
Publications and Conference Presentations

Publications

- C. T. Cotton, "Design Considerations for the OMEGA Upgrade Final Focus Lens," in the *1995 International Symposium on Optical Science*, edited by J. M. Sasian (SPIE, Bellingham, WA, 1995), Vol. 2537, pp. 308–315.
- P. M. Fauchet, L. Tsybeskov, C. Peng, S. P. Duttagupta, J. von Behren, Y. Kostoulas, J. V. Vandyshev, and K. D. Hirshman, "Light-Emitting Porous Silicon: Materials Science, Properties, and Device Applications," *IEEE J. Sel. Top. Quantum Electron.* **1**, 1126 (1995).
- V. N. Goncharov, R. Betti, R. L. McCrory, P. Sorotokin, and C. P. Verdon, "Self-Consistent Stability Analysis of Ablation Fronts with Large Froude numbers," *Phys. Plasmas* **3**, 1402 (1996).
- W. Kordonski and S. Jacobs, "Model of Magnetorheological Finishing," in *Sixth International Conference on Adaptive Structures*, edited by C. A. Rogers, J. Tani, and E. J. Breitbach (Technomic Publishing Co., Lancaster, PA, 1996), pp. 63–74.
- Y. Kostoulas, K. B. Ucer, L. Waxer, G. W. Wicks, I. A. Walmsley, and P. M. Fauchet, "Ultrafast Carrier Lifetime in Low-Temperature-Grown GaAs, InP, and InGaP," in the *Proceedings of the 7th Annual Meeting of LEOS '94 IEEE Lasers and Electro-Optics Society* (LEOS, Boston, MA, 1994), pp. 21–22.
- W. Kula, R. Adam, and R. Sobolewski, "Y-Ba-Cu-O Thin-Film Structures with a Nonuniform In-Depth Oxygen Concentration Profile," in *Applied Superconductivity 1995*, edited by D. Dew-Hughes, Proceedings of EUCAS 1995, Vol. 2 (Institute of Physics, Bristol, UK, 1995), pp. 895–898.
- J. C. Mastrangelo, S.-H. Chen, and T. N. Blanton, "Glass-Forming Ability and Morphological Stability of Cyclohexane and Biocyclooctene Rings Containing Disperse Red 1," *Chem. Mater.* **7**, 1904 (1995).
- D. D. Meyerhofer, J. P. Knauer, S. J. McNaught, and C. I. Moore, "Observation of Relativistic Mass Shift Effects during High-Intensity-Laser-Electron Interactions," *J. Opt. Soc. Am. B* **13**, 113 (1996).
- H. Shi, S.-H. Chen, M. E. De Rosa, T. J. Bunning, and W. W. Adams, "Dynamic Mechanical Properties of Cyclohexane-Based Glass-Forming Liquid Crystals and a Linear Side-Chain Polymer Analogue," *Liq. Cryst.* **20**, 277 (1996).
- C.-C. Wang, M. Currie, D. Jacobs-Perkins, R. Sobolewski, T. Y. Hsiang, and M. J. Feldman, "Electro-Optic Measurements of Single-Flux-Quantum Pulses," in *Applied Superconductivity 1995*, edited by D. Dew-Hughes, Proceedings of EUCAS 1995, Vol. 2 (Institute of Physics, Bristol, UK, 1995), pp. 787–791.
- B. Yaakobi, D. Shvarts, R. Epstein, and Q. Su, "X-Ray Backlighting Imaging of Mixed Imploded Targets," *Laser Part. Beams* **14**, 81 (1996).
- X. Zhou, S. Alexandrou, and T. Y. Hsiang, "Monte Carlo Investigation of the Intrinsic Mechanism of Subpicosecond Pulse Generation by Nonuniform Illumination," *J. Appl. Phys.* **77**, 706 (1995).

Forthcoming Publications

E. L. Alfonso, S.-H. Chen, M. D. Wittman, S. Papernov, and D. Harding, "A Parametric Study of Microencapsulation Approach to the Preparation of Polystyrene Shells," to be published in *Polymer*.

