

PUBLICATIONS AND CONFERENCE PRESENTATIONS

Publications

S. Alexandrou, R. Sobolewski, C.-C. Wang, and T. Y. Hsiang, "Subpicosecond Electrical Pulse Generation in GaAs by Nonuniform Illumination of Series and Parallel Transmission-Line Gaps," in *OSA Proceedings on Ultrafast Electronics and Optoelectronics*, edited by J. Shah and U. Mishra (Optical Society of America, Washington, DC, 1993), Vol. 14, pp. 209–212.

C. Bamber, W. R. Donaldson, E. Linke, and A. C. Melissinos, "A Pulsed-Power Electron Accelerator Using Laser-Driven Photoconductive Switches," in *Advanced Accelerator Concepts*, edited by J. S. Wurtele (American Institute of Physics, New York, 1993), Vol. 279, pp. 802–806.

R. Betti, "Plasma Oscillations Induced by Tangentially Injected Neutral Beams," *Plasma Phys. Control. Fusion* **35**, 941 (1993).

R. Betti and J. P. Freidberg, "Destabilization of the Internal Kink by Energetic Circulating Ions," *Phys. Rev. Lett.* **70**, 3428 (1993).

X. D. Cao and C. J. McKinstrie, "Solitary-Wave Stability in Birefringent Optical Fibers," *J. Opt. Soc. Am. B* **10**, 1202 (1993).

H. Chen, B. Soom, B. Yaakobi, S. Uchida, and D. D. Meyerhofer, "Hot-Electron Characterization from K_{α} Measurement in High-Contrast, p -Polarized, Picosecond Laser-Plasma Interactions," *Phys. Rev. Lett.* **70**, 3431 (1993).

W. R. Donaldson and L. Mu, "Transmission-Line Modeling of Photoconductive Switches," in *Optically Activated Switching III*, edited by R. Aaron Falk (SPIE, Bellingham, WA, 1993), Vol. 1873, pp. 201–207.

- W. R. Donaldson and A. C. Melissinos, "A Novel High Brilliance Electron Source," in *Advanced Accelerator Concepts*, edited by J. S. Wurtele (American Institute of Physics, New York, 1993), Vol. 279, pp. 791–795.
- P. M. Fauchet, D. Hulin, A. Mourchid, and R. Vanderhaghen, "Ultrafast Thermal Nonlinearities in Amorphous Silicon," in *Ultrafast Laser Probe Phenomena in Bulk and Microstructure Semiconductors and High-Temperature Superconductors* (SPIE, Bellingham, WA, 1992), Vol. 1677, pp. 174–183.
- P. M. Fauchet, "Picosecond Spectroscopy in Solids with a FEL's," in *Spectroscopic Characterization Techniques for Semiconductor Technology IV* (SPIE, Bellingham, WA, 1992), Vol. 1678, p. 232 (invited paper).
- P. M. Fauchet and T. Gong, "Femtosecond Dynamics of Hot Carriers in GaAs," in *Ultrafast Laser Probe Phenomena in Bulk and Microstructure Semiconductors and High-Temperature Superconductors* (SPIE, Bellingham, WA, 1992), Vol. 1677, pp. 25–34 (invited paper).
- T. Gong, K. B. Ucer, L. X. Zheng, G. W. Wicks, J. F. Young, P. J. Kelly, and P. M. Fauchet, "Femtosecond Carrier-Carrier Interactions in GaAs," in *Ultrafast Phenomena VIII* (Springer-Verlag, 1993), pp. 402–404.
- T. Gong, L. X. Zheng, Y. Kostoulas, W. Xiong, W. Kula, K. B. Ucer, R. Sobolewski, and P. M. Fauchet, "Ultrafast Optical and Optoelectronic Response of Y-Ba-Cu-O," in the *OSA Proceedings on Ultrafast Electronics and Optoelectronics* (Optical Society of America, Washington, DC, 1993), Vol. 14, pp. 234–237.
- T. Gong, L. X. Zheng, W. Xiong, W. Kula, R. Sobolewski, P. M. Fauchet, J. P. Zheng, H. W. Kwok, and J. R. Gavaler, "Femtosecond Spectroscopy of Y-Ba-Cu-O Thin Films," in *AIP Conference Proceedings 273: Superconductivity and Its Applications* (American Institute of Physics, New York, 1993), pp. 327–335.
- J. W. Herman, H. E. Elsayed-Ali, and E. A. Murphy, "Time-Resolved Structural Study of Pb(100)," *Phys. Rev. Lett.* **71**, 400 (1993).
- 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 *et al.* (Butterworth & Heinemann, 1993), pp. 1046–1050.
- W. Kula and R. Sobolewski, "Influence of the Crystalline Structure of Critical Current Density in Bi(Pb)-Sr-Ca-Cu-O Thin Films Superconducting above 100 K," in *AIP Conference Proceedings 273: Superconductivity and Its Applications* (American Institute of Physics, New York, 1993), pp. 226–230.
- 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. Jaanimagi, R. Keck, T. 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," *Laser Part. Beams* **11**, 299 (1993).
- D. D. Meyerhofer, H. Chen, J. A. Delettrez, B. Soom, S. Uchida, and B. Yaakobi,

