to be published in the *Proceedings of a Symposium on New Methods in X-Ray Absorption, Scattering, and Diffraction*.

The following papers are to be published in the *Proceedings of the Workshop on Physics of Laser Fusion*, Vancouver, B.C., June 1985 (*Canadian Journal of Physics*):

A. Simon, "Raman Scattering."

J. Delettrez, "Thermal Electron Transport in Direct-Drive ICF."

L. M. Goldman, "The Use of Laser Harmonic Spectroscopy as a Target Diagnostic."

W. R. Donaldson and G. A. Mourou, "Improved Contacts on Intrinsic Silicon for High Voltage Photoconductive Switching," to be published in the *Proceedings of the Fifth IEEE Pulsed Power Conference*, Arlington, VA, June 1985.

The following papers are to be published in the *Proceedings of the SPIE 29th Annual International Technical Symposium on Optical and Electro-Optic Engineering*, San Diego, CA, August 1985:

G. G. Gregory, S. A. Letzring, M. C. Richardson, and C. D. Kiikka, "High Time-Space Resolved Photography of Laser Imploded Fusion Targets."

P. A. Jaanimagi, B. L. Henke, and M. C. Richardson, "An Absolutely Calibrated Time-Resolving X-Ray Spectrometer."

M. C. Richardson, G. G. Gregory, S. A. Letzring, R. S. Marjoribanks, B. Yaakobi, B. L. Henke, P. A. Jaanimagi, and A. Hauer, "Time-Resolved X-Ray Spectrographic Instrumentation for Laser Fusion and X-Ray Laser Studies."

R. L. McCrory, "Inertial Confinement Fusion (ICF)," to be published in *Physics Today*, January 1986.

R. Epstein, S. Skupsky, and J. Delettrez, "Effects of Non-Maxwellian Electron Populations in Non-LTE Simulations of Laser-Plasma Thermal and Implosion Experiments," to be published in the *Journal of Quantitative Spectroscopy and Radiative Transfer*.

A. Simon, W. Seka, L. M. Goldman, and R. W. Short, "Raman Scattering in Inhomogeneous Laser Produced Plasma," to be published in *Physics of Fluids*.

M. C. Richardson, R. Epstein, O. Barnouin, P. A. Jaanimagi, R. Keck, H. Kim, R. S. Marjoribanks, S. Noyes, J. M. Soures, and B. Yaakobi, "Multibeam, Laser-Imploded Cylindrical Plasmas," to be published in *Physical Review A*.

A. Hauer, R. D. Cowan, B. Yaakobi, O. Barnouin, and R. Epstein, "Absorption Spectroscopy Diagnosis of Pusher Conditions," to be published in *Physical Review*.

R. Epstein and R. S. Craxton, "Statistical Ray Tracing in Plasmas with Random Density Fluctuations," to be published in *Physical Review A*.

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.).

Conference Presentations

The following presentations were made at the Boulder Damage Symposium, Boulder, CO, October 1985.

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

L. Bangjun, 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. A. Mourou, "Generation and Amplification of Femtosecond Pulses at kHz Repetition Rate," presented at the Topical Meeting on Optical Data Storage of the Optical Society of America, Washington, DC, October 1985 (invited talk).

G. A. Mourou, "The Frontier of Science: Femtosecond Pulses and Their Applications," presented at the 1985 Meeting of Corporate Associates of

the American Institute of Physics held at Eastman Kodak Research Laboratories, Rochester, NY, October 1985 (invited talk).

The following presentations were made at the Seventeenth International Workshop on Laser Interaction and Related Plasma Phenomena, Monterey, CA, October 1985:

M. C. Richardson, O. Barnouin, J. Delettrez, G. Gregory, L. Goldman, R. L. Hutchison, P. Jaanimagi, R. Keck, T. Kessler, H. Kim, S. Letzring, F. Marshall, R. L. McCrory, P. McKenty, D. Robacks, W. Seka, S. Skupsky, J. M. Soures, C. P. Verdon, B. Yaakobi, S. Lane, and S. Prussin, "Ablatively Driven Targets Imploded with the 24-UV-Beam OMEGA System."

