

PUBLICATIONS AND CONFERENCE PRESENTATIONS

Publications

S. H. Batha, D. D. Meyerhofer, A. Simon, and R. P. Drake, "Raman Up-Scattering in Long-Scale-Length, Laser-Produced Plasmas," *Phys. Fluids B* **3**, 448–454 (1991).

T. Boehly, M. Russotto, R. S. Craxton, R. Epstein, B. Yaakobi, L. B. DaSilva, J. Nilsen, E. A. Chandler, D. J. Fields, B. J. MacGowan, D. L. Matthews, J. H. Scofield, and G. Shimkaveg, "Demonstration of a Narrow Divergence X-Ray Laser in Neon-Like Titanium," *Phys. Rev. A* **42**, 6962–6965 (1990).

H. C. Chen, G. A. Mourou, and R. Knox, "Subnanosecond Time-Resolved Electron Diffraction from Thin Crystalline Gold Films," *Beam-Solid Interactions: Physical Phenomena* (MRS, Pittsburgh, PA, 1990), Vol. 157, pp. 437–442.

P. C. Cheng, V. H.-K. Chen, H. G. Kim, and R. E. Pearson, "An EPI-Fluorescent Spinning-Disk Confocal Microscope," in the *Proceedings of the 47th Annual Meeting of Electron Microscopy Society of America (EMSA)*, San Antonio, TX, 14–18 August 1989, pp. 136–137.

Y.-H. Chuang, Z.-W. Li, D. D. Meyerhofer, and A. Schmid, "Nonresonant $\chi_{1111}^{(3)}$ Obtained by Nearly-Degenerate Four-Wave Mixing Using Chirped-Pulse Technology," *Opt. Lett.* **16**, 7–9 (1991).

J. A. Delettrez and E. M. Epperlein, "Comments on 'Modified Nonlocal Heat-Transport Formula for Steep Temperature Gradients'," *Phys. Rev. A* **43**, 3174–3175 (1991).

H. E. Elsayed-Ali, T. Juhasz, G. O. Smith, and W. E. Bron, "Femtosecond Thermorefectivity and Thermotransmissivity of Polycrystalline and Single-Crystalline Gold Films," *Phys. Rev. B* **43**, 4488–4491 (1991).

R. Epstein, "Satellite Absorption Lines and the Temperature Dependence of X-Ray Absorption Features in High-Temperature Plasmas," *Phys. Rev. A* **43**, 961–967 (1991).

S. D. Jacobs, "Building Blocks for Better Lasers," *Chemtech*, 106–115 (1991).

J. C. Lee, S. D. Jacobs, and K. J. Skerrett, "Laser Beam Apodizer Utilizing Gradient-Index Optical Effects in Liquid Crystals," *Opt. Eng.* **30**, 330–336 (1991).

S. Papernov, K. Marshall, M. Guardalben, A. Schmid, and S. D. Jacobs, "351 nm, 0.7-ns Laser Damage Thresholds of Monomeric Liquid-Crystalline Systems," *Liq. Cryst.* **9**, 71–76 (1991).

C. Pruitt, "A Generalized EXIT," *J. Forth Appl. & Res.* **6**, 157–164 (1991).

M. D. Skeldon and R. E. Bahr, "Stimulated Rotational Raman Scattering in Air with a High-Power Broadband Laser," *Opt. Lett.* **16**, 366–368 (1991).

Forthcoming Publications

S. Alexandrou, R. Sobolewski, H. Nakano, B. C. Tousley, and T. Y. Hsiang, "Picosecond Characterization of Bent Coplanar Waveguides," to be published in *IEEE Microwave and Guided Wave Letters*.

H. Chen, Y.-H. Chuang, J. A. Delettrez, S. Uchida, and D. D. Meyerhofer, "Study of X-Ray Emission from Picosecond Laser-Plasma Interaction," to be published in the *Proceedings of the SPIE's OE/LASE '91 Symposium*, Los Angeles, CA, 20–25 January 1991.

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*, edited by A. Michette *et al.* (Springer-Verlag, New York).

Y.-H. Chuang, D. D. Meyerhofer, S. Augst, H. Chen, J. Peatross, and S. Uchida, "Suppression of the Pedestal in a Chirped-Pulse-Amplification Laser," to be published in the *Journal of the Optical Society of America B (Optical Physics)*.

Y.-H. Chuang, J. Peatross, and D. D. Meyerhofer, "Modeling the Pedestal in a Chirped-Pulse-Amplification Laser," to be published in the *Proceedings of the SPIE's OE/LASE '91 Symposium*, Los Angeles, CA, 20–25 January 1991.

