
Publications and Conference Presentations

Publications

- V. Bagnoud, I. A. Begishev, M. J. Guardalben, J. Keegan, J. Puth, L. J. Waxer, and J. D. Zuegel, "Optical Parametric Chirped-Pulse Amplifier as the Front End for the OMEGA EP Laser Chain," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 670–673.
- T. R. Boehly, D. G. Hicks, P. M. Celliers, T. J. B. Collins, R. Earley, J. H. Eggert, D. Jacobs-Perkins, S. J. Moon, E. Vianello, D. D. Meyerhofer, and G. W. Collins, "Properties of Fluid Deuterium Under Double-Shock Compression to Several Mbar," *Phys. Plasmas* **11**, L49 (2004).
- T. J. B. Collins, S. Skupsky, V. N. Goncharov, R. Betti, P. W. McKenty, P. B. Radha, R. Epstein, A. Poludnenko, A. Frank, and S. Mitran, "High-Gain, Direct-Drive Foam Target Designs for the National Ignition Facility," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 92–95.
- Q. Guo, X. Teng, and H. Yang, "Fabrication of Magnetic FePt Patterns from Langmuir–Blodgett Films of Platinum–Iron Oxide Core-Shell Nanoparticles," *Adv. Mater.* **16**, 1337 (2004).
- Q. Guo, X. Teng, and H. Yang, "Overpressure Contact Printing," *Nano Lett.* **4**, 1657 (2004).
- B. Hu and R. Betti, "Resistive Wall Mode in Collisionless Quasistationary Plasmas," *Phys. Rev. Lett.* **93**, 105002 (2004).
- T. J. Kessler, J. Bunkenburg, H. Huang, A. Kozlov, C. Kelly, and D. D. Meyerhofer, "The Coherent Addition of Gratings for Pulse Compression in High-Energy Laser Systems," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 621–625.
- J. A. Koch, T. W. Barbee, Jr., S. Dalhed, S. Haan, N. Izumi, R. W. Lee, L. A. Welsch, R. C. Mancini, F. J. Marshall, T. C. Sangster, V. A. Smalyuk, J. M. Soures, and L. Klein, "Core Temperature and Density Profiles from Multispectral Imaging of ICF Plasmas," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 857–861.
- J. Li, W. R. Donaldson, and T. Y. Hsiang, "Simulation of Submicrometer Metal–Semiconductor–Metal Ultraviolet Photodiodes on Gallium Nitride," *Solid-State Electron.* **48**, 2329 (2004).
- S. G. Lukishova, A. W. Schmid, C. M. Supranowitz, N. Lippa, A. J. McNamara, R. W. Boyd, and C. R. Stroud, Jr., "Dye-Doped Cholesteric-Liquid-Crystal Room-Temperature Single-Photon Source," *J. Mod. Opt.* **51**, 1535 (2004).
- R. L. McCrory (keynote speaker), "Progress in Inertial Confinement Fusion in the United States," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 3–8.
- J. Myatt, A. V. Maximov, W. Seka, R. S. Craxton, and R. W. Short, "Modeling Stimulated Brillouin Scattering in the Underdense Corona of a Direct Drive Inertial Confinement Fusion Target," *Phys. Plasmas* **11**, 3394 (2004).
- J.-R. Park, W. R. Donaldson, R. Boni, and R. Sobolewski, "Characterization of Single and Double Fiber-Coupled Diffusing Spheres," *Appl. Opt.* **43**, 3967 (2004).

B. A. Remington, G. Bazan, J. Belak, E. Bringa, M. Caturla, J. D. Colvin, M. J. Edwards, S. G. Glendinning, D. S. Ivanov, B. Kad, D. H. Kalantar, M. Kumar, B. F. Lasinski, K. T. Lorenz, J. M. McNaney, D. D. Meyerhofer, M. A. Meyers, S. M. Pollaine, D. Rowley, M. Schneider, J. S. Stölken, J. S. Wark, S. V. Weber, W. G. Wolfer, B. Yaakobi, and L. V. Zhigilei, "Materials Science Under Extreme Conditions of Pressure and Strain Rate," *Metall. Trans. A, Phys. Metall. Mater. Sci.* **35A**, 2587 (2004).

S. Skupsky, R. Betti, T. J. B. Collins, V. N. Goncharov, J. A. Marozas, P. W. McKenty, P. B. Radha, T. R. Boehly, J. P. Knauer, F. J. Marshall, D. R. Harding, J. D. Kilkenny, D. D. Meyerhofer, T. C. Sangster, and R. L. McCrory, "Advanced Direct-Drive Target Designs for the NIF," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 61–64.