E. A. Murphy, H. E. Elsayed-Ali, and J. W. Herman, "Superheating of Bi(0001)," *Phys. Rev. B* **48**, 4921 (1993).

J. M. Soures, R. L. McCrory, T. R. Boehly, R. S. Craxton, S. D. Jacobs, J. H. Kelly, T. J. Kessler, J. P. Knauer, R. L. Kremens, S. A. Kumpan, S. A. Letzring, W. D. Seka, R. W. Short, M. D. Skeldon, S. Skupsky, and C. P. Verdon, "OMEGA Upgrade Laser for Direct-Drive Target Experiments," *Laser Part. Beams* **11**, 317 (1993).

W. Xiong, W. Kula, R. Sobolewski, and J. R. Gavaler, "Superconducting Properties of Laser-Annealed Lines Fabricated in Oxygen-Deficient Y-Ba-Cu-O Thin Films," in *AIP Conference Proceedings 273: Superconductivity and Its Applications* (American Institute of Physics, New York, 1993), pp. 433–436.

Forthcoming Publications

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*.

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

L. Mu and W. R. Donaldson, "Simulating Photoconductive Switches in a Microwave Transmission Line," to be published in the *Proceedings of the 9th IEEE International Pulsed Power Conference*, Albuquerque, NM, 21–23 June 1993.

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

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*.

J. K. Samarabandu, R. Acharya, C. D. Edirisinghe, P. C. Cheng, H. Kim, T. H. Lin, R. G. Summers, and C. E. Musial, "Analysis of Multi-Dimensional Confocal Images," to be published in the *Proceedings of the SPIE Symposium "Biomedical Imaging"*, San Diego, CA, 24 February 1991.

N. Sampat, "Imaging System Design and Image Analysis Techniques for the Automatic Alignment of a Fusion Laser," to be published in the *Journal of Electronic Imaging*.

L. Shi, T. Gong, W. Xiong, X. Weng, Y. Kostoulas, R. Sobolewski, and P. M. Fauchet, "Femtosecond Reflectivity of 60-K Y-Ba-Cu-O Thin Films," to be published in *Applied Physics Letters*.

L. Shi and S.-H. Chen, "New Thermotropic Liquid Crystal Polymers Containing High Birefringence Cyanotolane Moiety," to be published in *Macromolecules*.

M. D. Skeldon and S. T. Bui, "Temporal Pulse-Width Control of a Regenerative Amplifier with Intracavity Etalons," to be published in the *Proceedings of SPIE's OE/LASE '93*, Los Angeles, CA, 16–23 January 1993.

S. Skupsky and T. J. Kessler, "Strategies for Ultra-High Laser Uniformity Using Zero-Correlation Phase Masks," to be published in the *Proceedings of SPIE's OE/LASE '93*, Los Angeles, CA, 16–23 January 1993.

S. Skupsky and T. J. Kessler, "A Speckle-Free Phase Plate (Diffuser) for Far-Field Applications," to be published in the *Journal of Applied Physics*.

R. Sobolewski, W. Xiong, W. Kula, and J. R. Gavaler, "Laser Patterning of Y-Ba-Cu-O Thin-Film Circuits," to be published in *Applied Physics Letters*.

R. Sobolewski, W. Xiong, W. Kula, and B. McIntyre, "Electrical and Structural Properties of the YBCO Superconducting-Semiconducting Interface," to be published in *Physica B*.

B. Soom, H. Chen, Y. Fisher, and D. D. Meyerhofer, "Strong K_{α} Emission in Picosecond Laser-Plasma Interactions," to be published in the *Proceedings of Short Wavelength V: Physics with Intense Laser Pulses ('93)* (an OSA proceedings).

B. Soom, H. Chen, Y. Fisher, and D. D. Meyerhofer, "Strong K_{α} Emission in Picosecond Laser-Plasma Interactions," to be published in the *Journal of Applied Physics*.

J. M. Soures, "Solid State Lasers," to be published in *Nuclear Fusion by Inertial Confinement*, edited by G. Velerade, Y. Ronen, and J. M. Martinez-Val.

J. M. Soures, "High-Technology Advances from LLE Research," to be published in the *Rochester Business Profiles Journal*.