T. R. Boehly, D. L. Brown, R. S. Craxton, R. L. Keck, J. P. Knauer, J. H. Kelly, T. J. Kessler, S. A. Kumpan, S. J. Loucks, S. A. Letzring, F. J. Marshall, R. L. McCrory, S. F. B. Morse, W. Seka, J. M. Soures, and C. P. Verdon, "Initial Performance Results of the OMEGA Laser System," to be published in *Optics Communications*.

S.-H. Chen, J. C. Mastrangelo, T. N. Blanton, A. Bashir-Hashemi, and K. L. Marshall, "Novel Glass-Forming Liquid Crystals. IV. Effects of Central Core and Pendant Group on Vitrification and Morphological Stability," to be published in *Liquid Crystals*.

S.-H. Chen, J. C. Mastrangelo, and H. Shi, "Novel Low Molar Mass, Glass-Forming Liquid Crystals: Molecular Design, Synthesis, and Morphological Stability," to be published in the *Proceedings of Polymers for Advanced Optical Applications*.

S.-H. Chen, H. Shi, J. C. Mastrangelo, and J. J. Ou, "Thermotropic Chiral Nematic Side-Chain Polymers and Cyclic Oligomers," to be published in *Progress in Polymer Science*.

A. V. Chirokikh, W. Seka, A. Simon, and R. S. Craxton, "Brillouin Scattering in Long-Scale-Length Laser Plasmas," to be published in *Physics of Plasmas*.

C. T. Cotton, "The Design of an All-Spherical, Three-Mirror, Off-Axis Telescope Objective," to be published in the *OSA Proceedings of the International Optical Design Conference '94*, Rochester, NY.

B. DeMarco, C. W. Barnes, K. Kearney, and R. L. Kremens, "Neutron Yield Measurement on the OMEGA Laser System," to be published in the *Review of Scientific Instruments*.

D. Fried, R. E. Glens, J. D. B. Featherstone, and W. Seka, "Permanent and Transient Changes in the Reflectance of CO₂ Laser-Irradiated Dental Hard Tissues at $\lambda = 9.3, 9.6, 10.3,$ and $10.6 \mu\text{m}$ and at Fluences between $1\text{--}20 \text{ J/cm}^2$," to be published in *Lasers in Surgery and Medicine*.

V. N. Goncharov and R. Betti, "Growth Rate of the Ablative Rayleigh-Taylor Instability for Indirect-Drive ICF," to be published in *Physics of Plasmas*.

V. N. Goncharov, R. Betti, R. L. McCrory, P. Sorotokin, and C. P. Verdon, "Self-Consistent Stability Analysis of Ablation Fronts for Inertial Confinement Fusion," to be published in *Physics of Plasmas*.

V. N. Goncharov, R. Betti, R. L. McCrory, P. Sorotokin, and C. P. Verdon, "Self-Consistent Stability Analysis of Ablation Fronts with Large Froude Numbers," to be published in *Physics of Plasmas*.

J. H. Kelly, T. R. Boehly, J. M. Soures, D. L. Brown, R. Boni, R. S. Craxton, R. L. Keck, T. J. Kessler, R. Kremens, S. A. Kumpan, S. A. Letzring, S. J. Loucks, R. L. McCrory, S. F. B. Morse, W. Seka, S. Skupsky, and C. P. Verdon, "The Activation of the Upgraded OMEGA Laser at the University of Rochester," to be published in the *SPIE Proceedings of the 15th International Conference on Coherent and Nonlinear Optics*, St. Petersburg, Russia, June 1995.

J. H. Kelly, T. R. Boehly, J. M. Soures, D. L. Brown, R. Boni, R. S. Craxton, R. L. Keck, T. J. Kessler, R. L. Kremens, S. A. Kumpan, S. A. Letzring, S. J. Loucks, R. L. McCrory, S. F. B. Morse, W. Seka, S. Skupsky, and C. P. Verdon, "The Activation of the Upgraded OMEGA Laser at the University of Rochester," to be published in the *SPIE Proceedings of the 1st Annual International Conference on Solid-State Lasers for Application to Inertial Confinement Fusion (ICF)*, Monterey, CA, 30 May–2 June 1995.