Forthcoming Publications

V. Bagnoud, M. J. Guardalben, J. Puth, J. D. Zuegel, T. Mooney, and P. Dumas, "A High-Energy, High-Average-Power Laser Using Nd:YLF Laser Rods Corrected by Magnetorheological Finishing," to be published in *Applied Optics*.

A. C. A. Chen, S. Culligan, Y. Geng, S. H. Chen, K. P. Klubek, K. M. Vaeth, and C. W. Tang, "Glassy Nematic Conjugated Oligomers: Materials for Organic Light-Emitting Diodes," to be published in *Liquid Crystals VIII*.

S. H. Chen, "Multifunctional Glassy Liquid Crystals for Photonics," to be published in the *Journal of the Society for Information Displays*.

R. Epstein, "On the Bell–Plesset Effects: The Effects of Uniform Compression and Geometrical Convergence on the Classical Rayleigh–Taylor Instability," to be published in *Physics of Plasmas*.

S. Ghosh, R. Boni, and P. A. Jaanimagi, "Optical and X-Ray Streak Camera Gain Measurements," to be published in *Review of Scientific Instruments*.

V. Yu. Glebov, C. Stoeckl, T. C. Sangster, S. Roberts, and G. J. Schmid, "NIF Neutron Bang-Time Detector Prototype Test on OMEGA," to be published in *IEEE Transactions on Plasma Science*.

V. Yu. Glebov, C. Stoeckl, T. C. Sangster, S. Roberts, G. J. Schmid, R. A. Lerche, and M. J. Moran, "Prototypes of National Ignition Facility Neutron Time-of-Flight Detectors Tested on OMEGA," to be published in *Review of Scientific Instruments*.

V. N. Goncharov and G. Li, "Effect of Electric Fields on Electron Thermal Transport in Laser-Produced Plasmas," to be published in *Physics of Plasmas*.

O. V. Gotchev, P. A. Jaanimagi, J. P. Knauer, F. J. Marshall, and D. D. Meyerhofer, "KB-PJX—A Streaked Imager Based on a Versatile X-Ray Microscope Coupled to a High-Current Streak Tube," to be published in *Review of Scientific Instruments*.

D. R. Harding, F.-Y. Tsai, E. L. Alfonso, S. H. Chen, A. K. Knight, and T. N. Blanton, "Properties of Vapor-Deposited Polyimide Films," to be published in the *Journal of Adhesion Science and Technology* (invited).

J. P. Knauer and C. Gindele, "Temporal and Spectral Deconvolution of Data from Diamond, Photoconductive Devices," to be published in *Review of Scientific Instruments*.

J. A. Koch, T. W. Barbee, Jr., S. Dalhed, S. Haan, N. Izumi, R. W. Lee, L. A. Welser, R. C. Mancini, F. J. Marshall, D. D. Meyerhofer, T. C. Sangster, V. A. Smalyuk, J. M. Soures, L. Klein, and I. Golovkin, "Core Temperature and Density Gradients in ICF," to be published in the *Proceedings of the 14th APS Topical Conference on Atomic Processes in Plasmas*.

F. J. Marshall, J. A. Oertel, and P. J. Walsh, "A Framed, 16-Image Kirkpatrick–Baez Microscope for Laser–Plasma X-Ray Emission," to be published in *Review of Scientific Instruments*.

K. L. Marshall, E. Kimball, S. McNamara, T. Z. Kosci, A. Trajkovska-Petkoska, and S. D. Jacobs, "Electro-Optical Behavior of Polymer Cholesteric Liquid Crystal Flake/Fluid Suspensions in a Microencapsulation Matrix," to be published in *Liquid Crystals VIII*.

R. L. McCrory, "Recent Progress in Inertial Confinement Fusion in the United States," to be published in Nuclear Fusion.

A. V. Okishev and J. D. Zuegel, "Highly-Stable, All-Solid-State Nd:YLF Regenerative Amplifier," to be published in Applied Optics.

J.-R. Park, W. R. Donaldson, and R. Sobolewski, "Time-Resolved Imaging of a Spatially Modulated Laser Pulse," to be published in SPIE's Proceedings of LASE 2004.