J. M. Soures, "The OMEGA Upgrade Laser Facility for Direct-Drive Experiments," to be published in the *Proceedings of the Fusion Power Associates Annual Meeting and Symposium*, Princeton, NJ, 25–26 June 1991, and in the *Journal of Fusion Energy*.

J. Sweetser, T. J. Dunn, I. A. Walmsley, C. Radzewicz, S. Palese, and R. J. D. Miller, "Characterization of an FM Mode-Locked Nd:YLF Laser Synchronized with a Passively Mode-Locked Dye Laser," to be published in the *Journal of the Optical Society of America B*.

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,” to be published in the *Journal of Polymer Science, Polymer Physics Edition*.

C. J. Twomey, S.-H. Chen, T. Blanton, A. W. Schmid, and K. L. Marshall, “Solid Polymers Doped with Rare Earth Metal Compounds. III. Formation and Stability of Macromolecular Complexes Comprising Neodymium Nitrate and Dipivaloylmethane in Poly(Ethylene Oxide),” to be published in the *Journal of Polymer Science, Polymer Physics Edition*.

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*.

W. Xiong, W. Kula, and R. Sobolewski, “Fabrication of High Superconducting Electronic Devices Using the Laser-Writing Patterning Technique,” in *Advances in Cryogenic Engineering*, Volume 40.

M. Yu, C. J. McKinstrie, and G. P. Agrawal, “Instability Due to Cross-Phase Modulation in the Normal Dispersion Regime,” to be published in *Physical Review E*.

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*.

Conference Presentations

The following presentations were made at the Ninth Target Fabrication Specialists Meeting, Monterey, CA, 5–9 July 1993:

D. S. Brennan, “Modification of Carbon-Fiber Geometry Using an Oxygen-Plasma Etcher.”

R. Q. Gram, D. S. Brennan, S. G. Noyes, R. A. Mangano, and R. L. Fagaly, “A Low-Mass Mounting Method for Cryogenic Targets.”

H. Kim, “Fabrication of Ablator-Layer-Overcoated Foam Shells at Osaka University.”

S. G. Noyes, “Fabrication of Thin Planar Discs for Use in Long-Scale-Length Plasma Experiments.”

M. D. Wittman, “Compensation of the Lens Effects of Thick Cryogenic Layers Using an Interferometric Imaging System.”

The following presentations were made at the International Cryogenic Engineering Conference, Albuquerque, NM, 12–16 July 1993:

D. Gupta, W. R. Donaldson, and A. M. Kadin, “A Laser-Triggered, Inductive Opening Switch Using High-Temperature Superconducting Thin Films.”

W. Kula and R. Sobolewski, "Electric-Field-Effect Devices Based on Partially Oxygen-Depleted, Superconducting Y-Ba-Cu-O Thin Films."

W. Xiong, W. Kula, and R. Sobolewski, "Fabrication of High- T_c Superconducting Electronic Devices Using the Laser-Writing Patterning Technique."

The following presentations were made at ISEC '93, Boulder, CO, 12–14 July 1993:

T. Y. Hsiang, C.-C. Wang, A. Denysenko, S. Alexandrou, and R. Sobolewski, "An Electro-Optic Sampling System for Ultrafast Testing of Superconducting Circuits."

R. Sobolewski, W. Xiong, W. Kula, W. N. Maung, and D. P. Butler, "Monolithic Y-Ba-Cu-O Electronic Devices Fabricated Using the Laser-Writing Patterning Technique."

The following presentations were made at the XX International Conference on Low-Temperature Physics, Eugene, OR, 4–11 August 1993:

W. Kula and R. Sobolewski, "Electric-Field Effect in Partially Deoxygenated YBCO Thin Films."

R. Sobolewski, W. Xiong, W. Kula, and B. McIntyre, "Electrical and Structural Properties of the YBCO Superconducting-Semiconducting Interface."

The following presentations were made at the Eighth International Conference on Hot Carriers in Semiconductors (HCIS-8), Oxford, UK, 16–20 August 1993:

T. Gong, P. M. Fauchet, J. F. Young, G. W. Wicks, and P. J. Kelly, "Hot Carrier Dynamics Near the Fermi Edge."

Y. Kostoulas, T. Gong, and P. M. Fauchet, "Determination of Carrier-Carrier Scattering by a New Time-Resolved Technique."

J. F. Young, T. Gong, P. J. Kelly, and P. M. Fauchet, "Electron-Electron Scattering within Nonthermal Distributions."

W. I. Kordonsky, I. V. Prokhorov, G. Gorodkin, S. D. Jacobs, B. Puchebner, and D. Pietrowski, "Magnetorheological Finishing of Optics," 2nd Annual Symposium of the University of Rochester Chapter of the Materials Research Society (SOMR 93), Rochester, NY, 23 August 1993.

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