

# **PUBLICATIONS AND CONFERENCE PRESENTATIONS**

## **Publications**

M. M. Cumbo, A. Lindquist, and S. D. Jacobs, "Assessment of Frictional Forces in Optical Polishing Using Atomic Force Microscopy," in *Optical Fabrication & Testing Workshop* (OSA, Washington, DC, 1993), Vol. 24, pp. 118–125.

D. Fried, J. D. B. Featherstone, R. Glens, B. Bordin, and W. Seka, "The Light-Scattering Properties of Dentin and Enamel at 543, 632, and 1053 nm," in the *Proceedings of Lasers in Orthopedic, Dental, and Veterinary Medicine II* (SPIE, Bellingham, WA, 1993), Vol. 1880, pp. 240–245.

T. Gong, L. X. Zheng, W. Xiong, W. Kula, R. Sobolewski, and P. M. Fauchet, "Femtosecond Optical Response of Y-Ba-Cu-O Thin Films: The Dependence on Optical Frequency, Excitation Intensity, and Electric Current," *Phys. Rev. B* **47**, 495 (1993).

D. Gupta, W. R. Donaldson, K. Kortkamp, and A. M. Kadin, "Optically Triggered Switching of Optically Thick YBCO Films," *IEEE Trans. Appl. Supercond.* **3**, 2895 (1993).

P. A. Jaanimagi and D. K. Bradley, "Neutron-Streak and Framing-Camera Diagnostics for ICF Implosions," in *20th International Congress on High-Speed Photography and Photonics* (SPIE, Bellingham, WA, 1992), Vol. 1801, pp. 710–717.

S. D. Jacobs, D. Golini, A. Lindquist, B. Puchebner, M. J. Cumbo, A. Feltz, W. Czajkokowski, J. Greivenkamp, D. T. Moore, and H. M. Pollicove, "Technical Advances in Process Science Research at the Center for Optics Manufacturing," in *International Progress in Precision Engineering*, edited by N. Ikawa, S. Shimada, T. Moriwaki, P. A. McKeown, and R. C. Spragg (Butterworth & Heinemann, 1993), pp. 1046–1050.

S. D. Jacobs, K. Kubath, and A. Maltsev, "Optical Fabrication Laboratory: Introductory Training for Optical Engineering Students," in *Optical Fabrication & Testing Workshop* (OSA, Washington, DC, 1993), Vol. 24, pp. 17–20.

J. Lambropoulos, M. J. Cumbo, and S. D. Jacobs, "The Effects of Material Properties and Process Parameters on Surface Quality during Microgrinding of Glass," in *Optical Fabrication & Testing Workshop* (OSA, Washington, DC, 1993), Vol. 24, pp. 50–53.

A. Lindquist, B. Puchebner, M. M. Cumbo, T. Rich, and S. D. Jacobs, "Bound Abrasive Polisher Concepts for the Center for Optics Manufacturing CNC Machining Centers," in *Optical Fabrication & Testing Workshop* (OSA, Washington, DC, 1993), Vol. 24, pp. 131–133.

C. J. McKinstrie and X. D. Cao, "Nonlinear Detuning of Three-Wave Interactions," *J. Opt. Soc. Am. B* **5**, 898 (1993).

G. M. Shimkaveg, M. R. Carter, B. K. F. Young, R. S. Walling, A. L. Osterheld, J. E. Trebes, R. A. London, R. R. Ratowsky, R. E. Stewart, and R. S. Craxton, "X-Ray Laser 'Oscillator-Amplifier' Experiments," in the *Proceedings of the International Conference on Lasers '92*, edited by C. P. Wang (STS Press, McLean, VA, 1993), pp. 97–104.

M. D. Skeldon and S. T. Bui, "Temporal Pulse-Width Control of a Regenerative Amplifier with Intracavity Etalons," *J. Opt. Soc. Am. B* **4**, 677 (1993).

W. E. Smith, T.-H. Bui, A. Lindquist, and S. D. Jacobs, "Non-Destructive Estimation of Subsurface Glass Damage Using Fluorescent Confocal Microscopy," in *Optical Fabrication & Testing Workshop* (OSA, Washington, DC, 1993), Vol. 24, pp. 148–150.

