

PUBLICATIONS AND CONFERENCE PRESENTATIONS

Publications

W. R. Donaldson, "Picosecond and Femtosecond Laser Systems for Particle Accelerator Applications," in *Proceedings of the Switched Power Workshop*, edited by R. C. Fernow (Brookhaven National Laboratory, New York, 1989), pp. 191–219.

J. H. Kelly, M. J. Shoup III, and D. L. Smith, "OMEGA Upgrade Staging Options," *High Power and Solid State Lasers II* (SPIE, Bellingham, WA, 1989), Vol. 1040, pp. 184–190.

C. J. McKinstrie and J. M. Kindel, "Laser-Plasma Acceleration of Particles," in *Laser-Induced Plasmas and Applications*, edited by L. J. Radziemski and D. A. Cremers (Dekker, New York, 1989), p. 413.

T. B. Norris, N. Vodjdani, B. Vinter, C. Weisbuch, and G. A. Mourou, "Charge-Transfer State Photoluminescence in Asymmetric Coupled Quantum Wells," *Phys. Rev. B* **40**, 1392–1395 (1989).

C. F. Hooper, Jr., D. P. Kilcrease, R. C. Mancini, L. A. Woltz, D. K. Bradley, P. A. Jaanimagi, and M. C. Richardson, "Time-Resolved Spectroscopic Measurements of High Density in Ar-Filled Microballoon Implosions," *Phys. Rev. Lett.* **63**, 267–270 (1989).

S. Krishnamurthy and S. H. Chen, "Purification of Thermotropic Liquid Crystalline Siloxane Oligomer with Supercritical Carbon Dioxide," *Makromol. Chem.* **190**, 1407–1412 (1989).

Forthcoming Publications

T. Boehly, B. Yaakobi, D. Shvarts, D. Meyerhofer, P. Audebert, J. Wang, M. Russotto, B. Boswell, R. Epstein, R. S. Craxton, and J. M. Soures, "X-Ray Laser Experiments Using Double Foil Nickel Targets," to be published in *Applied Physics B*.

B. Boswell, D. Shvarts, T. Boehly, and B. Yaakobi, "X-Ray Laser Beam Propagation in Double-Foil Targets," to be published in *Physics of Fluids*.

J. M. Chwalek, D. R. Dykaar, J. F. Whitaker, R. Sobolewski, S. Gupta, T. Y. Hsiang, and G. A. Mourou, "Ultrafast Response of Superconducting Transmission Lines," to be published in *Ultrafast Phenomena VI*.

J. M. Chwalek, D. R. Dykaar, J. F. Whitaker, T. Y. Hsiang, G. A. Mourou, D. K. Lathrop, S. E. Russek, and R. A. Buhrman, "Picosecond Transient Propagation Studies on Thin-Film Y-Ba-Cu-O Transmission Lines," to be published in *Ultrafast Phenomena VI*.

W. R. Donaldson, A. M. Kadin, P. H. Ballentine, and M. Shoup III, "Optically Activated High Temperature Superconductor Opening Switches," to be published in the *Proceedings of the 7th IEEE Pulsed Power Conference*, Monterey, CA, 11-14 June 1989.

D. R. Dykaar, R. Sobolewski, and T. Y. Hsiang, "Picosecond Switching Dynamics of a Josephson Tunnel Junction," to be published in *Ultrafast Phenomena VI*.

M. Y. Frankel and T. Y. Hsiang, "Picosecond Transient Behavior of Pseudomorphic High Electron Mobility Transistor—Simulations," to be published in *IEEE Transactions on Electron Devices*.

M. Y. Frankel, D. R. Dykaar, T. Y. Hsiang, K. H. Duh, and P. C. Chao, "Non-Invasive, Picosecond Transient Characterization of Pseudomorphic High Electron Mobility Transistor (HEMT)," to be published in *IEEE Transactions on Electron Devices*.

T. Y. Hsiang, J. F. Whitaker, R. Sobolewski, S. Martinet, and L. P. Golob, "High-Frequency Characterization of Superconducting Transmission Structures from Picosecond Transient Measurements," to be published in the *Proceedings of the 1989 International Superconductive Electronics Conference (SEEC '89)*, Tokyo, Japan, 13 June 1989.

C. Immesoete, L. Forsley, and H. Kim, "Computer-Assisted Microballoon Selection for Laser Fusion Targets," to be published in the *Proceedings of the Forth Conference*, Rochester, NY, 19-23 June 1989.

S. D. Jacobs, "Better Lasers From Better Materials," to be published in *CHEMTECH* (invited article).

H. G. Kim, P. C. Cheng, M. D. Wittman, and H. J. Kong, "X-Ray Microscopy of Living Biological Specimens Using a Laser Plasma as an

X-Ray Source," to be published in the *Proceedings of the International Congress on Optical Science and Engineering Conference*, Paris, France, 24–28 April 1989.

