
PUBLICATIONS AND CONFERENCE PRESENTATIONS

Publications

- M. J. Cumbo and S. D. Jacobs, "Determination of Near-Surface Forces in Optical Polishing Using Atomic Force Microscopy," *Nanotechnology* **5**, 70 (1994).
- J. Delettrez, D. K. Bradley, and C. P. Verdon, "The Role of the Rayleigh-Taylor Instability in Laser-Driven Burnthrough Experiments," *Phys. Plasmas* **1**, 2342 (1994).
- E. M. Epperlein and R. W. Short, "Generalized Electron Fluid Equations in the Presence of Laser Irradiation," *Phys. Plasmas* **1**, 3003 (1994).
- E. M. Epperlein and R. W. Short, "Nonlocal Electron Transport in the Presence of High-Intensity Laser Irradiation," *Phys. Rev. E* **50**, 1697 (1994).
- D. Gupta, W. R. Donaldson, and A. M. Kadin, "A Laser-Triggered, Inductive Opening Switch Using High-Temperature Superconducting Thin Films," in *Advances in Cryogenic Engineering*, edited by P. Kittel (Plenum Press, New York, 1994), Vol. 39B, pp. 2015–2020.
- J. W. Herman and H. E. Elsayed-Ali, "Time-Resolved Structural Studies of the Low-Index Faces of Lead," *Phys. Rev. B* **49**, 4886 (1994).
- B. S. W. Kuo and A. W. Schmid, "Effects of Thin-Film Thermal Conductivity on the Optical Damage Threshold of a-Si Film on c-Si Substrate at 1064 nm," *J. Appl. Phys.* **74**, 5159 (1993).
- P. W. McKenty, S. Skupsky, J. H. Kelly, and C. T. Cotton, "Numerical Investigation of the Self-Focusing of Broad-Bandwidth Laser Light with Applied Angular Dispersion," *J. Appl. Phys.* **76**, 2027 (1994).
- C. J. McKinstrie, R. Betti, R. E. Giacone, T. Kolber, and J. S. Li, "Two-Dimensional Stimulated Brillouin Scattering," *Phys. Rev. E* **50**, 2182 (1994).
- S. Papernov and A. W. Schmid, "Atomic Force Microscopy Studies of Laser-Triggered Morphology Changes in Y₂O₃ Monolayer Coatings," in *Laser-Induced Damage in Optical Materials: 1993* (SPIE, Bellingham, WA, 1994), Vol. 2114, pp. 381–386.
- J. Peatross, J. L. Chaloupka, and D. D. Meyerhofer, "High-Order Harmonic Generation with an Annular Laser Beam," *Opt. Lett.* **19**, 942 (1994).
- C. J. Twomey, S.-H. Chen, T. Blanton, A. W. Schmid, and K. L. Marshall, "Solid Polymers Doped with Rare Earth Metal Salts. II. Thermal Behavior and Morphology of the Neodymium Acetate-Poly(Ethylene Oxide) System," *J. Polym. Sci. B, Polym. Phys. Ed.* **31**, 647 (1993).
- C.-C. Wang, M. Currie, S. Alexandrou, and T. Y. Hsiang, "Ultrafast, All-Silicon Light Modulator," *Opt. Lett.* **19**, 1453 (1994).
- W. Xiong, W. Kula, R. Sobolewski, and J. R. Gavaler, "Laser Writing: A New Technique for Fabrication of Electronic and Optoelectronic Y-Ba-Cu-O Devices and Circuits," in *Superconductive Devices and Circuits*, edited by R. A. Buhrman, J. Clarke, K. Daly, R. H. Koch, J. A. Luine, and R. W. Simon (SPIE, Bellingham, WA, 1994), Vol. 2160, pp. 16–24.

Forthcoming Publications

U. Alon, J. Hecht, D. Ofer, and D. Shvarts, "Power Laws and Similarity of Rayleigh-Taylor and Richtmyer-Meshkov Mixing Fronts at All Density Ratios," to be published in *Physical Review Letters*.

S. Augst and D. D. Meyerhofer, "Field Ionization of Noble Gas Atoms with a Keldysh Adiabaticity Parameter of One," to be published in *Laser Physics*.

R. Betti, V. Goncharov, R. L. McCrory, E. Turano, and C. P. Verdon, "Multiple Cutoff Wave Numbers of the Ablative Rayleigh-Taylor Instability," to be published in *Physical Review Letters*.

T. R. Boehly, R. S. Craxton, T. H. Hinterman, J. H. Kelly, T. J. Kessler, S. A. Kumpan, S. A. Letzring, R. L. McCrory, S. F. B. Morse, W. Seka, S. Skupsky, J. M. Soures, and C. P. Verdon, "The Upgrade to the OMEGA Laser System," to be published in the *Review of Scientific Instruments*.