J. Delettrez, R. Epstein, D. K. Bradley, P. A. Jaanimagi, R. C. Mancini, and C. F. Hooper, "Hydrodynamic Simulations, with Non-LTE Atomic Physics, of High-Density Implosions of Argon-Filled Polymer Shell Targets," to be published in the *Proceedings of the 1990 International Workshop on Radiative Properties of Hot Dense Matter*, Sarasota, FL, 22–26 October 1990.

H. E. Elsayed-Ali, J. W. Herman, and K. K. Lo, "Picosecond Time-Resolved Electron Diffraction Studies of Laser Heated Metals," to be published in the *Proceedings of the International Conference on Lasers '90*, STS Press, McLean, VA, 10–14 December 1990 (invited paper).

E. M. Epperlein, "Electron Kinetics in Laser-Driven Inertial Confinement Fusion," to be published in the *Proceedings of the Topical Conference on Research Trends in Nonlinear and Relativistic Effects in Plasmas*, La Jolla, CA, 5–8 February 1990.

R. Epstein and B. Yaakobi, "The Effect of Photoelectric Fluorescence on the Formation of X-Ray Absorption Lines in Laser-Plasma Experiments," to be published in *Physical Review A*.

P. M. Fauchet, "Applied Optical Diagnostics of Semiconductors," to be published in *IEEE Journal of Quantum Electronics* (invited paper).

P. M. Fauchet, D. A. Young, W. L. Nighan, Jr., and C. M. Fortmann, "Picosecond Carrier Dynamics in a-Si_{0.5}Ge_{0.5}H Measured with a Free Electron Laser," to be published in *IEEE Journal of Quantum Electronics*.

D. Golini and S. D. Jacobs, "The Physics of Loose Abrasive Microgrinding," to be published in *Applied Optics*.

T. Gong and P. M. Fauchet, "Femtosecond Refractive and Absorptive Nonlinearities Due to Real Carriers in GaAs," to be published in the *Proceedings of the IEEE/Lasers and Electro-Optics Society of America, Picosecond Electronics and Optoelectronics Conference*, Salt Lake City, UT, 13–15 March 1991.

T. Gong, P. Mertz, W. L. Nighan, Jr., and P. M. Fauchet, "Femtosecond Carrier Induced Changes of Refractive Index in GaAs," to be published in *Applied Physics*.

A. Honig, N. Alexander, Q. Fan, R. Q. Gram, and H. Kim, "Absence of Molecular Deuterium Dissociation During Room-Temperature Permeation into Polystyrene ICF Target Shells," to be published in the *Journal of Vacuum Science and Technology A*.

J. H. Kelly, M. 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 the SPIE's OE/LASE '91 Symposium*, Los Angeles, CA, 20–25 January 1991.

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*, edited by A. Michette *et al.* (Springer-Verlag, New York).

H. G. Kim, C. K. Immesoete, and S. Scarantino, "Computer-Assisted Microballoon Selection for Inertial Fusion Targets," to be published in the *Proceedings of 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, "Uniform Liquid Fuel Layer

Produced in a Cryogenic Target by a Time-Dependent Thermal Gradient,” to be published in the *Proceedings of the Seventh Target Fabrication Specialists Meeting*, Livermore, CA, 25–29 September 1989.

S. Krishnamurthy and S. H. Chen, “New Thermotropic Chiral Nematic Copolymers. II. A Study of Helical Sense and Twisting Power Based on Copolymers Containing (S)-(-)-1-Phenylethyl Alcohol and (R)-(-)-Methyl Mandelate,” to be published in *Macromolecules*.

S. Krishnamurthy and S. H. Chen, “Facilitating the Grandjean Texture Formation in Thermotropic Chiral Nematic Side-Chain Copolymers via Modulation of Backbone Flexibility,” to be published in *Macromolecules*.

J. C. Lambropoulos and S.-S. Hwang, “Film Thermal Conductivity and Laser Damage Resistance of Optical Thin Films,” to be published in the *Proceedings of a Symposium on Electro-Optics and Non-Linear Optics, 1st International Congress on Ceramic Science and Technology*, Anaheim, CA, 1–3 November 1989.

Y. Lin, W. D. 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)*.

G. G. Luther, C. J. McKinstrie, and A. L. Gaeta, “The Transverse Modulational Instability of Counterpropagating Light Waves,” to be published in the *Proceedings of the Topical Meeting on Nonlinear Dynamics in Optical Systems*, Afton, OK, 4–8 June 1990.

R. L. McCrory, “Laser-Driven ICF Experiments,” to be published in *Nuclear Fusion by Inertial Confinement*, edited by G. Velerade, Y. Ronen, and J. M. Martinez-Val (CRC Press).

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 and C. P. Verdon, “Inertial Confinement Fusion: Computer Simulation,” to be published in *Computer Applications of Plasma Science and Engineering*, edited by A. Drobot (Springer Verlag, New York).

