

PUBLICATIONS AND CONFERENCE PRESENTATIONS

Publications

T. Boehly, R. S. Craxton, R. Epstein, M. Russotto, and B. Yaakobi, "X-Ray Lasing in Thick Foil Irradiation Geometry," *Opt. Commun.* **79**, 57–63 (1990).

S.-H. Chen and M. L. Tsai, "New Thermotropic Chiral Nematic Copolymers Using (1S, 2S, 3S, 5R)-(+)- and (1R, 2R, 3R, 5S)-(-)-Isopinocampheol as Building Blocks," *Macromolecules* **23**, 5055–5058 (1990).

W. R. Donaldson, L. Kingsley, M. Weiner, A. Kim, and R. Zeto, "Electro-Optic Imaging of the Internal Fields in a GaAs Photoconductive Switch," *J. Appl. Phys.* **68**, 6453–6457 (1990).

H. E. Elsayed-Ali and J. W. Herman, "Picosecond Time-Resolved Surface-Lattice Temperature Probe," *Appl. Phys. Lett.* **57**, 1508–1510 (1990).

E. M. Epperlein, "Kinetic Theory of Laser Filamentation in Plasmas," *Phys. Rev. Lett.* **65**, 2145–2148 (1990).

D. Golini and S. D. Jacobs, "Transition Between Brittle and Ductile Mode in Loose Abrasive Grinding," *Advanced Optical Manufacturing and Testing* (SPIE, Bellingham, WA, 1990), Vol. 1333, pp. 80–91.

P. A. Jaanimagi and C. Hestdalen, "Streak Camera Phosphors: Response to Ultra-Short Excitation," *Ultrahigh- and High-Speed Photography, Videography, Photonics, and Velocimetry '90* (SPIE, Bellingham, WA, 1990), Vol. 1346, pp. 443–448.

A. M. Kadin, P. H. Ballentine, and W. R. Donaldson, "Relaxation Processes in Optically Excited High-Tc Films," *Physica B* **165 & 166**, 1507–1508 (1990).

L. E. Kingsley and W. R. Donaldson, "Electrooptic Imaging of Surface Electric Fields in High-Power Photoconductive Switches," *IEEE Trans. Electron Devices* **37**, 2449–2458 (1990).

J.-C. Lee and S. D. Jacobs, "Design and Construction of 1064-nm Liquid-Crystal Laser Cavity End Mirrors," *J. Appl. Phys.* **68**, 6523–6525 (1990).

P. W. McKenty, C. P. Verdon, S. Skupsky, R. L. McCrory, D. K. Bradley, W. Seka, and P. A. Jaanimagi, "Numerical Modeling of Effects of Power Imbalance on Irradiation Nonuniformities," *J. Appl. Phys.* **68**, 5036–5043 (1990).

C. J. McKinstrie and R. Bingham, "Erratum: 'The Modulational Instability of Coupled Waves' [*Phys. Fluids B* **1**, 230 (1989)]," *Phys. Fluids B* **2**, 3215 (1990).

Forthcoming Publications

S. H. Batha, D. D. Meyerhofer, A. Simon, and R. P. Drake, "Enhanced Scattering from Laser-Plasma Interactions," to be published in *Physics of Fluids*.

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," to be published in *Physical Review A*.

H. C. Chen, G. Mourou, and R. Knox, "Time-Resolved Electron Diffraction from Pulse-Excited Crystalline Gold Films," to be published in the *Proceedings of 1989 Materials Research Society Fall Meeting: Beam-Solid Interactions*, Boston, MA, 27 November–2 December 1989; and in *Physical Review Letters*.

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.

Y.-H. Chuang, Z.-W. Li, D. D. Meyerhofer, and A. W. Schmid, "Nonresonant $\chi_{1111}^{(3)}$ Obtained by Nearly-Degenerate Four-Wave Mixing Using Chirped-Pulse Technology," to be published in *Optics Letters*.

J. Delettrez and E. Epperlein, "Comments on 'Modified Nonlocal Heat-Transport Formula for Steep Temperature Gradients'," to be published in *Physics Review A*.

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.

W. R. Donaldson and L. E. Kingsley, “Optical Probing of Field-Dependent Effects in GaAs Photoconductive Switches,” to be published in the SPIE’s *Proceedings of a Symposium on Laser Science and Optical Applications*, Boston, MA, 4–9 November 1990.

H. E. Elsayed-Ali, T. Juhasz, G. O. Smith, and W. E. Bron, “Femtosecond Thermorefectivity and Thermotransmissivity of Polycrystalline and Single-Crystalline Gold Films,” to be published in *Physical Review B*.

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.