T. R. Boehly, R. S. Craxton, T. H. Hinterman, P. A. Jaanimagi, J. H. Kelly, T. J. Kessler, R. L. Kremens, S. A. Kumpan, S. A. Letzring, R. L. McCrory, S. F. B. Morse, W. Seka, S. Skupsky, J. M. Soures, and C. P. Verdon, "The Upgrade to the OMEGA Laser System," to be published in the *Proceedings of the American Nuclear Society*.

D. K. Bradley, P. M. Bell, O. L. Landen, J. D. Kilkenny, and J. Oertel, "Development and Characterization of a Pair of 30-40 ps X-Ray Framing Cameras," to be published in the *Review of Scientific Instruments*.

X. D. Cao, D. D. Meyerhofer, and G. P. Agrawal, "Optimization of Optical Beam Steering in Nonlinear Kerr Media Via Spatial Phase Modulation," to be published in the *Journal of the Optical Society of America B*.

X. D. Cao, L. Zheng, and D. D. Meyerhofer, "A Novel Method for the Measurement of Temporal Walk-Off of Short Pulses in Nonlinear Crystals," to be published in *Optics Letters*.

X. D. Cao and D. D. Meyerhofer, "All-Optical Switching Via Collisions of Spatial Vector Solitons," to be published in *Optics Letters*.

X. D. Cao and D. D. Meyerhofer, "Frequency-Domain Interferometer for Measurement of the Polarization Modal Dispersion in Single-Mode Optical Fibers," to be published in *Optics Letters*.

S. H. Chen, "Novel Low Molar Mass Glass-Forming Liquid Crystals: Synthesis, Characterization, and Morphological Stability," to be published in the *Proceedings of the Society of Polymer Science, Japan*.

S. H. Chen and S. Krishnamurthy, "Some Fundamental Issues Governing Thermotropic Chiral Nematic Copolymers," to be published in the *Proceedings of the 42nd Society for Polymer Science, Kyoto, Japan, 31 May-2 June 1993*.

C. Y. Chien, G. Korn, J. S. Coe, J. Squier, G. Mourou, and R. S. Craxton, "Highly Efficient Second-Harmonic Generation of Ultra-Intense Nd:Glass Laser Pulses," to be published in *Optics Letters*.

C. T. Cotton, "The Design of an All-Spherical, Three-Mirror, Off-Axis Telescope Objective," to be published in the *OSA Proceedings of the International Optical Design Conference '94*.

M. J. Cumbo, D. Fairhurst, S. D. Jacobs, and B. E. Puchebner, "Slurry Particle Size Evolution During the Polishing of Optical Glass," to be published in *Applied Optics*.

W. R. Donaldson and L. Mu, "Effect of Illumination Uniformity on GaAs Photoconductive Switches," to be published in the *IEEE Journal of Quantum Electronics*.

D. Fried, R. E. Glens, J. D. B. Featherstone, and W. Seka, "The Nature of Light Scattering in Dental Enamel and Dentin at Visible and Near Infrared Wavelengths," to be published in *Applied Optics*.

R. E. Giacone, C. J. McKinstrie, and R. Betti, "Angular Dependence of Stimulated Brillouin Scattering in Homogeneous Plasma," to be published in *Physics of Plasmas*.

W. Gob, W. Lang, W. Kula, and R. Sobolewski, "Transport Properties and Superconducting Fluctuations in Oxygen Deficient Y-Ba-Cu-O Thin Films," to be published in *Physica C*.

D. Gupta, W. R. Donaldson, and A. M. Kadin, "Energy Extraction from Superconducting Magnets Using Optically Activated YBa₂Cu₃O_{7-x} Switches," to be published in *Optically Activated Switching IV*.

J. Hecht, D. Ofer, U. Alon, D. Shvarts, S. A. Orszag, and R. L. McCrory, "Three-Dimensional Simulations and Analysis of the Nonlinear Stage of the Rayleigh-Taylor Instability," to be published in *Laser and Particle Beams*.

P. A. Jaanimagi, R. C. Elton, B. L. Welch, Y. Leng, and H. R. Griem, "Extending X-Ray Streak Camera Operation to VUV Wavelengths," to be published in the *Review of Scientific Instruments*.

S. D. Jacobs, K. L. Marshall, and A. Schmid, "Liquid Crystals for Laser Applications," to be published in the *CRC Handbook of Laser Science and Technology, Supplement 2: Optical Materials*.