H. G. Kim, P. C. Cheng, M. D. Wittman, and H. J. Kong, "Pulsed X-Ray Contact Microradiography and its Applications to Structural and Developmental Botany," to be published as a book chapter in *Tochigi Meeting in X-Ray Microscopy 88*.

P. Maine, D. Strickland, M. Pessot, J. Squier, P. Bado, G. Mourou, and D. Harter, "Chirped Pulse Amplification: Present and Future," to be published in *Ultrafast Phenomena VI*.

F. J. Marshall, S. A. Letzring, C. P. Verdon, R. L. Kremens, S. Skupsky, R. L. Keck, J. P. Knauer, D. K. Bradley, T. Kessler, J. A. Delettrez, H. Kim, J. M. Soures, and R. L. McCrory, "Cryogenic-Laser-Fusion-Target Implosion Studies Performed with the OMEGA UV Laser System," to be published in *Physical Review A*.

R. L. McCrory, "Energy Supply and Demand in the Twenty-First Century," to be published in *Journal of Fusion Energy*.

R. L. McCrory, "Progress and Plans for Inertial Confinement Fusion at the University of Rochester," to be published in *Journal of Fusion Energy*.

R. L. McCrory and C. P. Verdon, "Computer Modeling and Simulation in Inertial Confinement Fusion," to be published in *Il Nuovo Cimento*.

R. L. McCrory, J. M. Soures, C. P. Verdon, S. Skupsky, T. J. Kessler, S. A. Letzring, W. Seka, R. S. Craxton, R. Short, P. A. Jaanimagi, M. Skeldon, D. K. Bradley, J. Delettrez, R. L. Keck, H. Kim, J. P. Knauer, R. L. Kremens, and F. J. Marshall, "Laser Compression and Stability in Inertial Confinement Fusion," to be published in *Plasma Physics and Controlled Fusion*.

C. J. McKinstrie and G. G. Luther, "The Modulational Instability of Colinear Waves," to be published in *Physica Scripta, Special Issue on Large-Amplitude Waves in Plasmas*.

T. B. Norris, N. Vodjdani, B. Vinter, C. Weisbuch, and G. A. Mourou, "Time-Resolved Observation of Luminescence from a Charge-Transfer State in Double Quantum Wells," to be published in the *Proceedings of the Optical Society of America, Quantum Wells for Optics and Optoelectronics*, Salt Lake City, UT, 6–8 March 1989.

T. B. Norris, X. J. Song, G. Wicks, W. J. Schaff, L. F. Eastman, and G. A. Mourou, "Electric Field Dependence of the Tunneling Escape Time of Electrons from a Quantum Well," to be published in the *Proceedings of Picosecond Electronics and Optoelectronics Conference*, Salt Lake City, UT, 8–10 March 1989.

M. Pessot, J. Squier, G. Mourou, and D. J. Harter, "Chirped Pulse Amplification of 100 fs Pulses," to be published in *Optics Letters*.

M. Pessot, J. Squier, G. Mourou, and D. J. Harter, "Amplification of 100 fsec mJ Pulses in Alexandrite Using Chirped Pulse Techniques," to be published in the *Proceedings of Tunable Solid State Laser Meeting*, Cape Cod, MA, 1–3 May 1989.

S. Skupsky, R. W. Short, T. Kessler, R. S. Craxton, S. Letzring, and J. M. Soures, "Improved Laser-Beam Uniformity Using the Angular Dispersion of Frequency-Modulated Light," to be published in *Journal of Applied Physics*.

D. L. Smith, J. H. Kelly, and M. J. Shoup, "A Low Cost Active-Active Oscillator Utilizing Loss Feedback Control," to be published in *Applied Optics*.

J. M. Soures, "Remarks of J. M. Soures at the Fusion Power Associates Panel Discussion," to be published in *Journal of Fusion Energy*.

J. F. Whitaker, T. B. Norris, G. Mourou, T. C. Sollner, W. D. Goodhue, X. J. Song, and L. F. Eastman, "Tunneling-Time Measurements of a Resonant Tunneling Diode," to be published in *Ultrafast Phenomena VI*.

P. C. Cheng, V. H-K. Chen, H. G. Kim, and R. E. Pearson, "A Real-Time EPI-Fluorescent Confocal Microscope," to be published in *Journal of Microscopy*.

P. C. Cheng, V. H-K. Chen, H. G. Kim, and R. E. Pearson, "An EPI-Fluorescent Spinning-Disk Confocal Microscope," to be published in the *Proceedings of the 47th Annual Meeting of Electron Microscopy Society of America (EMSA)*, Austin, TX, 14-18 August 1989.

A. M. Kadin, W. R. Donaldson, P. H. Ballentine, and R. Sobolewski, "Nonequilibrium Hot-Electron Transport in Optically Irradiated YBCO Films," to be published in *PHYSICA-C, Special Issue, Proceedings of the International M2S-HTSC Conference*, Stanford, CA, 23-28 July 1989.

