

# PUBLICATIONS AND CONFERENCE PRESENTATIONS

## Publications

A. Simon, W. Seka, L. M. Goldman, and R. W. Short, "Raman Scattering in Inhomogeneous Laser-Produced Plasma," *Phys. Fluids* **29**, 1704–1718 (1986).

M. C. Richardson, P. W. McKenty, R. L. Keck, F. J. Marshall, D. M. Roback, C. P. Verdon, R. L. McCrory, J. M. Soures, and S. M. Lane, "High-Aspect-Ratio Laser-Fusion Targets Driven by 24-Beam UV Laser Radiation," *Phys. Rev. Lett.* **56**, 2048–2051 (1986).

R. Q. Gram, H. Kim, J. F. Mason, and M. Wittman, "Ablation Layer Coating of Mechanically Nonsupported Inertial Fusion Targets," *J. Vac. Sci. Technol. A* **4**, 1145–1149 (1986).

H. Kim, S. Noyes, M. C. Richardson, and B. Yaakobi, "Fabrication of Thin Cylindrical Targets for X-Ray Laser Experiments," *J. Vac. Sci. Technol. A* **4**, 1142–1144 (1986).

C. J. McKinstrie and A. Simon, "Nonlinear Saturation of the Absolute Stimulated Raman Scattering Instability in a Finite Collisional Plasma," *Phys. Fluids* **29**, 1959–1970 (1986).

G. Mourou, D. Strickland, and S. Williamson, "How Pulse-Compression Techniques Can Be Applied to High-Energy Laser Amplifiers," *Laser Focus*, 104–106 (June 1986).

B. W. Krakauer, J. S. Gau, and D. J. Smith, "Structural Characterization of Yttrium Oxide Thin Films Using Transmission Electron Microscopy," *J. Mater. Sci. Lett.* **5**, 667–670 (1986).

T. Kessler, W. Seka, J. Kelly, D. Smith, R. Bahr, W. Lockman, N. Wong, and J. Soures, "A Terawatt Nd:Glass Active Mirror System," *High Power and Solid State Lasers* (SPIE, Bellingham, WA, 1986), Vol. 622, pp. 156-160.

## Forthcoming Publications

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

R. S. Craxton, R. L. McCrory, and J. M. Soures, "Progress in Laser Fusion," to be published in *Scientific American*.

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, W. Seka, K. Tanaka, R. Short, and A. Simon, "The Use of Laser Harmonic Spectroscopy as a Target Diagnostic."

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The following articles are 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 in Laser-Driven Implosions."

P. A. Jaanimagi, J. Delettrez, M. C. Richardson, and B. L. Henke, "Temporal Dependence of the Mass Ablation Rate in UV-Laser-Irradiated Spherical Targets."

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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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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."

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

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."

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

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

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

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."

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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.).

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*.

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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"

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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 Microstriplines," 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.

## Conference Presentations

J. F. Seely, U. Feldman, C. M. Brown, G. Doschek, J. D. Ekberg, W. E. Behring, L. Cohen, M. C. Richardson, and J. Reader, "XUV Spectroscopy of Highly Charged Ions in Line Focus and Point Focus Laser Produced Plasmas," presented at the International Colloquium on X-Ray Lasers, Aussois, France, April 1986.

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The following presentations were made at CLEO, San Francisco, CA, June 1986:

T. Kessler, W. Seka, N. Sampat, J. Walker, R. Hutchison, P. Dewa, and S. Swales, "High Power Glass Laser Uniformity: Progress and Prospects."

W. Seka, T. Kessler, G. Brewis, R. Hopkins, J. Kelly, C. D. Kiiikka, W. J. Lockman, and S. F. B. Morse, "High Power Glass Laser Front End Design: Coupling of Oscillators to Amplifier Chains."

D. R. Dykaar, G. A. Mourou, M. A. Hollis, B. J. Clifton, K. B. Nichols, C. O. Bozler, and R. A. Murphy, "Picosecond Electro-Optic Characterization of the Permeable Base Transistor."

D. Strickland, P. Maine, M. Bouvier, S. Williamson, and G. Mourou, "Picosecond Pulse Amplification Using Pulse Compression Techniques."

R. L. McCrory, "Direct-Drive Laser Fusion with Submicron Lasers – Prospects for the Late-1980's."

K. A. Cerqua, S. D. Jacobs, K. L. Marshall, A. Lindquist, B. L. McIntyre, and W. Zhong, "Characterization of the Chemical Strengthening of the Nd-Doped Phosphate Laser Glass."

S. D. Jacobs, K. A. Cerqua, K. L. Marshall, T. J. Kessler, R. J. Gingold, P. J. Lavery, and M. Topp, "High Power Laser Beam Apodization Using a Liquid Crystal Soft Aperture."

T. Kessler, W. Seka, J. Kelly, R. Bahr, W. Lockman, and J. M. Soures, "An Active-Mirror-Boosted 351-nm Laser Irradiation Facility."

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The following presentations were made at IQEC, San Francisco, CA, June 1986:

M. C. Richardson, P. Audebert, P. A. Jaanimagi, R. L. Keck, F. J. Marshall, R. L. McCrory, P. W. McKenty, D. M. Roback, J. M. Soures, C. P. Verdon, J. S. Wark, and B. Yaakobi, "Ablatively Driven Thick-Shell Target Implosions."

F. J. Marshall, M. C. Richardson, R. L. Keck, P. W. McKenty, D. M. Roback, C. P. Verdon, R. L. McCrory, and J. M. Soures, "High-Neutron-Yield Laser Fusion Target Studies with the 24-Beam UV OMEGA System."

H. Elsayed-Ali, T. Norris, M. Pessot, and G. Mourou, "Femtosecond Time-Resolved Transmissivity of Laser-Heated Thin Copper Films."

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

W. R. Donaldson, L. Kingsley, G. Mourou, and A. Melissinos, "A Study of the Feasibility of a Laser-Switched Power Linac."

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The following presentations were made at the Fifth Topical Meeting on Ultrafast Phenomena, Aspen, CO, June 1986:

D. Strickland, P. Maine, M. Bouvier, S. Williamson, and G. Mourou, "Picosecond Pulse Amplification Using Pulse Compression Techniques."

H. Elsayed-Ali, M. Pessot, T. Norris, and G. Mourou, "Time-Resolved Observation of Electron-Phonon Relaxation During Femtosecond Laser Heating of Copper."

D. R. Dykaar, R. Sobolewski, J. F. Whitaker, T. Y. Hsiang, G. A. Mourou, M. A. Hollis, B. J. Clifton, K. B. Nichols, C. O. Bozler, and R. A. Murphy, "Picosecond Characterization of Ultrafast Phenomena – New Devices and New Techniques."

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M. C. Richardson, "High Yield and High Density Ablative Fusion Implosions," presented at the Annual Congress of the Canadian Association of Physicists, Edmonton, Alberta, Canada, June 1986.

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K. L. Marshall, S. D. Jacobs, and K. A. Cerqua, "Liquid Crystal Compounds for High-Power Laser Device Applications," presented at the 11th International Liquid Crystal Conference, Berkeley, CA, June/July 1986.

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