
Publications and Conference Presentations

Publications

- I. Begishev, V. Bagnoud, M. Guardalben, L. Waxer, J. Puth, and J. Zuegel, "Optimization of an Optical Parametric Chirped Pulse Amplification System for the OMEGA EP Laser System," in *Advanced Solid-State Photonics, OSA Technical Digest* (Optical Society of America, Washington, DC, 2003), pp. 252–254.
- S. H. Chen, H. M. P. Chen, Y. Geng, S. D. Jacobs, K. L. Marshall, and T. N. Blanton, "Novel Glassy Nematic Liquid Crystals for Non-Destructive Rewritable Optical Memory and Photonic Switching," *Adv. Mater.* **15**, 1061 (2003).
- S. W. Culligan, Y. Geng, S. H. Chen, K. Klubek, K. M. Vaeth, and C. W. Tang, "Strongly Polarized and Efficient Blue Organic Light-Emitting Diodes Using Monodisperse Glassy-Nematic Oligo(fluorene)s," *Adv. Mater.* **15**, 1176 (2003).
- J. E. DeGroote, S. D. Jacobs, J. M. Schoen, H. J. Romanofsky, and I. A. Kozhinova, "Magnetorheological Finishing of a Diamond Turned Poly(Methylmethacrylate) Flat," in *Optifab 2003* (SPIE, Bellingham, WA, 2003), Vol. TD02, pp. 65–68.
- Q. Guo, X. Teng, and H. Yang, "Surface Patterns of Tetragonal Phase FePt Thin Films from Pt@Fe₂O₃ Core-Shell Nanoparticles Using Combined Langmuir-Blodgett and Soft Lithographic Techniques," in *Unconventional Approaches to Nanostructures with Applications in Electronics, Photonics, Information Storage and Sensing*, Materials Research Society, Vol. 776, edited by O. D. Velev, T. J. Bunning, Y. Xia, and P. Yang (Materials Research Society, Warrendale, PA, 2003), pp. 187–192.
- I. V. Igumenshchev, R. Narayan, and M. A. Abramowicz, "Three-Dimensional Magnetohydrodynamic Simulations of Radiatively Inefficient Accretion Flows," *Astrophys. J.* **592**, 1042 (2003).
- A. Jukna and R. Sobolewski, "Time-Resolved Photoresponse in the Resistive Flux-Flow State in Y-Ba-Cu-O Superconducting Microbridges," *Supercond. Sci. Technol.* **16**, 911 (2003).
- T. Z. Kosc, K. L. Marshall, and S. D. Jacobs, "Polymer Cholesteric Liquid Crystal Flakes for Particle Displays," in *2003 SID International Symposium, Digest of Technical Papers*, 1st ed., edited by J. Morreale (Society for Information Display, San Jose, CA, 2003), Vol. 34, Book 1, pp. 581–583.
- J. Li, W. R. Donaldson, and T. Y. Hsiang, "Very Fast Metal-Semiconductor-Metal Ultraviolet Photodetectors on GaN with Submicron Finger Width," *IEEE Photonics Technol. Lett.* **15**, 1141 (2003).
- A. E. Marino, J. Hayes, L. L. Gregg, and S. D. Jacobs, "Grain Decoration in Aluminum Oxynitride (ALON) from Polishing on Bound Abrasive Laps," in *Optifab 2003* (SPIE, Bellingham, WA, 2003), Vol. TD02, pp. 81–83.
- D. N. Maywar, S. Banerjee, A. Agarwal, D. F. Grosz, M. Movassaghi, A. P. Kűng, and T. H. Wood, "Impact of Relaxed Dispersion Map and Gain Ripple on Ultra-Wideband 10-Gbit/s Transmission," *Electron. Lett.* **39**, 1266 (2003).
- M. Mikulics, M. Marso, P. Kordoš, S. Stanček, P. Kováč, X. Zheng, S. Wu, and R. Sobolewski, "Ultrafast and Highly Sensitive Photodetectors Fabricated on High-Energy Nitrogen-Implanted GaAs," *Appl. Phys. Lett.* **83**, 1719 (2003).
- J. A. Randi, J. C. Lambropoulos, S. D. Jacobs, and S. N. Shafirir, "Determination of Subsurface Damage in Single Crystalline Optical Materials," in *Optifab 2003* (SPIE, Bellingham, WA, 2003), Vol. TD02, pp. 84–86.

A. E. Schoeffler, L. L. Gregg, J. M. Schoen, E. M. Fess, M. Hakiel, and S. D. Jacobs, and "Pre-Polishing on a CNC Platform with Bound Abrasive Contour Tools," in *Optifab 2003* (SPIE, Bellingham, WA, 2003), Vol. TD02, pp. 24–27.