Y. Lin, T. J. Kessler, and G. N. Lawrence, "Design of Continuous Surface-Relief Phase Plates by Simulated Annealing to Achieve Control of Focal Plane Irradiance," to be published in *Optics Letters*.

S. G. Lukishova, S. V. Belyaev, K. S. Lebedev, E. A. Magulariya, A. W. Schmid, and H. V. Malimonenko, "cw and High-Repetition-Rate Lasing in Nd:YAG Resonators with Chiral-Nematic Liquid-Crystal Mirrors: A Study of Nonlinear Responses," to be published in *Kvantovaya Elektronika*.

- S. G. Lukishova, S. V. Belyaev, K. S. Lebedev, E. A. Magulariya, A. W. Schmid, and N. V. Malimonenko, "Nonlinear Bleaching in the Selective Reflection of Non-absorbing Chiral-Nematic Liquid-Crystal Thin Films," to be published in *JETP Letters*.
- R. S. Marjoribanks, F. W. Budnik, H. Chen, and D. D. Meyerhofer, "Plasma Electron Temperature in Picosecond Laser Plasmas from Quasi-Steady Ratio of Isoelectronic Lines," to be published in the *Journal of the Optical Society of America B*.
- J. C. Mastrangelo and S.-H. Chen, "Novel Glass-Forming Organic Materials. 2. Cyclohexane and Bicyclooctene with Pendant Pyrene and Carbazole," to be published in *Chemistry of Materials*.
- S. M. McCormack, D. Fried, J. D. B. Featherstone, R. E. Glens, and W. Seka, "Scanning Electron Microscope Observations of CO₂ Laser Effects on Dental Enamel," to be published in the *Journal of Dental Research*.
- R. L. McCrory, J. M. Soures, C. P. Verdon, T. R. Boehly, D. K. Bradley, R. S. Craxton, J. A. Delettrez, R. Epstein, P. A. Jaanimagi, S. D. Jacobs, R. L. Keck, J. H. Kelly, T. J. Kessler, H. Kim, J. P. Knauer, R. L. Kremens, S. A. Kumpan, S. A. Letzring, F. J. Marshall, P. J. McKenty, S. F. B. Morse, A. Okishev, W. Seka, R. W. Short, M. D. Skeldon, S. Skupsky, M. Tracy, and B. Yaakobi, "Direct-Drive Laser Fusion Experimental Program at the University of Rochester Laboratory for Laser Energetics," to be published in the *Proceedings of the Conference on Plasma Physics and Controlled Nuclear Fusion Research, Madrid, Spain, September 1994*.
- R. L. McCrory, J. M. Soures, C. P. Verdon, T. R. Boehly, D. K. Bradley, R. S. Craxton, J. A. Delettrez, R. Epstein, P. A. Jaanimagi, S. D. Jacobs, R. L. Keck, J. H. Kelly, 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, A. Okishev, W. Seka, R. W. Short, M. D. Skeldon, S. Skupsky, M. Tracy, and B. Yaakobi, "Experiments on the OMEGA to Validate High-Gain, Direct-Drive Performance on the National Ignition Facility," to be published in the *Proceedings of the 12th International Conference on Laser Interaction and Related Plasma Phenomena, Osaka, Japan, April 1995*.
- C. J. McKinstrie, J. S. Li, R. E. Giacone, and H. X. Vu, "Two-Dimensional Analysis of the Power Transfer Between Crossed Laser Beams," to be published in *Physics of Plasmas*.
- D. Ofer, U. Alon, D. Shvarts, R. L. McCrory, and C. P. Verdon, "Modal-Model for the Non-Linear Multi-Mode Rayleigh-Taylor Instability," to be published in *Physics of Plasmas*.
- A. Okishev, M. D. Skeldon, S. A. Letzring, W. R. Donaldson, A. Babushkin, and W. Seka, "The Pulse-Shaping System for the 60-Beam, 30-kJ (UV) OMEGA Laser," to be published in the *Proceedings of Laser Optics '95 Conference, St. Petersburg, Russia, 27 June–1 July 1995*.
- S. S. Papernov and A. W. Schmid, "A Comparison of Laser-Induced Damage Morphology in Three Model Thin-Film Systems: HfO₂, Y₂O₃, and Ta₂O₅," to be published in the *Proceedings of the XXVI Annual Symposium on Optical Materials for High Power Lasers, Boulder, CO, 24–26 October 1994*.
- J. Z. Roach, A. Ninko, S. W. Swales, and T. Morris, "Design and Evaluation of a Screen CCD Imaging System," to be published in *Optical Engineering*.
- A. W. Schmid, T. J. Kessler, S. Papernov, and J. Barone, "Low-Surface-Energy Photoresist as a Medium for Optical Replication," to be published in *Applied Physics Letters*.
- A. Simon, "Comparison Between SBS Theories and Experiment," to be published in the *Proceedings of the La Jolla Summer School '95, Plasma Physics and Technology (AIP)*.
- 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, Y. Kostoulas, X. Weng, P. M. Fauchet, and R. Sobolewski, "Femtosecond Study of the Electronic Structure in Semiconducting Y-Ba-Cu-O," to be published in *Physical Review B*.

