

# PUBLICATIONS AND CONFERENCE PRESENTATIONS

## Publications

Theodore Sizer II and Michael G. Raymer, "Modification of Atomic Collision Dynamics by Intense Ultrashort Laser Pulses," *Phys. Rev. Lett.* **56**, 123–126 (1986).

R. Epstein, S. Skupsky, and J. Delettrez, "Effects of Non-Maxwellian Electron Populations in Non-LTE Simulations of Laser-Plasma Thermal Transport and Implosion Experiments," *J. Quant. Spectrosc. Radiat. Transfer* **35**, 131–143 (1986).

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," *Phys. Rev. A* **33**, 1246–1253 (1986).

R. Epstein and R. S. Craxton, "Statistical Ray Tracing in Plasmas with Random Density Fluctuations," *Phys. Rev. A* **33**, 1892–1902 (1986).

G. G. Gregory, S. A. Letzring, M. C. Richardson, and C. D. Kiikka, "High Time-Space Resolved Photography of Laser Imploded Fusion Targets," in *High Speed Photography, Videography, and Photonics III* (SPIE, Bellingham, WA, 1985), Vol. 569, pp. 141–148; P. A. Jaanimagi, B. L. Henke, and M. C. Richardson, "An Absolutely Calibrated Time-Resolving X-Ray Spectrometer," *ibid.*, pp. 159–166; 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," *ibid.*, pp. 149–158.

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

D. Strickland and G. Mourou, "Compression Amplified Chirped Optical Pulses," *Opt. Commun.* **56**, 219–221 (1985).

R. L. McCrory, "Inertial Confinement Fusion (ICF)," *Phys. Today*, S-61–S-62 (January 1986).

F. J. Marshall, D. A. Hardy, A. Huber, J. Pantazis, J. McGarity, E. Holeman, and J. D. Wittingham, "Calibration System for Electron-Detectors in the Energy Range from 10 eV to 50 keV," *Rev. Sci. Instrum.* **57**, 229–235 (1986).

J. A. Valdmanis and G. Mourou, "Subpicosecond Electro-Optic Sampling: Principles and Applications," *IEEE J. Quantum Electron.* **QE-22**, 69–78 (1986).

J. A. Valdmanis and G. Mourou, "Electro-Optic Sampling: Testing Picosecond Electronics, Part I, Principles and Embodiments," *Laser Focus*, 96–106 (February 1986); "Electro-Optic Sampling: Testing Picosecond Electronics, Part 2, Applications," *ibid.*, 84–96 (March 1986).

S. Williamson, G. Mourou, and J. C. M. Li, "Time-Resolved Laser-Induced Phase Transformation in Aluminum," in *Energy Beam-Solid Interactions and Transient Thermal Processing/1984 Symposium* (Material Research Society, Pittsburgh, PA, 1985), pp. 87–96.

## Forthcoming Publications

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

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*.

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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."

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The following papers are to be published in the *Journal of Vacuum Science and Technology A*:

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 Experiments."

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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*.

A. Hauer, R. D. Cowan, B. Yaakobi, O. Barnouin, and R. Epstein, "Absorption Spectroscopy Diagnosis of Pusher Conditions," 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.).

B. Yaakobi, O. Barnouin, C. B. Collins, R. Epstein, A. Hauer, S. Letzring, F. J. Marshall, R. L. McCrory, M. C. Richardson, J. M. Soures, and S. S. Wagel, "Laser-Generated X-Ray Studies Relevant to Compression Diagnostics and Nuclear Level Excitation," to be published in *Laser Interaction and Related Plasma Phenomena* (Plenum Press).

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."

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."

B. Yaakobi, O. Barnouin, M. C. Richardson, and J. M. Soures, "X-Ray Spectroscopic Methods for the Diagnosis of Laser Imploded Targets," to be published in *Review of Scientific Instruments*.

P. A. Jaanimagi, J. Delettrez, M. C. Richardson, and B. Henke, "Temporal Dependence of the Mass Ablation State in UV Laser Irradiation Spherical Targets," to be published in *Physical Review A*.

