

PUBLICATIONS AND CONFERENCE PRESENTATIONS

Publications

S. Alexandrou, R. Sobolewski, and T. Y. Hsiang, "Bend-Induced Even and Odd Modes in Picosecond Electrical Transients Propagated on a Coplanar Waveguide," *Appl. Phys. Lett.* **60**, 1836 (1992).

H. E. Elsayed-Ali, J. W. Herman, and K. K. Lo, "Picosecond Time-Resolved Electron Diffraction Studies of Laser Heated Metals," in the *Proceedings of the International Conference on Lasers '90*, edited by D. G. Harris and J. Herbelin (STS Press, McLean, VA, 1991), pp. 143–152.

P. M. Fauchet, "Applied Optical Diagnostics of Semiconductors," *Proc. IEEE* **80**, 420 (1992) (invited paper).

P. M. Fauchet, T. Gong, P. J. Kelly, and J. F. Young, "Femtosecond Gain Dynamics in Thin GaAs Films," *Semicond. Sci. Technol.* **7**, B164 (1992).

R. H. Hwang-Schweitzer, R. S. Knox, P. B. Gibbs, and J. Biggins, "Fluorescence Studies of Photoregulation in the chrysophyte *Ochromonas danica*," in *J. Lumin.* **51**, 99 (1992).

G. G. Luther and C. J. McKinstrie, "Cooperative Instabilities of Counterpropagating Light Waves in Homogeneous Plasma," *Phys. Rev. Lett.* **68**, 1710 (1992).

R. L. McCrory, J. M. Soures, J. Knauer, S. Letzring, F. J. Marshall, S. Skupsky, W. Seka, C. Verdon, D. Bradley, R. S. Craxton, J. Delettrez, R. Epstein, P. Jaanimagi, R. Keck, T. Kessler, H. Kim, R. Kremens, P. W. McKenty,

R. Short, and B. Yaakobi, "Direct-Drive Implosion Experiments at the Laboratory for Laser Energetics," in *Plasma Physics and Controlled Nuclear Fusion Research 1990* (IAEA, Vienna, 1991), Vol 3, pp. 41–52.

D. D. Meyerhofer, S. Augst, C. I. Moore, and J. Peatross, "Angular Distribution of High-Order Harmonics Generated in the Tunneling Regime," in *Ultrashort-Wavelength Lasers* (SPIE, Bellingham, WA, 1991), Vol. 1551, pp. 246–251 (invited paper).

W. Seka, R. S. Craxton, R. E. Bahr, D. L. Brown, D. K. Bradley, P. A. Jaanimagi, B. Yaakobi, and R. Epstein, "Production and Characterization of Hot, Long-Scale-Length Laser Plasmas," *Phys. Fluids B* **4**, 432 (1992).

L. J. Shaw-Klein, T. K. Hatwar, S. J. Burns, S. D. Jacobs, and J. C. Lambropoulos, "Anisotropic Thermal Conductivity of Rare Earth-Transition Metal Thin Films," *J. Mater. Res.* **7**, 329 (1992).

Forthcoming Publications

S. Alexandrou, R. Sobolewski, and T. Y. Hsiang, "Time-Domain Characterization of Bent Coplanar Waveguides," to be published in the *IEEE Journal of Quantum Electronics*.

T. R. Boehly, R. S. Craxton, R. J. Hutchison, 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 *Proceedings of SPIE's OE/LASE*, Los Angeles, CA, 20–25 January 1992.

D. K. Bradley, J. A. Delettrez, and C. P. Verdon, "Measurements of the Effect of Laser Beam Smoothing on Direct-Drive ICF Capsule Implosions," to be published in *Physical Review Letters*.

D. K. Bradley, P. M. Bell, J. D. Kilkenny, R. Hanks, O. Landen, P. A. Jaanimagi, P. W. McKenty, and C. P. Verdon, "High-Speed Gated X-Ray Imaging for ICF Target Experiments," to be published in the *Review of Scientific Instruments*.

P. C. Cheng, H. Kim, and T. H. Lin, "The Study of Silica Deposition in the Leaf Blade of *Zea mays* L. by X-Ray Contact Microradiography and Confocal Microscopy," to be published in *X-Ray Microscopy III*.

S. Y. Chou, Y. Liu, W. Khalil, M. I. Nathan, T. Y. Hsiang, and S. Alexandrou, "Ultrafast Nanoscale Metal-Semiconductor-Metal Photodetectors on Bulk and Low-Temperature-Grown GaAs," to be published in *Applied Physics Letters*.

W. R. Donaldson and L. Mu, "The Effects of Doping on Photoconductive Switches as Determined by Electro-Optic Imaging," to be published in the *Proceedings of SPIE's OE/LASE*, Los Angeles, CA, 20–25 January 1992.

E. M. Epperlein, "Laser Filamentation in Plasmas," to be published in the *Proceedings of the Topical Conference on Research Trends in Inertial Confinement Fusion*, La Jolla, CA, 4–6 February 1991.