Conference Presentations

A. Schmid, S. Papernov, Z.-W. Li, K. Marshall, T. Gunderman, J.-C. Lee, M. Guardalben, and S. D. Jacobs, “Liquid-Crystal Materials for High Peak-Power Laser Applications,” 3rd International Topical Meeting on Optics of Liquid Crystals, Cetraro, Italy, 1–5 October 1990.

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,” Thirteenth International Atomic Energy Agency Conference on Plasma Physics and Controlled Nuclear Fusion Research, Washington, DC, 1–6 October 1990.

The following presentations were made at the SPIE CAN-AM Eastern '90; Session IV: Components and Systems: Design, Manufacturing & Testing, Rochester, NY, 4–5 October 1990:

D. Golini and S. D. Jacobs, “Brittle and Ductile Mode Loose Abrasive Grinding: An Examination of Surface Stresses in ULE.”

T. E. Gunderman, “Liquid Crystal Optics: Polarizers, Isolators and Waveplates.”

W. Seka, D. Golding, B. Klein, R. J. Lanzafame, and D. Rogers, “Laser Energy Repartition Inside Metal, Sapphire, and Quartz Surgical Laser Tips.”

H. Kim, M. D. Wittman, J. M. Soures, P. C. Cheng, R. S. Acharya, T. H. Liu, and J. Samarubandu, “Characterization of Inertial Fusion Targets with Confocal Microscopy,” presented at the 37th Annual AVS Symposium & Topical Conference, Toronto, Canada, 8–12 October 1990.

The following presentations were made at the International Workshop on Radiative Properties of Hot Dense Matter, Sarasota, FL, 22–26 October 1990:

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."

P. A. Jaanimagi, D. K. Bradley, J. Delettrez, F. Marshall, R. C. Mancini, and C. F. Hooper, "Implosion of Argon-Filled Polymer Shell Targets: Experimental Aspects."

The following presentations were made at the OSA Annual Meeting, Boston, MA, 4–9 November 1990:

M. J. Guardalben, S.-G. Wang, J. Landry, and N. George, "Time-Resolved Study of Smectic A Guest-Host System Response to 488 nm Pulsed Excitation Using Laser Speckle."

J. A. Hawthorne, S. N. Houde-Walter, S. Papernov, and A. W. Schmid, "Properties of Sputtered Glass Films for Waveguide Applications."

M. S. Jin, D. J. Smith, A. Schmid, and S. Papernov, "Ultraviolet Properties of Y_2O_3 and ZrO_2 Films Produced under Various Ion-Assisted Deposition Conditions."

T. Kessler, "Issues in Pulsed Laser Interferometry and Coherence Control" (tutorial).

A. Schmid, K. Marshall, B. Puchebner, Z.-W. Li, Y. H. Chuang, and D. Meyerhofer, "Third-Order Nonlinear Susceptibility at 1053 nm of a Series of Ester- and Tolane-Linked, Liquid-Crystal Naphthyl Compounds."

M. D. Skeldon and R. Bahr, "Stimulated Rotational Raman Scattering in Air with a High-Power Broadband Laser."

D. J. Smith, M. S. Jin, and Z. R. Chrzan, "High Contrast Thin Film Polarizers for Nd:Glass Laser Systems."

W. R. Donaldson and L. E. Kingsley, "Optical Probing of Field-Dependent Effects in GaAs Photoconductive Switches," presented at the SPIE Symposium on Laser Science and Optical Applications, OE/Boston '90, Boston, MA, 4–9 November 1990.

The following presentations were made at the Thirty-Second Annual Meeting, Division of Plasma Physics (APS), Cincinnati, OH, 12–16 November 1990:

R. Bahr, W. Seka, R. S. Craxton, D. Bradley, P. Jaanimagi, D. Meyerhofer, and J. M. Soures, "Diagnosing Long-Scale Length Interaction Experiments on OMEGA."

T. Boehly, M. Russotto, B. Yaakobi, R. Epstein, R. S. Craxton, B. MacGowan, L. DaSilva, E. Chandler, J. Nilsen, M. Eckart, A. R. Fry, D. Matthews, and G. Shimkaveg, "Demonstration of a Resonantly Photo-Pumped X-ray Laser."