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," 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, 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," *ibid*; 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, and H. Kornblum, "Analysis, Modeling, and Design of Short Wavelength Laser Plasma Experiments," *ibid.*

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The following articles are to be published in *Review of Scientific Instruments*:

M. C. Richardson, P. A. Jaanimagi, L. DaSilva, G. G. Gregory, C. Hestdalen, G. D. Kiikka, and R. Kotmel, "Optical Fiducials for X-Ray Streak Cameras at LLE."

M. C. Richardson, P. G. Burkhalter, D. A. Newman, D. L. Rosen, K. Hudson, and P. Audebert, "Spectral Measurement from Laser Produced Plasmas on OMEGA."

B. Yaakobi, O. Barnouin, M. C. Richardson, J. M. Soares, A. Hauer, and B. Post, "X-Ray Spectroscopic Methods for the Diagnosis of Laser-Imploded Targets."

M. C. Richardson, R. F. Keck, S. A. Letzring, R. L. McCrory, P. W. McKenty, D. M. Roback, J. M. Soares, C. P. Verdon, S. M. Lane, and S. G. Prussin, "Neutron Diagnosis of Compressed ICF Targets."

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M. C. Richardson, G. Pien, 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*.

M. C. Richardson, P. W. McKenty, R. F. Keck, F. J. Marshall, D. M. Roback, C. P. Verdon, R. L. McCrory, and J. M. Soares, "High Aspect-Ratio Laser Fusion Targets Driven by 24 Beam UV Laser Radiation," to be published in *Physical Review Letters*.

M. C. Richardson, U. Feldman, J. F. Seely, C. M. Brown, J. D. Ekberg, W. E. Behring, and J. Reader, "Spectrum and Energy Levels of Br XXV, Br XXIX, Br XXX, and Br XXXI," to be published in the *Journal of the Optical Society of America B*.

## Conference Presentations

G. Mourou, "Picosecond and Subpicosecond Characterization of Ultrafast Electronic Components Using the Electro-Optic Sampling Technique," presented at the Workshop on Compound Semiconductor Microwave Materials and Devices '86, San Francisco, CA, February 1986.

G. Mourou, "The Role of Ultrafast Optics in Ultrafast Electronics — the Electro-Optic Sampling Technique," presented at DARPA Advanced Electronic Material/Devices and EHF Monolithic Arrays Review Meeting, San Diego, CA, February 1986.

J. Nees, "Electro-Optic Signal Extraction Techniques," presented at the 1986 IEEE Very Large Scale Integration Test Workshop, Atlantic City, NJ, March 1986.

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The following presentations were made at the Topical Conference on High-Temperature Plasma Diagnostics, Hilton Head, SC, March 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."

J. S. Wark, A. Hauer, and J. D. Kilkeny, "Studies of X-Ray Switching and Shuttering Techniques."

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."

S. G. Prussin, S. M. Lane, M. C. Richardson, and S. G. Noyes, "Debris Collection from Implosion of Microballoons."

S. M. Lane, M. D. Cable, S. G. Prussin, S. G. Glendinning, D. H. Munro, S. P. Hatchett, K. G. Estabrook, L. J. Suter, M. C. Richardson, P. W. McKenty, D. M. Roback, and C. P. Verdon, "High Yield Direct Drive Experiments at NOVA."

M. C. Richardson, R. Keck, S. A. Letzring, R. L. McCrory, P. McKenty, D. Roback, J. M. Soures, C. P. Verdon, S. M. Lane, and S. Prussin, "Neutron Diagnostics of Compressed ICF Targets."

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The following presentations were made at the Fifth Topical Fabrication Specialists Meeting, Las Vegas, NV, March 1986:

R. Q. Gram and H. Kim, "Ablation Layer Coating of Mechanically Non-Supported Inertial Fusion Targets."

H. Kim and J. M. Soures, "Target Fabrication for High Density Target Experiments at the University of Rochester's Laboratory for Laser Energetics."

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