H. J. Kong, M. D. Wittman, and H. G. Kim, "A New Shearing Interferometer for Real-Time Characterization of Cryogenic Laser Fusion Targets," to be published in *Applied Physics Letters*.

J. C. Lambropoulos, "Analysis of Thermal Stress, Fracture and Strengthening by Ion Exchange in Glass for High Average Power Laser Applications," to be published in *Journal of Applied Physics*.

J. C. Lambropoulos, M. R. Jolly, C. A. Amsden, S. E. Gilman, M. J. Sinicropi, D. Diakomihalis, and S. D. Jacobs, "Thermal Conductivity of Dielectric Thin Films," to be published in *Journal of Applied Physics*.

F. W. Smith, S. Gupta, H. Q. Le, M. Frankel, V. Diadiuk, M. A. Hollis, D. R. Dykaar, G. A. Mourou, T. Y. Hsiang, and A. R. Calawa, "Picosecond GaAs-Based Photoconductive Optoelectronic Detectors," to be published in *Applied Physics Letters*.

M. L. Tsai and S. H. Chen, "Helical Sense in Thermotropic Liquid Crystal Copolymers in Relation to the Structure of Pendant Chiral Moiety," to be published in *Macromolecules*.

M. L. Tsai, S. H. Chen, K. L. Marshall, and S. D. Jacobs, "Thermotropic and Optical Properties of Chiral Nematic Polymers," to be published in *International Journal of Thermophysics*.

X. Zhou and T. Y. Hsiang, "Monte Carlo Study of Photo-Generated Carrier Transport in GaAs Surface Space Charge Fields," to be published *Journal of Applied Physics*.

Conference Presentations

A. Lindquist, S. D. Jacobs, and V. Plotsker, "Chemo-Mechanical Prepolish of Glass for Reducing Subsurface Damage and Polishing Time," presented at the Conference on Large Optics, Rome, NY, 11-13 July 1989.

A. M. Kadin, W. R. Donaldson, P. H. Ballentine, and R. Sobolewski, "Nonequilibrium Hot-Electron Transport in Optically Irradiated YBCO Films," presented at the International M2S-HTSC Conference, Stanford, CA, 23-28 July 1989.

The following presentations were made at the Botanical Society of America/Canadian Botanical Association Joint Meeting, Toronto, Canada, 6-10 August 1989:

P. C. Cheng and H. G. Kim, "The Use of X-Ray Contact Microradiography in the Study of Silica Deposition in the Leaf Blade of Maize."

P. C. Cheng, V. H. Chen, H. G. Kim, and R. E. Pearson, "Confocal Microscopy and its Applications in Structural and Developmental Botany."

The following presentations were made at the SPIE's 33rd Annual International Symposium, San Diego, CA, 6-11 August 1989:

P. A. Jaanimagi, R. Saunders, C. Hestdalen, W. VanRemmen, and M. Russotto, "Pulse Shape Measurements on OMEGA."

H. G. Kim, and P. C. Cheng, "Pulse X-Ray Contact Microradiography and Real-Time X-Ray Projection Micrography."

The following presentations were made at the Optical Society of America Topical Meeting, Snowbird, UT, 11-13 September 1989:

H. E. Elsayed-Ali, "Hot Electron Relaxation in Metals" (invited paper).

D. D. Meyerhofer, S. Augst, Y-H. Chuang, J. Delettrez, and M. C. Richardson, "Comparison of Multiphoton and Collisional Ionization in High Intensity Laser-Plasma Interactions."

M. C. Richardson, H. Chen, Y-H. Chuang, J. Delettrez, R. Epstein, T. Kessler, D. D. Meyerhofer, S. Uchida, and B. Yaakobi, "High Intensity Picosecond Pulse Interaction Experiments."

The following presentations were made at the Seventh Target Fabrication Specialists' Meeting, Livermore, CA, 25-29 September 1989:

H. G. Kim, R. Q. Gram, M. D. Wittman, C. Immesoete, R. S. Craxton, N. Sampat, S. Swales, G. Pien, and J. M. Soures, "Uniformity of Condensed DT Layers in Gas-Cooled Inertial Fusion Targets."

H. G. Kim, C. Immesoete, and S. Scarantino, "Computer Assisted Microballoon Selection for Inertial Confinement Targets."

H. G. Kim, M. D. Wittman, and J. M. Soures, "A Shearing Interferometer for Real-Time Characterization of Cryogenic Laser Fusion Targets."

J. M. Soures, "Implosion Experiments at LLE" (invited paper).

ACKNOWLEDGMENT

The work described in this volume includes current research at the Laboratory for Laser Energetics, which is supported by Empire State Electric Energy Research Corporation, New York State Energy Research and Development Authority, Ontario Hydro, the University of Rochester, and the U.S. Department of Energy Office of Inertial Fusion under agreement No. DE-FC03-85DP40200.