B. Yaakobi and J. A. Delettrez, "Abel Inversion of Spherical Plasma Images," to be published in *Optics Communications*.

B. Yaakobi, Q. Su, R. S. Craxton, and R. Epstein, "Diagnosis of Core-Shell Mixing Using Absorption and Emission Spectra of a Doped Layer," to be published in the *Journal of Quantitative Spectroscopy and Radiative Transfer*.

B. Yaakobi, R. Epstein, C. F. Hooper, Jr., D. A. Haynes, Jr., and Q. Su, "Diagnosis of High-Temperature Implosions Using Low- and High-Opacity Krypton Lines," to be published in the *Journal of X-Ray Science and Technology*.

F. Yang, J. Y. Zhou, V. Kordonski, and S. D. Jacobs, "Indentation Size Effects of Thermoset Polymer: Allyl Diglycol Carbonate (CR-39)," to be published in the *Journal of Materials Science Letters*.

J. D. Zuegel and W. Seka, "Direct Measurements of Lower-Level Lifetime in Nd:YLF," to be published in the *Bulletin of the American Physical Society*.

J. D. Zuegel and W. Seka, "Upconversion and Reduced $^4F_{3/2}$ Upper-State Lifetime in Intensely Pumped Nd:YLF," to be published in *Optics Letters*.

Conference Presentations

W. Seka, J. D. B Featherstone, D. Fried, S. R. Visuri, and J. T. Walsh, "Laser Ablation of Dental Tissue: From Explosive Ablation to Plasma-Mediated Ablation," *BiOS '96/Lasers in Dentistry II*, San Jose, CA 27 January–2 February 1996.

D. D. Meyerhofer, D. Reiss, and L. Zheng, "Temporal Measurements of Weak, Ultrafast, Light Pulses."

The following presentations were made at SPIE's 1996 Symposium on Lasers and Integrated Optoelectronics, San Jose, CA, 27 January–2 February 1996:

O. A. Konoplev and D. D. Meyerhofer, "Dynamic Range Limitations in High-Contrast, Noncollinear Autocorrelators."

S.-H. Chen, B. M. Conger, H. Shi, and J. Mastrangelo, "Polarized Emission from Vitrified Liquid Crystalline Films," *International Topical Meeting on Organic Optical Microcavities*, Sheffield, UK, 7–10 January 1996.

T. Kotseroglou, C. Bamber, S. Boege, U. Haug, A. C. Melissinos, D. D. Meyerhofer, W. Ragg, C. Bula, K. T. McDonald, E. Prebys, D. L. Burke, P. Chen, R. C. Field, G. Horton-Smith, A. C. Odian, J. C. Spencer, D. Walz, S. Berridge, W. Bugg, K. Shmakov, and A. Weidemann, "Studies of Nonlinear QED with an Ultra-Intense Laser."