

PUBLICATIONS AND CONFERENCE PRESENTATIONS

Publications

B. Yaakobi, O. Barnouin, M. C. Richardson, J. M. Soures, A. Hauer, and B. Post, "X-Ray Spectroscopic Methods for the Diagnosis of Laser-Imploded Targets," *Rev. Sci. Instrum.* **57**, 2124–2128 (1986).

P. A. Jaanimagi, L. DaSilva, G. G. Gregory, C. Hestdalen, C. D. Kiikka, R. Kotmel, and M. C. Richardson, "Optical Fiducials for X-Ray Streak Cameras at LLE," *Rev. Sci. Instrum.* **57**, 2189–2191 (1986).

M. C. Richardson, R. F. Keck, S. A. Letzring, R. L. McCrory, P. W. McKenty, D. M. Roback, J. M. Soures, C. P. Verdon, S. M. Lane, and S. G. Prussin, "Neutron Diagnosis of Compressed ICF Targets," *Rev. Sci. Instrum.* **57**, 1737–1739 (1986).

J. S. Wark, A. Hauer, and J. D. Kilkenny, "Studies of X-Ray Switching and Shuttering Techniques," *Rev. Sci. Instrum.* **57**, 2168–2170 (1986).

P. G. Burkhalter, D. A. Newman, D. L. Rosen, K. Hudson, M. C. Richardson, and P. Audebert, "Spectral Measurements from Laser-Produced Plasma in OMEGA," *Rev. Sci. Instrum.* **57**, 2171–2173 (1986).

S. G. Prussin, S. M. Lane, M. C. Richardson, and S. G. Noyes, "Debris Collection from Implosion of Microballoons," *Rev. Sci. Instrum.* **57**, 1734–1736 (1986).

S. M. Lane, M. D. Cable, S. G. Prussin, S. G. Glendinning, D. H. Munro, S. P. Hatchett, K. G. Estabrook, L. J. Suter, and M. C. Richardson, "High-Yield Direct Drive Experiments at NOVA," *Rev. Sci. Instrum.* **57**, 2100 (1986).

- P. A. Jaanimagi, J. Delettrez, B. L. Henke, and M. C. Richardson, "Temporal Dependence of the Mass-Ablation Rate in UV-Laser-Irradiated Spherical Targets," *Phys. Rev. A* **34**, 1322–1327 (1986).
- A. Hauer, R. D. Cowan, B. Yaakobi, O. Barnouin, and R. Epstein, "Absorption-Spectroscopy Diagnosis of Pusher Conditions in Laser-Driven Implosions," *Phys. Rev. A* **34**, 411–420 (1986).
- R. S. Craxton, R. L. McCrory, and J. M. Soures, "Progress in Laser Fusion," *Scientific American* **255**, 68–79 (1986).
- S. D. Jacobs, "Liquid Crystal Devices for Laser Systems," *J. Fusion Energy* **5**, 65–75 (1986).
- J. Nees and G. Mourou, "Noncontact Electro-Optic Sampling with a GaAs Injection Laser," *Electron. Lett.* **22**, 918–919 (1986).
- J. F. Whitaker and G. A. Mourou, "Optical Reconfiguration of Electrical Networks," *Electron. Lett.* **22**, 899–900 (1986).
- 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," *Structural Biological Applications of X-Ray Absorption, Scattering, and Diffraction* (Academic Press, San Diego, CA, 1986), pp. 331–348.
- A. Simon, "Raman Scattering," *Can. J. Phys.* **64**, 956–960 (1986).
- L. M. Goldman, W. Seka, K. Tanaka, R. Short, and A. Simon, "The Use of Laser Harmonic Spectroscopy as a Target Diagnostic," *Can. J. Phys.* **64**, 969–976 (1986).
- J. Delettrez, "Thermal Electron Transport in Direct-Drive ICF," *Can. J. Phys.* **64**, 932–943 (1986).
- S. D. Jacobs, "Liquid Crystals for Laser Applications," in *Handbook of Laser Science and Technology*, edited by M. J. Weber (CRC Press, Boca Raton, FL, 1986), Vol. IV, Part 2, pp. 409–465.