- D. K. Bradley, J. Delettrez, P. A. Jaanimagi, and C. P. Verdon, "Burnthrough Measurements on the OMEGA Laser System."
- D. L. Brown, T. Kessler, S. Letzring, S. Morse, and R. L. Short, "Laser Propagation Experiments on OMEGA with SSD."
- H. Chen, Y. H. Chuang, S. Uchida, D. Bradley, R. Epstein, P. Jaanimagi, B. Yaakobi, and D. D. Meyerhofer, "Studies of X-Ray and EUV Emission From 1 ps Laser-Plasma Interactions."
- R. S. Craxton and W. Seka, "The Production of Long-Scale-Length Plasmas on OMEGA."
- J. Delettrez, "A Novel Method to Study the Effects of Illumination Uniformity on the Rayleigh-Taylor Instability: Burnthrough Experiments" (invited talk).
- J. Delettrez, "Modeling the Burnthrough Experiments with an Interactive Mix Model in *LILAC*."
- E. Epperlein, "A Kinetic Theory of Laser Beam Thermal and Ponderomotive Filamentation in Plasmas."
- R. Epstein and B. Yaakobi, "Atomic, Radiative, and Kinetic Effects on X-ray Absorption Lines in Inertial-Confinement Experiments."
- J. Glanz, M. V. Goldman, D. L. Newman, and C. J. McKinstrie, "Sideband Instabilities and Emission from Counterpropagating Langmuir Pump Waves."
- P. A. Jaanimagi, J. Kelly, R. Keck, and W. Seka, "Pulse Shape and Power Balance Measurements on OMEGA."
- T. Kessler, T. Boehly, R. S. Craxton, J. Kelly, S. Kumpan, R. L. McCrory, W. Seka, S. Skupsky, J. M. Soures, and C. Verdon, "Target Irradiation Using the OMEGA Upgrade Laser System."
- J. P. Knauer, D. K. Bradley, J. Delettrez, P. Jaanimagi, R. Keck, H. Kim, R. Kremens, S. Letzring, F. Marshall, R. L. McCrory, P. McKenty, M. Russotto, W. Seka, S. Skupsky, J. M. Soures, C. Verdon, and B. Yaakobi, "Implosion of D₂ Filled Plastic Shells with the OMEGA Laser."
- S. Letzring, S. Skupsky, R. Short, R. Epstein, J. P. Knauer, and F. J. Marshall, "Implementation and Initial Experimental Results of 9 GHz SSD on OMEGA."
- G. G. Luther, C. J. McKinstrie, and M. V. Goldman, "Two-Dimensional Instabilities of Counterpropagating Light Waves."
- F. J. Marshall, C. P. Verdon, J. P. Knauer, D. K. Bradley, R. L. Keck, H. Kim, R. L. Kremens, S. A. Letzring, R. L. McCrory, M. Russotto, and J. M. Soures, "Implosion Experiments on Solid Shell Targets Performed on OMEGA."
- C. J. McKinstrie, M. Yu, and G. G. Luther, "Stimulated Raman Forward Scattering and the Relativistic Modulational Instability of Light Waves in Rarefied Plasma."
- C. J. McKinstrie, M. V. Goldman, and G. G. Luther, "Two-Dimensional Instabilities of Counterpropagating Light Waves."

D. D. Meyerhofer, D. Bradley, Y.-H. Chuang, H. Chen, J. Delettrez, R. Epstein, P. Jaanimagi, S. Uchida, and B. Yaakobi, "Results From High-Intensity, 1 ps, Laser-Plasma Interaction Experiments."

J. C. Moreno, H. R. Griem, S. Goldsmith, J. S. Wang, and R. Epstein, "Spectral Measurements of Plasma Expansion Velocities Using Spherical Targets."

D. L. Newman, M. V. Goldman, J. Glanz, P. A. Robinson, and C. J. McKinstrie, "Nonlinear Wave Dynamics in a Plasma Driven by Counterpropagating Langmuir Pump Waves."

G. Pien, F. J. Marshall, G. Altmann, and C. Dulnikowski, "X-ray Imaging of Laser Fusion Targets Using Kirkpatrick-Baez (KB) Microscopes."

W. Seka, R. S. Craxton, R. Bahr, D. Bradley, P. Jaanimagi, J. Knauer, S. Letzring, D. Meyerhofer, R. L. Short, A. Simon, and J. M. Soures, "Long-Scale Length Interaction Experiments on OMEGA."

R. W. Short, "The Effect of Refraction on Filamentation."

A. Simon, "Analysis of 90° Brillouin Scattering Experiments."

B. Yaakobi, F. J. Marshall, J. Knauer, and J. M. Soures, "High-Resolution X-Ray Back-Lighting of Spherical Targets."

The following presentations were made at the Materials Research Society 1990 Fall Meeting, Boston, MA, 26 November –1 December 1990:

S. Krishnamurthy and S. H. Chen, "Helical Sense and Twisting Power in Thermotropic Side-Chain Copolymers."

L. J. Shaw-Klein, S. J. Burns, and S. D. Jacobs, "Thermal Conductivity of Aluminum Nitride Thin Films."

C. J. Twomey and S. H. Chen, "Complex Formation and Morphology in Neodymium Chloride-Poly(Ethylene Oxide) System."

H. E. Elsayed-Ali, J. W. Herman, and K.-K. Lo, "Picosecond Time-Resolved Electron Diffraction Studies of Laser Heated Metals," presented at the International Conference on Lasers 1990, San Diego, CA, 9–14 December 1990 (invited paper).

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