## Forthcoming Publications

A. I. Lobad, S. M. Mehta, B. C. Tousley, P. J. Rodney, and P. M. Fauchet, "The Starting Mechanism in Coupled-Cavity Mode-Locked Laser Systems," to be published in the *IEEE Journal of Quantum Electronics*.

F. J. Marshall, J. A. Deletrez, R. Epstein, and B. Yaakobi, "Diagnosis of Laser-Target Implosions by Space-Resolved Continuum Absorption X-Ray Spectroscopy," to be published in *Physical Review E*.

P. S. Maruthi Sai, M. J. Levene, T. Gillbro, R. S. Knox, R. H. Hwang-Schweitzer, and S. Mahajan, "Time-Resolved Fluorescence of Phycoerythrocyanin Containing Phycobilisomes from the Cyanobacterium *Westiellopsis Prolifica*," to be published in the *Biophysical Journal*.

R. L. McCrory, J. M. Soures, J. P. Knauer, S. A. Letzring, F. J. Marshall, S. Skupsky, W. Seka, C. P. Verdon, D. K. Bradley, R. S. Craxton, J. A. Delettrez, R. Epstein, P. A. Jaanimagi, R. L. Keck, T. J. Kessler, H. Kim, R. L. Kremens, P. W. McKenty, R. W. Short, and B. Yaakobi, "Short-Wavelength-Laser Requirements for Direct-Drive Ignition and Gain," to be published in *Laser and Particle Beams*.

R. L. McCrory, R. E. Bahr, D. K. Bradley, D. L. Brown, R. S. Craxton, J. Delettrez, R. Epstein, P. A. Jaanimagi, T. Kessler, J. P. Knauer, S. Letzring, F. Marshall, P. W. McKenty, W. Seka, S. Skupsky, J. M. Soures, C. P. Verdon, and B. Yaakobi, "Direct-Drive Implosion Experiments for Laser Fusion on OMEGA and the OMEGA Upgrade," to be published in *Laser and Particle Beams*.

R. L. McCrory, J. M. Soures, C. P. Verdon, T. R. Boehly, D. K. Bradley, R. S. Craxton, J. A. Delettrez, R. Epstein, R. J. Hutchison, P. A. Jaanimagi, S. D. Jacobs, J. H. Kelly, R. L. Keck, T. J. Kessler, H. Kim, J. P. Knauer, R. L. Kremens, S. A. Kumpan, S. A. Letzring, F. J. Marshall, P. W. McKenty, S. F. B. Morse, W. Seka, R. W. Short, M. D. Skeldon, S. Skupsky, and B. Yaakobi, "Direct-Drive Laser Fusion Target Physics Experiments," to be published in the *Proceedings of the 14th International Atomic Energy Agency (IAEA) International Conference on Plasma Physics and Controlled Nuclear Fusion Research*, 30 September–7 October, 1992, Wurzburg, Germany.

R. L. McCrory, "Progress Toward Ignition with Direct Drive," to be published in *Concerning Major Systems in Science and Technology*.

R. L. McCrory, "Direct-Drive Implosion Experiments for Laser Fusion on OMEGA and the OMEGA Upgrade," to be published in the *Proceedings of the 21st ECLIM*, Warsaw, Poland, 21–25 October 1991.

R. L. McCrory, "Irradiation Uniformity Requirements for Direct-Drive Laser Fusion," to be published in the *SPIE Proceedings of the XIV International Conference on Coherent and Nonlinear Optics*, St. Petersburg, Russia, 24–27 September 1991.

C. J. McKinstrie, X. D. Cao, and J. S. Li, "The Nonlinear Detuning of Four-Wave Interactions," to be published in the *Journal of the Optical Society of America B*.

D. D. Meyerhofer, H. Chen, J. A. Delettrez, B. Soom, S. Uchida, and B. Yaakobi, "Resonance Absorption in High Intensity Contrast, Picosecond Laser-Plasma Interactions," to be published in *Physics of Fluids*.

D. D. Meyerhofer and J. Peatross, "Angular Distributions of High-Order Harmonics," to be published in *SILAP (Super-Intense Laser Atom Physics)*.

E. A. Murphy, H. E. Elsayed-Ali, and J. W. Herman, "Superheating of Bi(0001)," to be published in *Physical Review B*.

E. A. Murphy, H. E. Elsayed-Ali, K. T. Park, and Y. Gao, "Temperature-Dependent X-Ray Photoelectron Diffraction of Pb(100): Experimental Results and the Single-Scattering Cluster Model," to be published in the *Journal of Vacuum Science and Technology A*.