J. L. Sternal, S. N. Shafrir, J. A. Randi, L. L. Gregg, and S. D. Jacobs, "Refractive Index Anisotropy in Optics Using a Birefringence Mapper," in *Optifab 2003* (SPIE, Bellingham, WA, 2003), Vol. TD02, pp. 125–127.

A. Sunahara, J. A. Delettrez, C. Stoeckl, R. W. Short, and S. Skupsky, "Time-Dependent Electron Thermal Flux Inhibi-

tion in Direct-Drive Laser Implosion," *Phys. Rev. Lett.* **91**, 095003 (2003).

R. Varshneya, J. E. DeGroot, L. L. Gregg, and S. D. Jacobs, "Characterizing Optical Polishing Pitch," in *Optifab 2003* (SPIE, Bellingham, WA, 2003) Vol. TD02, pp. 87–89.

L. J. Waxer, V. Bagnoud, I. A. Begishev, M. J. Guardalben, J. Puth, and J. D. Zuegel, "High-Conversion-Efficiency, Optical Parametric Chirped-Pulse-Amplification System Using Spatiotemporally Shaped Pump Pulses," *Opt. Lett.* **28**, 1245 (2003).

Forthcoming Publications

E. L. Alfonso, R. Q. Gram, and D. R. Harding, "Modeling Temperature and Pressure Gradients During Cooling of Thin-Walled Cryogenic Targets," to be published in *Fusion Science and Technology*.

K. Anderson and R. Betti, "Laser-Induced Adiabatic Shaping by Relaxation in Inertial Fusion Implosions," to be published in *Physics of Plasmas*.

K. Anderson and R. Betti, "Theory of Laser-Induced Adiabatic Shaping in Inertial Fusion Implosions: The Decaying Shock," to be published in *Physics of Plasmas*.

V. Bagnoud and J. D. Zuegel, "Independent Phase and Amplitude Control of a Laser Beam Using a Single-Phase-Only Spatial Light Modulator," to be published in *Optics Letters*.

Y. Geng, A. C. A. Chen, J. J. Ou, S. H. Chen, K. Klubek, K. M. Vaeth, and C. W. Tang, "Monodisperse Glassy-Nematic Conjugated Oligomers with Chemically Tunable Polarized Light Emission," to be published in *Chemistry of Materials*.

Y. Geng, A. Trajkovska, S. W. Culligan, J. J. Ou, H. M. P. Chen, D. Katsis, and S. H. Chen, "Origins of Strong Chiroptical Activities in Films of Nonfluorenes with a Varying Extent of Pendant Chirality," to be published in the *Journal of the American Chemical Society*.

O. V. Gotchev, L. J. Hayes, P. A. Jaanimagi, J. P. Knauer, F. J. Marshall, and D. D. Meyerhofer, "Large-Grazing-Angle, Multi-Image Kirkpatrick-Baez Microscope as the Front End to a High-Resolution Streak Camera for OMEGA," to be published in *Review of Scientific Instruments*.

M. J. Guardalben, J. Keegan, L. J. Waxer, V. Bagnoud, I. A. Begishev, J. Puth, and J. D. Zuegel, "Design of a Highly Stable, High-Conversion-Efficiency, Optical Parametric Chirped-Pulse Amplification System with Good Beam Quality," to be published in *Optics Express*.

T. I. Lakoba, C. Dorrer, and D. N. Maywar, "Polarization-Mode Dispersion of a Circulating Loop," to be published in the *Journal of the Optical Society of America B*.

J. Leuthold, R. Ryf, D. N. Maywar, S. Cabot, and J. Jacques, "Demonstration of Nonblocking Cross Connect Concept Based on Regenerative All-Optical Wavelength Converter over 42 Nodes and 16800 km," to be published in *IEEE Photonics Technology Letters*.

X. Z. Lin, X. Teng, and H. Yang, "Direct Synthesis of Narrowly Dispersed Silver Nanoparticles Using a Single-Source Precursor," to be published in *Langmuir*.

S. G. Lukishova, A. W. Schmid, A. J. McNamara, R. W. Boyd, and C. R. Stroud, Jr., "Room-Temperature Single Photon Source: Single-Dye-Molecule Fluorescence in Liquid Crystal Host," to be published in the *IEEE Journal of Selected Topics in Quantum Electronics*.

F. J. Marshall, J. A. Delettrez, R. Forties, R. Keck, J. H. Kelly, P. W. McKenty, S. P. Regan, and L. J. Waxer, "Direct-Drive-Implosion Experiments with Enhanced-Fluence Balance on OMEGA," to be published in *Physics of Plasmas*.