E. M. Epperlein and R. W. Short, "Nonlocal Heat Transport Effects on the Filamentation of Light in Plasmas," to be published in *Physics of Fluids B*.

P. M. Fauchet, D. Hulin, A. Mouchid, and R. Vanderhaghen, "Ultrafast Thermal Nonlinearities in Amorphous Silicon," to be published in *Ultrafast Laser Probe Phenomena in Semiconductors and Superconductors*.

P. M. Fauchet, "Picosecond Spectroscopy in Solids with a Free-Electron Laser," to be published in *Spectroscopic Characterization Techniques for Semiconductor Technology IV* (invited paper).

T. Gong, P. M. Fauchet, J. P. Young, and P. J. Kelly, "Subpicosecond Gain Dynamics in GaAs," to be published in the *Proceedings of the 1992 March Meeting of the American Physical Society*, Indianapolis, IN, 16–20 March 1992.

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," to be published in the *Proceedings of the Eighth International Conference on Ultrafast Phenomena*, Antibes-Juan-Les-Pins, France, 8–12 June 1992.

T. Gong and P. M. Fauchet, "Femtosecond Nonlinearities and Hot-Carrier Dynamics in GaAs," to be published in the *Proceedings of the VIIIth International Symposium on Ultrafast Processes in Spectroscopy*, Bayreuth, Germany, 7–11 October 1991 (invited paper).

M. J. Guardalben and N. George, "Speckle Observation of Pulsed Laser-Induced Dynamics in a Guest-Host Smectic-A Liquid-Crystal System," to be published in *Liquid Crystals*.

D. Gupta, W. R. Donaldson, K. Kortkamp, and A. M. Kadin, "Optically Activated Opening Switches," to be published in the *Proceedings of SPIE's OE/LASE*, Los Angeles, CA, 20–25 January 1992.

J. W. Herman and H. E. Elsayed-Ali, "Time-Resolved Study of Surface Disorder of Pb(110)," to be published in *Physical Review Letters*.

J. H. Kelly, M. J. Shoup III, M. D. Skeldon, and S. T. Bui, "Design and Energy Characterization of a Multi-Segment Glass Disk Amplifier," to be published in the *Proceedings of SPIE's OE/LASE*, Los Angeles, CA, 20–25 January 1991.

J. H. Kelly, M. J. Shoup III, M. M. Tedrow, C. D. Kiiikka, T. J. Kessler, S. A. Kumpan, A. W. Schmid, M. D. Skeldon, and D. J. Smith, "The 30 kJ OMEGA Upgrade at the University of Rochester: a Flexible, High-Performance Nd:Glass Driver," to be published in the *Proceedings of the IAEA Technical Committee Meeting on Drivers for Inertial Confinement Fusion*, Osaka, Japan, 15–19 April 1991.

J. H. Kelly, M. J. Shoup III, and M. M. Tedrow, "The Effect of Ionic and Particulate Platinum on the Performance of Large-Aperture Nd:Phosphate Glass Rod Amplifiers," to be published in the *Proceedings of SPIE's OE/LASE*, Los Angeles, CA, 20–25 January 1992.

J. H. Kelly, M. J. Shoup III, M. M. Tedrow, and K. Thorp, "Energy Transport in a Modern Disk Amplifier," to be published in the *Proceedings of SPIE's OE/LASE*, Los Angeles, CA, 20–25 January 1992.

J. H. Kelly, "Instrumentation Integration in Large Systems: the OMEGA Laser Upgrade at the University of Rochester as an Example," to be published in the

Proceedings of the OSA 1991 Annual Meeting, San Jose, CA, 3–8 November 1991 (invited paper).

T. J. Kessler, “Phase Conversion of Broadband Frequency-Tripled Laser Light,” to be published in the *Proceedings of SPIE’s OE/LASE*, Los Angeles, CA, 20–25 January 1992.

H. Kim, B. Yaakobi, J. M. Soures, and P.-C. Cheng, “Laser-Produced Plasma as a Source for X-Ray Microscopy,” to be published in *X-Ray Microscopy III*.

B. S. W. Kuo, J. C. M. Li, and A. W. Schmid, “Thermal Conductivity and Interface Thermal Resistance of Si Film on Si Substrate Determined by Photothermal Displacement Interferometry,” to be published in *Applied Physics A*.

Y. Lin, W. Seka, J. H. Eberly, H. Huang, and D. L. Brown, “Experimental Investigation of Bessel Beam Characteristics,” to be published in *Applied Optics (Lasers and Photonics)*.

Y. Lin and T. J. Kessler, “Raman Scattering in Air: A Four-Dimensional System Analysis,” to be published in the *Proceedings of SPIE’s OE/LASE*, Los Angeles, CA, 20–25 January 1992.

G. G. Luther and C. J. McKinstrie, “The Transverse Modulational Instability of Counterpropagating Light Waves,” to be published in the *Journal of the Optical Society of America B*.