J. Peatross and D. D. Meyerhofer, "Novel Gas Target for Use in Laser Harmonic Generation," to be published in *Review of Scientific Instruments*.

## Conference Presentations

D. Golini, M. Atwood, M. Bechtold, W. Czjakowski, A. Feltz, S. D. Jacobs, and A. Lindquist, "Deterministic Microgrinding of Spherical Surfaces on Optical Glasses," ASPE Spring Topical Meeting/Principles of Cutting Mechanics: Applications to Ultra-Precision Machining and Grinding, 13-15 April 1993, Tucson, AZ.

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The following presentations were made at CLEO '93, Baltimore, MD, 2-7 May 1993:

S. Alexandrou, C.-C. Wang, T. Y. Hsiang, M. Y. Liu, and S. Y. Chou, "7.5-ps Crystalline Silicon Metal-Semiconductor-Metal Schottky Photodiodes."

D. L. Brown, I. Will, W. Seka, and M. Tracy, "Large-Aperture Ring Amplifier with Gains in Excess of 40,000 and Several-Joule Output Capability."

X. D. Cao and D. D. Meyerhofer, "Nonlinear Birefringence of Optical Fibers."

A. Denysenko, R. Sobolewski, S. Alexandrou, C.-C. Wang, T. Y. Hsiang, W. R. Donaldson, D. K. Bradley, and P. M. Bell, "Characterization of Microchannel-Plate Detectors for High-Speed Gated X-Ray Imaging by Electro-Optic Sampling."

J. H. Kelly, M. M. Tedrow, K. A. Thorp, R. L. Keck, C. T. Cotton, and M. J. Shoup III, "Energy and Active-Wavefront Characterization of a Single Beamline of the OMEGA Upgrade."

A. L. Rigatti, D. M. Dudek, R. G. Carnes, L. D. Lund, K. L. Marshall, S. Papernov, A. W. Schmid, D. J. Smith, and S. D. Jacobs, "Uniformity Issues in the Manufacture of Large-Aperture Liquid-Crystal Wave Plates."

M. D. Skeldon, "Generation and Characterization of Fast Rise-Time Pulses on the OMEGA Laser System."

S. Skupsky, "Strategies for Ultra-High Laser Uniformity Using Zero-Correlation Phase Masks."

R. Sobolewski, T. Gong, Y. Kostoulas, W. Xiong, W. Kula, and P. M. Fauchet, "Femtosecond Optical Measurements of the Position of the Fermi Level in Y-Ba-Cu-O Films with Different Oxygen Content."

J. D. Zügel, W. Seka, and G. Gretton, "Tuning a Cr:LiSAF Laser with a High-Efficiency Transmission Grating."

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T. Gong, P. M. Fauchet, J. F. Young, and P. J. Kelly, "Electron-Hole and Electron Plasmon Interactions Near the Fermi Edge," QELS '93, Baltimore, MD, 2-7 May 1993.

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The following presentations were made at the 22nd ECLIM, Paris, France, 10-14 May 1993:

R. L. McCrory, "Direct-Drive Target Experiments at the Laboratory for Laser Energetics."

W. Seka, R. S. Craxton, R. E. Bahr, A. V. Chirikikh, D. D. Meyerhofer, A. Simon, and R. W. Short, "Long-Scale-Length Laser-Plasma Interaction Experiments on OMEGA."

S. D. Jacobs, A. Lindquist, M. J. Cumbo, B. Puchebner, A. Feltz, W. Czajkowski, D. Golini, J. Greivenkamp, D. T. Moore, and H. M. Pollicove, "Technical Advances in Process Science Research at the Center for Optics Manufacturing," 7th International Precision Engineering Seminar, Kobe, Japan, 17–21 May 1993.

E. M. Epperlein, "Fokker-Planck Modeling of Electron Transport in Laser Fusion," Workshop on "Collisions: Physical Phenomena and Mathematical Models," Aussois, France, 27–28 May 1993.

S. H. Chen and S. Krishnamurthy, "Some Fundamental Issues Governing Thermotropic Chiral Nematic Copolymers," 42nd Society for Polymer Science, Kyoto, Japan, 31 May–2 June 1993.