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."

The following articles are to be published in *Laser Interaction and Related Plasma Phenomena Vol. 7*, edited by G. Miley and H. Hora (Plenum Press, New York, in press):

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. L. Hutchison, P. A. Jaanimagi, R. Keck, T. Kessler, H. Kim, S. A. Letzring, D. M. Roback, W. Seka, S. Skupsky, B. Yaakobi, and S. M. Lane, "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. J. Marshall, G. Pien, J. S. Wark, B. Yaakobi, J. 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."

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."

W. C. Mead, S. V. Coggeshall, S. R. Goldman, E. K. Stover, P. D. Goldstone, A. Hauer, V. M. Kindel, L. Montierth, M. C. Richardson, O. Barnouin, P. A. Jaanimagi, R. S. Marjoribanks, R. L. Kauffman, H. Kornblum, and B. F. Lasinski, "Analysis, Modeling, and Design of Short Wavelength Laser Plasma Experiments."

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.).

G. Pien, M. C. Richardson, P. D. Goldstone, R. H. Day, F. Ameduri, and G. Eden, "Computerized 3-GHz Multichannel Soft X-Ray Diode Spectrometer for High-Density Plasma Diagnosis," to be published in *Nuclear Instruments and Methods*.

S. D. Jacobs, A. L. Hrycin, K. A. Cerqua, C. Kennemore III, and U. Gibson, "Adhesion Enhancements and Internal Stress in MgF₂ Films Deposited with an Ion Beam Assist," to be published in the *Journal of Thin Solid Films*.

The following articles are to be published in the *Journal of the Optical Society of America B*:

U. Feldman, J. F. Seely, C. M. Brown, J. D. Ekberg, M. C. Richardson, W. E. Behring, and J. Reader, "Spectrum and Energy Levels of Br XXV, Br XXIX, Br XXX, and Br XXXI."

W. E. Behring, C. M. Brown, U. Feldman, J. F. Seely, J. Reader, and M. C. Richardson, "Transitions of the Type 2s-2p in Oxygenlike Y, Zr, and Nb."

P. A. Holstein, J. Delettrez, S. Skupsky, and J. P. Matte, "Modeling Nonlocal Heat Flow in Laser-Produced Plasmas," to be published in the *Journal of Applied Physics*.

J. F. Whitaker, T. Norris, G. A. Mourou, and T. Y. Hsiang, "Pulse Dispersion and Shaping in Microstrip Lines," to be published in *IEEE Microwave Theory and Techniques Society Transactions*.

M. C. Richardson, B. Yaakobi, R. Epstein, J. Wark, and J. M. Soures, "Imploding Cylindrical Plasmas as X-Ray Laser Media," to be published in the *Proceedings of the 1986 Quebec International Symposium on Optical and Optoelectronic Applied Sciences and Engineering*, Quebec City, June 1986.

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*.

J. M. Soures, R. L. McCrory, K. A. Cerqua, R. S. Craxton, R. Hutchison, S. D. Jacobs, T. J. Kessler, J. Kelly, G. Mourou, W. Seka, and D. Strickland, "High Power Laser Research and Development at the Laboratory for Laser Energetics," to be published in the *Proceedings of SPIE's Fiber LASE Applications in Science and Engineering '86 Symposium*, Cambridge, MA, September 1986.

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).

J. F. Whitaker and G. A. Mourou, "Optical Reconfiguration of Electrical Networks," to be published in *Electronics Letters*.

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

Conference Presentations

The following presentations were made at the 16th Annual Anomalous Absorption Conference, Lake Luzerne, NY, July 1986:

P. A. Jaanimagi, L. DaSilva, J. Delettrez, G. G. Gregory, and M. C. Richardson, "Time-Resolved Absorption Measurements on OMEGA."