S. P. Regan, J. A. Marozas, R. S. Craxton, J. H. Kelly, W. R. Donaldson, P. A. Jaanimagi, D. Jacobs-Perkins, R. L. Keck, T. J. Kessler, D. D. Meyerhofer, T. C. Sangster, W. Seka, V. A. Smalyuk, S. Skupsky, and J. D. Zuegel, "Performance of a 1-THz-Bandwidth, 2-D Smoothing by Spectral Dispersion and Polarization Smoothing of High-Power, Solid-State Laser Beams," to be published in the Journal of the Optical Society of America B.

R. Rey-de-Castro, D. Wang, X. Zheng, A. Verevkin, R. Sobolewski, M. Mikulics, R. Adam, P. Kordoš, and A. Mycielski, "Subpicosecond Faraday Effect in $Cd_{1-x}Mn_xTe$ and Its Application in Magneto-Optical Sampling," to be published in Applied Physics Letters.

R. W. Short and A. Simon, "Theory of Three-Wave Parametric Instabilities in Inhomogeneous Plasmas Revisited," to be published in Physics of Plasmas.

V. A. Smalyuk, V. N. Goncharov, T. R. Boehly, J. P. Knauer, D. D. Meyerhofer, and T. C. Sangster, "Self-Consistent Determination of Rayleigh–Taylor Growth Rates and Ablation-Front Density in Planar Targets Accelerated by Laser Light," to be published in Physics of Plasmas.

C. Stoeckl, W. Theobald, T. C. Sangster, M. H. Key, P. Patel, B. B. Zhang, R. Clarke, S. Karsch, and P. Norreys, "Operation of a Single-Photon-Counting X-Ray Charge-Coupled Device Camera Spectrometer in a Petawatt Environment," to be published in Review of Scientific Instruments.

A. Trajkovska-Petkoska, R. Varshneya, T. Z. Kosc, K. L. Marshall, and S. D. Jacobs, "Enhanced Electro-Optic Behavior for Shaped PCLC Flakes Made Soft by Lithography," to be published in Advanced Functional Materials.

L. Zheng, J. C. Lambropoulos, and A. W. Schmid, "UV-Laser-Induced Densification of Fused Silica: A Molecular Dynamics Study," to be published in the Journal of Non-Crystalline Solids.

Conference Presentations

The following presentations were made at SPIE's 49th Annual Meeting, Denver, CO, 2–6 August 2004:

S. D. Jacobs, "International Innovations in Optical Finishing."

K. L. Marshall, E. Kimball, S. McNamara, T. Z. Kosc, A. Trajkovska-Petkoska, and S. D. Jacobs, "Electro-Optical Behavior of Polymer Cholesteric Liquid Crystal Flake/Fluid Suspensions in a Microencapsulation Matrix."

The following presentations were made at the 7th International Conference on Tritium Science and Technology, Baden-Baden, Germany, 12–17 September 2004:

S. Costea, S. Pisana, N. P. Kherani, F. Gaspari, T. Kostas, W. T. Shmayda, and S. Zukotynski, "The Use of Tritium in the Study of Defects in Amorphous Silicon."

T. Kostas, N. P. Kherani, W. T. Shmayda, S. Costea, and S. Zukotynski, "Nuclear Batteries Using Tritium and Thin-Film Hydrogenated Amorphous Silicon."

W. T. Shmayda, "Metal Decontamination Using Low-Temperature Plasmas."

W. T. Shmayda and R. D. Gallagher, "Recovering Tritium from a Variety of Tritiated Waste Streams."

W. T. Shmayda, D. R. Harding, L. D. Lund, R. Janezic, and T. W. Duffy, "Handling Cryogenic DT Targets at the Laboratory for Laser Energetics."

W. T. Shmayda and N. P. Kherani, "Measuring Tritium Activity in Process Loops with Nude Baynard–Alpert Gauges."

P. A. Jaanimagi, R. Boni, D. Butler, S. Ghosh, W. R. Donaldson, and R. L. Keck, "The Streak Camera Development at LLE," 26th International Congress on High-Speed Photography and Photonics, Alexandria, VA, 20–24 September 2004.

The following presentations were made at the Boulder Damage Symposium XXXVI, Boulder, CO, 20–22 September 2004:

S. Papernov and A. W. Schmid, "High-Spatial Resolution Studies of UV-Laser Damage Morphology in SiO₂ Thin Films with Artificial Defects."

A. L. Rigatti, "Cleaning Process Versus Laser Damage Threshold of Coated Optical Components."