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The following presentations were made at the 23rd Annual Anomalous Absorption Conference, Wintergreen, VA, 21–25 June 1993:

R. Betti, R. L. McCrory, and C. P. Verdon, "Hydrodynamic Stability of Unsteady Ablation Fronts."

R. Betti, R. L. McCrory, and C. P. Verdon, "Linear Growth Rate of the Ablative Rayleigh-Taylor Instability."

D. K. Bradley, J. A. Delettrez, P. A. Jaanimagi, S. Skupsky, and C. P. Verdon, "Measurements of the Effects of Pulse Shaping on Rayleigh-Taylor Growth in Burnthrough Targets."

A. V. Chirikikh, W. Seka, R. S. Craxton, R. E. Bahr, A. Simon, R. W. Short, E. M. Epperlein, H. Baldis, and R. P. Drake, "Stimulated Brillouin Scattering at 1.053  $\mu\text{m}$  in OMEGA Long-Scale-Length Interaction Experiments."

R. S. Craxton, R. Hoefen, F. S. Turner, C. Darrow, E. F. Gable, and Gar. E. Busch, "Plasma Density Profiles from Grid Image Refractometry."

E. M. Epperlein, "Implicit-Conservative Fokker-Planck Simulations of Heat Flow in Laser Fusion."

R. Epstein, C. P. Verdon, D. K. Bradley, J. Delettrez, F. J. Marshall, and B. Yaakobi, "Simulations of Spectral Signatures and Images of Core-Shell Mixing in Laser-Driven Implosions."

Y. Fisher, H. Chen, B. Soom, and D. D. Meyerhofer, "Suprathermal Electrons and Ions Produced in P-Polarized, Picosecond, Laser-Plasma Interactions."

A. C. Gaeris, R. E. Bahr, R. S. Craxton, W. Seka, and D. D. Meyerhofer, "Measurements of Backscattered Light Near 351 nm in Long-Scale-Length Plasma Experiments on OMEGA."

R. E. Giacone, C. J. McKinstrie, R. Betti, and H. Chen, "The Angular Dependence of Stimulated Brillouin Scattering in Homogeneous Plasma."

C. J. McKinstrie, J. S. Li, R. Betti, and E. A. Williams, "Simple Models of Source Terms Used in the Analysis of Parametric Instabilities."

W. Seka, R. S. Craxton, R. E. Bahr, A. V. Chirikikh, A. Simon, R. W. Short, E. M. Epperlein, H. Baldis, and R. P. Drake, "OMEGA Long-Scale-Length Laser-Plasma Interaction Experiments."

R. W. Short, "A Simple Calculation of the Effects of Beam-Smoothing Techniques on Stimulated Brillouin Scattering."

A. Simon, "Scattering of Laser Light Near  $\omega_0$  Caused by Jets of Accelerated Ions."

M. D. Tracy, E. A. Williams, K. G. Estabrook, and S. M. Cameron. "Eigenvalue Solution for the Ion-Collisional Effects on Ion-Acoustic and Entropy Waves."

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The following presentations were made at the 9th IEEE International Pulsed Power Conference, Albuquerque, NM, 21–23 June 1993:

W. R. Donaldson and L. Mu, "Stimulating Photoconductive Switches in a Microwave Transmission Line."

D. Gupta, W. R. Donaldson, and A. M. Kadin, "Fast Inductively Coupled Superconducting Opening Switch Triggered by Short Laser Pulses."

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The following presentations were made at the 6th International Conference on Multiphoton Processes (ICOMP VI), Quebec City, Canada, 25–30 June 1993:

M. Adams, M. V. Fedorov, V. Krainov, and D. D. Meyerhofer, "Comparison of Quasiclassical and Exact Dipole Moments for Bound-Free and Bound-Bound Transitions in Hydrogen."

B. Buerke and D. D. Meyerhofer, "High-Harmonic Generation and the Two-Level Atom."

D. D. Meyerhofer, J. Peatross, and X.-D. Cao, "Minimizing the Phase Mismatch for Laser Harmonic Generation in an Ionization Gas."

D. D. Meyerhofer. "High-Order Harmonics Emitted from Low-Density Gas Targets."

J. Peatross and D. D. Meyerhofer, "Measurement of the Angular Distribution of High-Order Harmonics Emitted from Ionizing Low-Density Gas."

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