P. Audebert, O. Barnouin, J. Delettrez, F. J. Marshall, and B. Yaakobi, "Space-Resolved X-Ray Spectra of Imploding Laser Fusion Targets."

S. H. Batha, L. M. Goldman, W. Seka, and A. Simon, "Raman Scattering from Inhomogeneous Plasmas."

R. S. Craxton and R. L. McCrory, "Thermal Self-Focusing with Multiple Beams."

J. Delettrez, R. Epstein, P. A. Jaanimagi, T. J. Kessler, M. C. Richardson, W. Seka, and S. Skupsky, "Effects of Illumination Non-Uniformities on the Interpretation of Spherical Transport Experiments."

R. Epstein, J. Delettrez, and S. Skupsky, "Non-LTE Radiation and Ion-Dynamic Effects in Hydrodynamic Simulations of Laser-Driven Plasmas."

F. J. Marshall, L. G. DaSilva, G. G. Gregory, S. A. Letzring, R. L. McCrory, P. W. McKenty, M. C. Richardson, J. M. Soures, C. P. Verdon, and J. S. Wark, "Results of Short-Pulse UV-Driven High-Aspect-Ratio Implosion Experiments on the University of Rochester OMEGA Laser System."

R. W. Short, "Stimulated Raman Scattering in Filaments."

A. Simon, R. W. Short, K. Swartz, and W. Seka, "Raman Scattering Via Enhanced Thomson: Further Studies."

K. Swartz, R. W. Short, and A. Simon, "Raman Scattering Driven by Multiple Pumps in Laser Fusion Plasmas."

J. S. Wark, S. A. Letzring, F. J. Marshall, R. L. McCrory, M. C. Richardson, J. M. Soures, C. P. Verdon, and J. Delettrez, "Alpha Particle Imaging of High-Yield Implosions."

M. C. Richardson, L. DaSilva, G. G. Gregory, P. A. Jaanimagi, S. A. Letzring, F. J. Marshall, R. L. McCrory, P. W. McKenty, D. M. Roback, J. M. Soures, C. P. Verdon, and J. S. Wark, "Implosion Dynamics of Low-Aspect-Ratio Gas-Filled Targets Driven by UV Radiation."

L. DaSilva, P. A. Jaanimagi, J. Delettrez, R. Epstein, G. G. Gregory, and M. C. Richardson, "Time-Resolved Ablation Measurements of Imploding Targets."

C. J. McKinstrie, D. W. Forslund, and S. H. Batha, "Nonlinear Stimulated Raman Scattering in the Beat Wave Accelerator."

The following presentations were made at SPIE's 30th Annual International Technical Symposium, San Diego, California, August 1986:

S. D. Jacobs, J. E. Hayden, and A. L. Hrycin, "Practical Measurements of Adhesion and Strain for Improved Optical Coatings."

R. S. Marjoribanks, P. A. Jaanimagi, and M. C. Richardson, "Principles of Streak and Framing Photography by Optical Frequency-Encoding on a Chirped Pulse."

G. A. Mourou, "Picosecond Electro-Optic Sampling," presented at the High Speed Electronics Conference, Stockholm, Sweden, August 1986.

D. R. Dykaar, R. Sobolewski, T. Y. Hsiang, and G. A. Mourou, "Response of a Josephson Junction to a Stepped Voltage Pulse," presented at the 1986 Applied Super-Conductivity Conference, Baltimore, MD, September/October 1986.

J. M. Soures, R. L. McCrory, K. A. Cerqua, R. S. Craxton, R. J. Hutchison, S. D. Jacobs, T. J. Kessler, J. Kelly, G. A. Mourou, W. Seka, and D. Strickland, "High Power Laser Research and Development at the Laboratory for Laser Energetics," presented at SPIE's Fiber LASE Applications in Science and Engineering '86 Symposium, Cambridge, MA, September, 1986.

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