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,” to be published in the *Proceedings of the Thirteenth International Conference on Plasma Physics and Controlled Nuclear Fusion Research*, Washington, DC, 1–6 October 1990.

R. L. McCrory, J. M. Soures, J. P. Knauer, S. A. Letzring, F. J. Marshall, S. Skupsky, W. D. 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 International Atomic Energy Agency*

(IAEA) Topical Committee Meeting on Drivers for Inertial Confinement Fusion, Osaka, Japan, 15–19 April 1991.

C. J. McKinstrie and M. Yu, “The Role of Ion Momentum in Stimulated Raman Scattering,” to be published in *Physics of Fluids B*.

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*.

E. A. Murphy, H. E. Elsayed-Ali, K. T. Park, J. Cao, and Y. Gao, “Angle Resolved X-Ray Photoemission Study of the Surface Disorder of Pb(100),” to be published in *Physical Review B*.

D. Y. Park, W. Seka, Y. Lin, and D. L. Brown, “Operational Characteristics of an Imaging, Unstable Ring Resonator Using Nd:YLF as Active Medium,” to be published in the *Proceedings of the Ninth Workshop on Laser Interaction and Related Plasma Phenomena*, Monterey, CA, 6–10 November 1989.

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, “RS-170 Video Standard + Scientific Imaging = Plenty of Headaches,” to be published in *Advanced Imaging*.

W. Seka, D. Golding, B. Klein, R. J. Lanzafame, and D. Rogers, “Laser Energy Repartition Inside Metal, Sapphire, and Quartz Surgical Laser Tips,” to be published in the *Proceedings of SPIE’s Application of Optical Engineering CAN-AM Eastern ’90 on Optical Engineering*, Rochester, NY, 4–5 October 1990.

W. D. 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,” to be published in *Physics of Fluids*.

L. J. Shaw-Klein, S. J. Burns, and S. D. Jacobs, “Thermal Conductivity of Aluminum Nitride Thin Films,” to be published in *MRS Symposium Proceedings Series—Electronic Packaging Materials Science*.

Conference Presentations

The following presentations were made at the SPIE’s OE/LASE ‘91 Symposium, Los Angeles, CA, 20–25 January 1991:

D. L. Brown, W. Seka, and S. A. Letzring, “Toward Phase Noise Reduction in a Nd:YLF Laser Using Electro-Optic Feedback Control.”

Y.-H. Chuang, D. D. Meyerhofer, S. Augst, H. Chen, J. Peatross, and S. Uchida, “Suppression of the Pedestal in a Chirped-Pulse-Amplification Laser.”

Y.-H. Chuang, J. Peatross, and D. D. Meyerhofer, "Modeling the Pedestal in a Chirped-Pulse-Amplification Laser."

J. H. Kelly, M. Shoup III, M. D. Skeldon, and S. T. Bui, "Design and Energy Characterization of a Multi-Segment Glass Disk Amplifier."

T. J. Kessler, T. R. Boehly, R. S. Craxton, J. H. Kelly, C. D. Kiikka, S. A. Kumpan, S. Skupsky, J. M. Soures, and C. Verdon, "OMEGA Laser Upgrade for Direct Drive Inertial Confinement Fusion."

M. D. Skeldon, M. S. Jin, D. J. Smith, and S. T. Bui, "Performance of a Longitudinal Mode KDP Pockels Cell with Transparent Conductive Coatings."

J. P. Chu, G. Banas, H. E. Elsayed-Ali, J. M. Riggsbee, and F. V. Lawrence, "Laser-Shock Hardening of Iron-Based Materials," presented at the 1991 TMS Annual Meeting, New Orleans, LA, 17-21 February 1991.

H. Kim, "Applications of Laser-Produced Plasma as an X-Ray Source," presented at the 1991 Wave and Laser Symposium, Optical Society of Korea, Daeduk, Korea, 20 February 1991 (invited talk).

The following presentations were made at the IEEE/Lasers and Electro-Optics Society of America, Picosecond Electronics and Optoelectronics Conference, Salt Lake City, UT, 13-15 March 1991:

T. Gong and P. M. Fauchet, "Femtosecond Refractive and Absorptive Nonlinearities Due to Real Carriers in GaAs."

T. Gong, P. Mertz, and P. M. Fauchet, "Femtosecond Refractive Nonlinearities Due to Real Carriers in GaAs."

The following presentations were made at the American Physical Society Meeting, Cincinnati, OH, 18-22 March 1991:

T. Juhasz, X. H. Hu, W. E. Bron, and H. E. Elsayed-Ali, "Temperature Dependence of Time-Resolved Thermorefectivity of Single Crystalline Gold Thin Films."

E. A. Murphy, H. E. Elsayed-Ali, K. T. Park, J. Cao, and Y. Gao, "Angle Resolved X-Ray Photoemission Study of the Surface Disordering of Pb(100)."

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