J. P. Knauer, R. L. Kremens, M. A. Russotto, and S. Tudman, "Using Cosmic Rays to Monitor Large Scintillator Arrays," to be published in the *Review of Scientific Instruments*.

E. M. Korenic, K. L. Marshall, and J. A. Maiolo, "Blending Polysiloxane 'Glass Resins' to Produce Optical Films with a Specific Refractive Index," to be published in *Optics and Photonics News*.

E. M. Korenic and S. D. Jacobs, "Cholesteric Liquid Crystal Inks and Paints," to be published in *Optics and Photonics News*.

W. Kula and R. Sobolewski, "Effect of Hydrogen Doping on Electrical Properties of Y-Ba-Cu-O Thin Films," to be published in *Physica C*.

W. Lang, G. Heine, W. Kula, and R. Sobolewski, "Study of Superconducting Fluctuations in Bi₂Sr₂Ca₂Cu₃O_x Thin Films: Paraconductivity, Excess Hall Effect, and Magnetoconductivity," to be published in *Physical Review B*.

Y. Lin and T. J. Kessler, "Raman Scattering: A Four-Dimensional System," to be published in *Applied Optics*.

R. S. Marjoribanks, F. W. Budnik, H. Chen, and D. D. Meyerhofer, "Plasma Electron Temperature in Picosecond Laser Plasmas from Quasi-Steady Ratio of Isoelectronic Lines," to be published in *Physical Review Letters*.

K. L. Marshall, S. D. Jacobs, and J. E. Miller, "Mid-Infrared Modulation Using Field-Induced Scattering in Ferroelectric Liquid Crystals," to be published in *Applied Optics*.

F. J. Marshall and B. Yaakobi, "Quantitative Measurements with X-Ray Microscopes in Laser-Fusion Experiments," to be published in the *Review of Scientific Instruments*.

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

R. L. McCrory, J. M. Soures, C. P. Verdon, T. R. Boehly, D. K. Bradley, R. S. Craxton, J. A. Delettrez, R. Epstein, P. A. Jaanimagi, S. D. Jacobs, R. L. Keck, J. H. Kelly, T. J. Kessler, H. Kim, J. P. Knauer, R. L. Kremens, S. A. Kumpan, S. A. Letzring, F. J. Marshall, P. J. McKenty, S. F. B. Morse, A. Okishev, W. Seka, R. W. Short, M. D. Skeldon, S. Skupsky, M. Tracy, and B. Yaakobi, "Direct-Drive Laser Fusion Experimental Program at the University of Rochester Laboratory for Laser Energetics," to be published in the *Proceedings of the Conference on Plasma Physics and Controlled Nuclear Fusion Research*.

K. Mizuno, R. Bahr, R. S. Craxton, J. S. DeGroot, R. P. Drake, W. Seka, and B. Sleaford, "Direct Measurements of the Ion Acoustic Decay Instability in a Laser-Produced, Large Scale, Hot Plasma," to be published in *Physical Review Letters*.

L. Mu, W. Donaldson, J. C. Adams, and R. A. Falk, "Electromagnetic Wave Interaction with Laser-Induced Plasma in GaAs," to be published *SPIE's Optically Activated Switching IV*.

J. Z. Roach, A. Ninkov, S. W. Swales, and T. Morris, "Design and Evaluation of a Screen CCD Imaging System," to be published in *Optical Engineering*.

W. Seka, D. Fried, J. D. B. Featherstone, and S. F. Borzillary, "Light Deposition and Thermal Response in Dental Hard Tissue," to be published in the *Journal of Dental Research*.

H. Shi and S.-H. Chen, "Novel Glassy Nematic and Chiral Nematic Oligomers Derived from 1,3,5-Cyclohexanetricarboxylic and (1R,3S)-(+)-Camphoric Acids," to be published in *Liquid Crystals*.

H. Shi and S.-H. Chen, "Novel Glass-Forming Liquid Crystals. 2. Systems Containing High Optical Birefringence Moiety

1-(Phenyl)-2-(6-Cyanonaphth-2-yl)Ethyne,” to be published in *Liquid Crystals*.

M. D. Skeldon, A. Okishev, S. A. Letzring, W. R. Donaldson, and W. Seka, “Optically Activated Switches for the Generation of Complex Electrical Waveforms with Multigigahertz Bandwidth,” to be published in SPIE’s *Optically Activated Switching IV*.

D. J. Smith, J. F. Anzellotti, A. W. Schmid, S. Papernov, Z. R. Chrzan, and S. J. Van Kerkhove, “Damage Fluence at 1054 nm and 351 nm of Coatings Made with Hafnium Oxide Evaporated,” to be published in the *Proceedings of the XXVI Annual Symposium on Optical Materials for High Power Lasers*.