D. L. McCrorey, R. C. Mancini, V. A. Smalyuk, S. P. Regan, and B. Yaakobi, "Spectroscopic Determination of Compressed-

Shell Conditions in OMEGA Implosions Based on Ti *K*-Shell Line Absorption Analysis,” to be published in Review of Scientific Instruments.

R. L. McCrory, D. D. Meyerhofer, R. Betti, T. R. Boehly, R. S. Craxton, T. J. B. Collins, J. A. Delettrez, R. Epstein, V. Yu. Glebov, V. N. Goncharov, D. R. Harding, R. L. Keck, J. H. Kelly, J. P. Knauer, S. J. Loucks, L. Lund, J. A. Marozas, P. W. McKenty, F. J. Marshall, S. F. B. Morse, P. B. Radha, S. P. Regan, S. Roberts, W. Seka, S. Skupsky, V. A. Smalyuk, C. Sorce, C. Stoeckl, J. M. Soures, R. P. J. Town, B. Yaakobi, J. A. Frenje, C. K. Li, R. D. Petrasso, F. H. Séguin, K. A. Fletcher, S. Padalino, C. Freeman, and T. C. Sangster, “Direct-Drive Inertial Confinement Fusion Research at the Laboratory for Laser Energetics,” to be published in the proceedings of Current Trends in International Fusion Research: A Review.

R. L. McCrory, D. D. Meyerhofer, S. J. Loucks, S. Skupsky, R. E. Bahr, R. Betti, T. R. Boehly, R. S. Craxton, T. J. B. Collins, J. A. Delettrez, W. R. Donaldson, R. Epstein, J. A. Frenje, V. Yu. Glebov, V. N. Goncharov, D. R. Harding, P. A. Jaanimagi, R. L. Keck, J. H. Kelly, T. J. Kessler, J. P. Knauer, C. K. Li, L. D. Lund, J. A. Marozas, P. W. McKenty, F. J. Marshall, S. F. B. Morse, R. D. Petrasso, P. B. Radha, S. P. Regan, S. Roberts, T. C. Sangster, F. H. Séguin, W. Seka, V. A. Smalyuk, C. Sorce, J. M. Soures, C. Stoeckl, R. P. J. Town, B. Yaakobi, and J. D. Zuegel, “Progress in Direct-Drive Inertial Confinement Fusion Research at the Laboratory for Laser Energetics,” to be published in Nuclear Fusion.

R. Narayan, I. V. Igumenshchev, and M. A. Abramowicz, “Magnetically Arrested Disk: An Energetically Efficient Accretion Flow,” to be published in the Astrophysical Journal.

B. A. Remington, G. Bazan, J. Belak, E. Bringa, M. Caturla, J. D. Colvin, M. J. Edwards, S. G. Glendinning, D. 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. D. Wark, S. V. Weber, W. G. Wolfer, and B. Yaakobi, “Materials Science Under Extreme Conditions of Pressure and Strain Rate,” to be published in Metallurgical and Materials Transactions A.

X. Teng and H. Yang, “Synthesis of Face-Centered Tetragonal FePt Nanoparticles and Granular Films from Pt@Fe₂O₃ Core-Shell Nanoparticles,” to be published in the Journal of the American Chemical Society.

A. Verevkin, A. Pearlman, W. Slysz, J. Zhang, R. Sobolewski, M. Currie, A. Korneev, G. Chulkova, O. Okunev, P. Kouminov, K. Smirnov, B. Voronov, and G. N. Gol’tsman, “Ultrafast Superconducting Single-Photon Detectors for Near-Infrared-Wavelength Quantum Communications,” to be published in the Journal of Modern Optics.

Y. Wang, J. F. Wong, X. Teng, X. Z. Lin, and H. Yang, “‘Pulling’ Nanoparticles into Water: Phase Transfer of Oleic Acid Stabilized Monodisperse Nanoparticles into Aqueous Solutions of α -Cyclodextrin,” to be published in Nano Letters.

Y. Xu, M. Khafizov, L. Satrapinsky, P. Kúš, A. Plecenik, and R. Sobolewski, “Time-Resolved Photoexcitation of the Superconducting Two-Gap State in MgB₂ Thin Films,” to be published in Physical Review Letters.

J. Zhang, N. Boiadjieva, G. Chulkova, H. Deslandes, G. N. Gol’tsman, A. Korneev, P. Kouminov, M. Leibowitz, W. Lo, R. Malinsky, O. Okunev, A. Pearlman, W. Slysz, K. Smirnov, C. Tsao, A. Verevkin, V. Voronov, K. Wilsher, and R. Sobolewski, “Noninvasive CMOS Circuit Testing with NbN Superconducting Single-Photon Detectors,” to be published in Electronics Letters.