F. J. Marshall, J. G. Jernigan, T. Collins, J. F. Arens, and G. Pien, “Measuring Laser-Plasma X-Ray Emission Using Photodiode Arrays,” to be published in the *Review of Scientific Instruments*.

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 the *Proceedings of the IAEA Technical Committee Meeting on Drivers for Inertial Confinement Fusion*, Osaka, Japan, 15–19 April 1991, and 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 the *Proceedings of the IAEA Technical Committee Meeting on Drivers for Inertial Confinement Fusion*, Osaka, Japan, 15–19 April 1991, and in *Laser and Particle Beams*.

R. L. McCrory, “Computer Modeling and Simulation in Inertial Confinement Fusion,” to be published in *Il Nuovo Cimento*.

R. L. McCrory, "Laser-Driven ICF Experiments," to be published in *Nuclear Fusion by Inertial Confinement*.

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 and R. Bingham, "Stimulated Raman Forward Scattering and the Relativistic Modulational Instability of Light Waves in Rarefied Plasma," to be published in *Physics of Fluids B*.

C. J. McKinstrie and M. V. Goldman, "Three-Dimensional Instabilities of Counterpropagating Light Waves in Homogeneous Plasmas," to be published in the *Journal of the Optical Society of America B*.

Conference Presentations

The following presentations were made at SPIE's OE/LASE, Los Angeles, CA, 20–25 January 1992:

T. R. Boehly, R. S. Craxton, R. J. Hutchison, 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."

W. R. Donaldson and L. Mu, "The Effects of Doping on Photoconductive Switches as Determined by Electro-Optic Imaging."

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J. H. Kelly, M. J. Shoup III, and M. M. Tedrow, "The Effect of Ionic and Particulate Platinum on the Performance of Large-Aperture Nd:Phosphate Glass Rod Amplifiers."

J. H. Kelly, M. J. Shoup III, M. M. Tedrow, and K. Thorp, "Energy Transport in a Modern Disk Amplifier."

T. J. Kessler, "Phase Conversion of Broadband Frequency-Tripled Laser Light."

Y. Lin and T. J. Kessler, "Raman Scattering in Air: A Four-Dimensional System Analysis."

M. J. Shoup III, J. H. Kelly, M. M. Tedrow, F. A. Rister, and K. Thorp, "Mechanical Design of 15- and 20-cm Clear Aperture Disk Amplifiers for the OMEGA Upgrade."

M. J. Shoup III, S. D. Jacobs, J. H. Kelly, C. T. Cotton, S. F. B. Morse, and S. A. Kumpan, "Specification of Large-Aperture Nd:Phosphate Glass Laser Disks."

M. D. Skeldon, S. Bui, S. A. Letzring, and W. Siryk, "Implementation of Pulse Shaping on the OMEGA Laser System."

M. M. Tedrow, J. H. Kelly, M. J. Shoup III, R. Juhala, A. Reynolds, L. Allen, and G. Dubé, "Characterization of a Diode-Pumped, 3.8-cm Clear-Aperture, High-Gain, Active-Mirror Laser Amplifier Using Cr:Nd:GSGG and Nd:GGG," presented at the Seventh Topical Meeting on Advanced Solid-State Lasers, Santa Fe, NM, 17–19 February 1992.

The following presentations were made at the Ninth Topical Conference on High Temperature Plasma Diagnostics, Santa Fe, NM, 15–19 March 1992:

D. K. Bradley, "High-Speed Gated X-Ray Imaging for ICF Target Experiments" (invited paper).

F. J. Marshall, J. G. Jernigan, T. Collins, J. F. Arens, and G. Pien, "Measuring Laser-Plasma X-Ray Emission Using Photodiode Arrays."

The following presentations were made at the American Physical Society, Indianapolis, IN, 16–20 March 1992:

H. E. Elsayed-Ali, "Time-Resolved Reflection High-Energy Electron Diffraction Studies of Laser-Heated Metal Surfaces" (invited talk).

P. M. Fauchet, T. Gong, Y. Kostoulas, K. B. Ucer, and G. W. Weeks, "Femtosecond Spectral Hole Burning in III-V Semiconductors."

T. Gong, P. M. Fauchet, J. P. Young, and P. J. Kelly, "Subpicosecond Gain Dynamics in GaAs."

J. W. Herman and H. E. Elsayed-Ali, "Time-Resolved Study of the Surface Structure of Pb(110) and Pb(111)."

The following presentations were made at SPIE's 1992 Symposium on Compound Semiconductor Physics and Devices, Somerset, NJ, 22–26 March 1992:

P. M. Fauchet and T. Gong, "Femtosecond Dynamics of Hot Carriers in GaAs."

P. M. Fauchet, D. Hulin, A. Mourchid, and R. Vanderhaghen, "Ultrafast Thermal Nonlinearities in Amorphous Silicon."

P. M. Fauchet, "Picosecond Spectroscopy in Solids with a Free-Electron Laser" (invited paper).

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