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

B. Yaakobi, "X-Ray Diagnostics and X-Ray Laser Experiments at LLE."

The following presentations were made at the Twenty-Seventh Annual Meeting of the Division of Plasma Physics of the American Physical Society, San Diego, CA, November 1985:

O. Barnouin, J. Delettrez, R. Epstein, L. M. Goldman, S. Letzring, M. C. Richardson, J. M. Soures, B. Yaakobi, A. Hauer, and P. A. Jaanimagi, "Transport Experiments in 24-Beam UV Irradiation of Spherical Targets."

B. Boswell, J. Delettrez, and L. M. Goldman, "Analytical Modeling of Spherical UV Laser-Driven Ablation with Arbitrary Flux Limiter."

R. S. Craxton, J. Delettrez, R. L. Keck, R. L. McCrory, M. C. Richardson, W. Seka, and J. M. Soures, "Simulations of Absorption at 351 nm on Spherical Targets."

J. Delettrez, O. Barnouin, R. Epstein, P. Holstein, P. Jaanimagi, S. Skupsky, and K. Swartz, "Interpretation of Spherical Thermal Electron Transport Experiments on the 24-Beam UV OMEGA Laser System."

R. Epstein, J. Delettrez, S. Skupsky, R. Marjoribanks, B. Yaakobi, and P. A. Jaanimagi, "Simulation of Time-Resolved Spectra from Spherical Thermal Transport Experiments on the 24-Beam UV OMEGA Laser System."

S. R. Goldman, W. C. Mead, J. A. Cobble, D. Delamater, P. D. Goldstone, R. S. Marjoribanks, F. J. Marshall, M. C. Richardson, and G. Stradling, "Physics of High-Z Laser Target Interactions at $\lambda = 0.35 \mu\text{m}$."

G. Gregory, S. Letzring, and M. C. Richardson, "Time-Resolved Photography of Uniformly Irradiated Spherical Targets at 351 nm."

P. A. Jaanimagi, B. L. Henke, O. Barnouin, J. Delettrez, R. Epstein, M. C. Richardson, B. Yaakobi, and A. Hauer, "Thermal Transport: A Comparison between Solid and Shell Targets."

R. L. Keck, D. M. Roback, L. M. Goldman, R. L. McCrory, P. W. McKenty, M. C. Richardson, J. M. Soures, and C. P. Verdon, "Target ρR Measurements of Implosions Driven by UV OMEGA."