J. D. Zuegel and D. Jacobs-Perkins, “An Efficient, High-Frequency Bulk Phase Modulator,” to be published in Applied Optics.

Conference Presentations

T. R. Boehly, T. J. B. Collins, E. Vianello, D. Jacobs-Perkins, D. D. Meyerhofer, D. G. Hicks, P. M. Celliers, G. W. Collins, S. J. Moon, M. E. Foord, J. H. Eggert, and R. Cauble, “Quartz Equation-of-State (EOS) Measurements at the OMEGA Laser Facility,” 13th APS Topical Conference on Shock Compression of Condensed Materials, Portland OR, 20–25 July 2003.

The following presentations were made at the SPIE 48th Annual Meeting, San Diego, CA, 3–8 August 2003:

J. E. DeGroote, H. J. Romanofsky, I. A. Kozhinova, J. M. Schoen, and S. D. Jacobs, “Polishing PMMA and Other Optical Polymers with Magnetorheological Finishing.”

L. L. Gregg, A. E. Marino, and S. D. Jacobs, "Grain Decoration in Aluminum Oxynitride (ALON) from Polishing on Bound-Abrasive Laps."

P. A. Jaanimagi, "Breaking the 100-fs Barrier with a Streak Camera."

K. L. Marshall, B. Klehn, B. Watson, and D. W. Griffin, "Recent Advances in the Development of Phase-Shifting Liquid Crystal Interferometers for Visible and Near IR-Applications."

K. L. Marshall, B. Schudel, and I. A. Lippa, "Transition Metal Dithiolene Complexes as Near-IR Dyes for Liquid Crystal Device Applications" (invited).

T. Z. Kosc, K. L. Marshall, and S. D. Jacobs, "Polymer Cholesteric Liquid Crystal Flakes for Particle Displays: Impact of Flake Geometry and Materials Processing on Field-Induced Motion in a Fluid Host," XII International Materials Research Conference, Cancun, Mexico, 17–21 August 2003 (invited).

The following presentations were made at the Third International Conference on Inertial Fusion Sciences and Applications, Monterey, CA, 7–12 September 2003:

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."

T. R. Boehly, T. J. B. Collins, E. Vianello, D. Jacobs-Perkins, D. D. Meyerhofer, D. G. Hicks, P. M. Celliers, G. W. Collins, S. J. Moon, M. E. Foord, J. H. Eggert, and R. Cauble, "Deuterium Equation-of-State Measurements Using Laser-Driven Shocks."

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."

D. R. Harding, E. L. Alfonso, L. M. Elasky, L. S. Iwan, J. Sailer, W. Seka, A. Warrick, and M. D. Wittman, "Formation of Deuterium-Ice Layers in OMEGA Targets."

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."

C. K. Li, F. H. Séguin, J. A. Frenje, R. D. Petrasso, J. A. Delettrez, R. L. Keck, J. M. Soures, P. W. McKenty, F. J. Marshall, V. N. Goncharov, J. P. Knauer, D. D. Meyerhofer, P. B. Radha, S. P. Regan, T. C. Sangster, and W. Seka, " ρR Asymmetry in the Spherical Implosions of Inertial Confinement Fusion."

R. L. McCrory, "Progress in Inertial Confinement Fusion Research in the United States" (keynote speaker).

P. W. McKenty, T. C. Sangster, J. A. Delettrez, R. Epstein, V. Yu. Glebov, D. R. Harding, J. P. Knauer, R. L. Keck, S. J. Loucks, L. D. Lund, R. L. McCrory, F. J. Marshall, D. D. Meyerhofer, S. F. B. Morse, S. P. Regan, P. B. Radha, S. Roberts, W. Seka, S. Skupsky, V. A. Smalyuk, C. Sorce, J. M. Soures, J. A. Frenje, C. K. Li, R. D. Petrasso, F. H. Séguin, K. A. Fletcher, S. Padalino, C. Freeman, N. Izumi, J. A. Koch, R. A. Lerche, M. J. Moran, T. W. Phillips, and G. J. Schmid, "Direct-Drive Cryogenic Target Implosion Performance on OMEGA."

T. C. Sangster, "Bridging the Gap: Ignition Diagnostics for the National Ignition Facility."

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, J. P. Harding, J. D. Kilkenny, D. D. Meyerhofer, T. C. Sangster, and R. L. McCrory, "Advanced Direct-Drive Target Designs for the NIF."

T. Z. Kosc, K. L. Marshall, and S. D. Jacobs, "Polymer Cholesteric Liquid Crystal Flake Particle Displays Utilizing Maxwell–Wagner Polarization Effects for Switching," 23rd International Display Research Conference, Phoenix, AZ, 15–18 September 2003.