R. Sobolewski and T. Y. Hsiang, “Progress in Ultrafast Superconducting Electronics,” to be published in the *Proceedings of the International Workshop on Superconductivity and Particle Detection*. (invited)

C. J. Twomey, T. N. Blanton, K. L. Marshall, S. H. Chen, and S. D. Jacobs, “Some Dynamic Features of the Preparation of Liquid Crystalline Elastomers,” to be published in *Liquid Crystals*.

C. P. Verdon and R. L. McCrory, “Direct-Drive Capsule Physics,” to be published in the *Proceedings of ECLIM '94*.

C.-C. Wang, M. Currie, R. Sobolewski, and T. Y. Hsiang, “Subpicosecond Electrical Pulse Generation by Edge Illumination of Semiconductor Photoconductive Switches,” to be published in *Applied Physics Letters*.

M. D. Wittman, R. Q. Gram, H. Kim, C. K. Immesoete, S. G. Noyes, and S. Scarantino, “Increased Retention Time for Hydrogen and Other Gases by Polymer Shells Using Optically Transparent Aluminum Layers,” to be published in the *Journal of Vacuum Science and Technology*.

B. Yaakobi, Q. Su, F. J. Marshall, and R. Epstein, “Monochromatic Backlighting as a Laser-Fusion Diagnostic,” to be published in the *Journal of X-Ray Science Technology*.

B. Yaakobi, D. Shvarts, F. J. Marshall, R. Epstein, and Q. Su, “Target Imaging and Backlighting Diagnosis,” to be published in the *Review of Scientific Instruments*.

B. Yaakobi, R. Epstein, F. J. Marshall, D. K. Bradley, P. A. Jaanimagi, and Q. Su, “New Diagnostic Features in the Laser Implosion of Argon-Filled Targets,” to be published in the *Review of Scientific Instruments*.

B. Yaakobi, F. J. Marshall, R. Epstein, and Q. Su, “New Diagnostic Features in the Laser Implosion of Argon-Filled Targets,” to be published in *Optics Communications*.

X. Zhou, S. Alexandrou, and T. Y. Hsiang, “Monte Carlo Investigation of the Mechanism of Subpicosecond Pulse Generation by Nonuniform Gap Illumination,” to be published in *Applied Physics Letters*.

J. D. Zuegel and W. Seka, “Direct Measurements of Lower-Level Lifetime in Nd:YLF,” to be published in the *Bulletin of the American Physical Society*.

Conference Presentations

The following presentations were made at M₂S-HTSC IV, Grenoble, France, 5–9 July 1994:

W. Kula and R. Sobolewski, "Effect of Hydrogen Doping on Electrical Properties of Y-Ba-Cu-O Thin Films."

D. Wu, W. Kula, and R. Sobolewski, "Hopping Transport in Y-Ba-Cu-O Films with Different Oxygen Content."

E. M. Korenic and S. D. Jacobs, "Selective Reflection Properties of Cholesteric Liquid Crystal Polymers," 3rd Annual Symposium on Materials Research, Rochester, NY, 16 August 1994.

The following presentations were made at the High Field Interactions and Short Wavelength Generation Topical Meeting, St. Malo, France, 21–25 August 1994:

D. D. Meyerhofer, C. I. Moore, and J. P. Knauer, "Forward Ponderomotive Acceleration of Electrons from the Focus of a High-Intensity Laser."

D. D. Meyerhofer, J. Chaloupka, and J. Peatross, "High-Order Harmonics Emitted from Low-Density Gas Targets."

J. L. Peatross, J. Chaloupka, and D. D. Meyerhofer, "High-Order Harmonic Generation with an Annular Laser Beam."

C. P. Verdon and R. L. McCrory, "Direct-Drive Capsule Physics," ECLIM '94, Oxford, England, 19–23 September 1994.

R. L. McCrory, J. M. Soures, C. P. Verdon, T. R. Boehly, D. K. Bradley, R. S. Craxton, J. A. Delettrez, R. Epstein, P. A. Jaanimagi, S. D. Jacobs, R. L. Keck, J. H. Kelly, T. J. Kessler, H. Kim, J. P. Knauer, R. L. Kremens, S. A. Kumpan, S. A. Letzring, F. J. Marshall, P. J. McKenty, S. F. B. Morse, A. Okishev, W. Seka, R. W. Short, M. D. Skeldon, S. Skupsky, M. Tracy, and B. Yaakobi, "Direct-Drive Laser Fusion Experimental Program at the University of Rochester Laboratory for Laser Energetics," 15th International Conference on Plasma Physics and Controlled Nuclear Fusion Research, Madrid, Spain, 26 September–1 October 1994.

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