- S. A. Letzring, G. Pien, L. M. Goldman, M. C. Richardson, and J. M. Soures, "A Neutron Time-of-Flight Diagnostic with High Time Resolution."
- R. S. Marjoribanks and M. C. Richardson, "Development of a High Resolution Collecting-Crystal Streak Spectrograph for Laser-Plasma Studies."
- R. S. Marjoribanks, M. C. Richardson, G. Pien, O. Barnouin, B. Yaakobi, G. Stradling, A. Hauer, J. Cobble, P. D. Goldstone, S. R. Goldman, W. C. Mead, P. A. Jaanimagi, and B. Henke, "Time-Resolved M-Line Studies of Uniformly Irradiated Au Laser Plasmas."
- F. J. Marshall, J. Delettrez, R. Epstein, P. W. McKenty, M. C. Richardson, J. M. Soures, and C. P. Verdon, "The Spatial Distribution of X-Ray Emission from Laser Fusion Targets."
- R. L. McCrory, "Progress in Laser Fusion with Submicron Lasers" (invited review).
- P. W. McKenty, C. P. Verdon, M. C. Richardson, J. Delettrez, F. J. Marshall, R. L. McCrory, and J. M. Soures, "Numerical Simulation of Recent 24-Beam Blue (351-nm) OMEGA Implosions."
- C. J. McKinstrie and A. Simon, "Nonlinear Saturation of the Absolute Raman Instability in a Finite Collisional Plasma."
- G. Pien, M. C. Richardson, P. Goldstone, F. Ameduri, and G. Eden, "Computerized Multichannel GHz Soft X-Ray Spectrometry on OMEGA."
- M. C. Richardson, R. L. Keck, S. Letzring, R. L. McCrory, P. W. McKenty, D. Roback, J. M. Soures, C. P. Verdon, and S. M. Lane, "High-Yield and High-Density Target Implosions Driven by UV OMEGA."
- W. Seka, S. Batha, L. M. Goldman, A. Simon, and R. Bahr, "Raman Up-Scattering and Down-Scattering in Laser Produced Plasmas Using 527-nm Radiation."
- R. W. Short, "Self-Focusing and Uniformity in Laser-Fusion Target Illumination."
- A. Simon, R. W. Short, L. M. Goldman, and W. Seka, "Further Applications of the Enhanced Plasma Noise Model of Raman Scattering."
- S. Skupsky, J. Delettrez, and M. Sapis, "Non-Local, Non-Maxwellian Effects in Laser-Produced Plasmas."
- J. M. Soures, R. Hutchison, S. Jacobs, R. Keck, T. Kessler, S. Letzring, R. L. McCrory, M. C. Richardson, and W. Seka, "The OMEGA, 24-Beam, 2.4-kJ, Ultraviolet Laser System: Initial Operation and Performance Characterization."
- K. Swartz, R. W. Short, and A. Simon, "The Effect of Multiple Beams on Parametric Instabilities."
- C. P. Verdon, R. L. McCrory, P. W. McKenty, and S. Skupsky, "Effects of Long-Wavelength Nonuniformities on High-Gain ICF Pellet Implosions."
- J. S. Wark, M. C. Richardson, B. Yaakobi, and A. Hauer, "Spatially Resolved X-Ray Absorption Spectroscopy."

B. Yaakobi, A. Hauer, O. Barnouin, P. A. Jaanimagi, R. Epstein, R. L. McCrory, M. C. Richardson, and J. M. Soures, "X-Ray Absorption-Lines Measurement of the Tamper ρR and Temperature."

The following presentations were made at the First International Laser Science Conference, Dallas, TX, November 1985:

M. C. Richardson, "X-Ray Laser Studies with Line-Focused Laser Plasmas" (invited paper).

B. Yaakobi, S. Letzring, J. M. Soures, F. J. Marshall, M. C. Richardson, C. B. Collins, and S. S. Wagel, "Laser-Generated X-Ray Source for Pumping Nuclear Transitions."

The following presentations were made at the American Vacuum Society Conference, Houston, TX, November 1985:

R. Q. Gram, H. Kim, J. F. Mason, and M. Wittman, "Ablation-Layer Coating of Mechanically Nonsupported Inertial Fusion Targets."

H. Kim, S. Noyes, M. C. Richardson, and B. Yaakobi, "Fabrication of Thin Cylindrical Targets for X-Ray Laser Fusion."

R. L. McCrory, "Progress and Promise for Direct-Drive Short-Wavelength Laser Fusion, presented at the 17th European Conference on Laser Interaction with Matter, Rome, November 1985 (invited talk).

G. A. Mourou, "Applications of Picosecond Electron Diffraction to the Study of Structural Phase Transition," and "Ultra-High-Speed Optoelectronics," presented at Lasers '85, Society for Optical and Quantum Electronics, Las Vegas, NV, December 1985 (invited talks).

G. A. Mourou, "Femtosecond Optical Techniques for the Characterization of Present and Future Ultrafast Electronic Devices," presented at the Workshop on Ultrasmall and Quantum-Structured Devices, Tempe, AZ, December 1985 (invited talk).

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