
Publications and Conference Presentations

Publications

- Y. V. Artemova, G. S. Bisnovaty-Kogan, I. V. Igumenshchev, and I. D. Novikov, "Black Hole Advective Accretion Disks with Optical Depth Transition," *Astrophys. J.* **637**, 968 (2006).
- M. Bobeica, D. R. Harding, and R. Q. Gram, "An Experimental Method for Measuring the Response of a Target to the Thermal Environment of the Fusion Reaction Chamber," in the *Twenty-First IEEE/NPSS Symposium on Fusion Engineering 2005* (IEEE, Piscataway, NJ, 2005).
- A. C.-A. Chen, J. U. Wallace, S. K.-H. Wei, L. Zeng, S. H. Chen, and T. N. Blanton, "Light-Emitting Organic Materials with Variable Charge Injection and Transport Properties," *Chem. Mater.* **18**, 204 (2006).
- D. Clay, D. Poslusny, M. Flinders, S. D. Jacobs, and R. A. Cutler, "Effect of LiAl_5O_8 Additions on the Sintering and Optical Transparency of LiAlON ," *J. Europ. Ceram. Soc.* **26**, 1351 (2006).
- V. N. Goncharov, O. V. Gotchev, E. Vianello, T. R. Boehly, J. P. Knauer, P. W. McKenty, P. B. Radha, S. P. Regan, T. C. Sangster, S. Skupsky, V. A. Smalyuk, R. Betti, R. L. McCrory, D. D. Meyerhofer, C. Cherfils-Cl  rouin, "Early Stage of Implosion in Inertial Confinement Fusion: Shock Timing and Perturbation Evolution," *Phys. Plasmas* **13**, 012702 (2006).
- O. V. Gotchev, V. N. Goncharov, J. P. Knauer, T. R. Boehly, T. J. B. Collins, R. Epstein, P. A. Jaanimagi, and D. D. Meyerhofer, "Test of Thermal Transport Models through Dynamic Overpressure Stabilization of Ablation-Front Perturbation Growth in Laser-Driven CH Foils," *Phys. Rev. Lett.* **96**, 115005 (2006).
- M. Haurylau, S. P. Anderson, K. L. Marshall, and P. M. Fauchet, "Electrical Modulation of Silicon-Based Two-Dimensional Photonic Bandgap Structures," *Appl. Phys. Lett.* **88**, 061103 (2006).
- S. I. Kudryashov, S. D. Allen, S. Papernov, and A. W. Schmid, "Nanoscale Laser-Induced Spallation in SiO_2 Films Containing Gold Nanoparticles," *Appl. Phys. B* **82**, 523 (2006).
- C. K. Li and R. D. Petrasso, "Stopping, Straggling, and Blooming of Directed Energetic Electrons in Hydrogenic and Arbitrary-Z Plasmas," *Phys. Rev. E* **73**, 016402 (2006).
- K. L. Marshall, A. Trajkovska-Petkoska, T. Z. Kosc, and S. D. Jacobs, "Polymer Cholesteric Liquid Crystal (PCLC) Flake/Fluid Host Suspensions: A Novel Electro-Optical Medium for Reflective Color Display Applications," in *EuroDisplay 2005* (Society for Information Display, San Jose, CA, 2005), pp. 552–554.
- M. Mikulics, S. Wu, M. Marso, R. Adam, A. F  rster, A. van der Hart, P. Kordo  , H. L  th, and R. Sobolewski, "Ultrafast and Highly Sensitive Photodetectors With Recessed Electrodes Fabricated on Low-Temperature-Grown GaAs," *IEEE Photonics Technol. Lett.* **18**, 820 (2006).
- A. V. Okishev, K. P. Dolgaleva, and J. D. Zuegel, "Experimental Optimization of Diode-Pumped Yb:GdCOB Laser Performance for Broadband Amplification at 1053 nm," in *International Conference on Lasers, Applications, and Technologies 2005: Advanced Lasers and Systems*, edited by G. Huber, V. Ya. Panchenko, and I. A. Scherbakov (SPIE, Bellingham, WA, 2006), Vol. 6054, pp. 124–127.
- A. V. Okishev, R. G. Roides, I. A. Begishev, and J. D. Zuegel, "All-Solid-State, Diode-Pumped, Multiharmonic Laser System for a Timing Fiducial," in *International Conference on Lasers, Applications, and Technologies 2005: High-Power Lasers and Applications*, edited by W. L. Bohn, V. S. Golubev, A. A. Ionin, and V. Ya. Panchenko (SPIE, Bellingham, WA, 2006), Vol. 6053, pp. 141–147.

L. A. Welsler, R. C. Mancini, J. A. Koch, N. Izumi, S. J. Louis, I. E. Golovkin, T. W. Barbee, Jr., S. W. Haan, J. A. Delettrez, F. J. Marshall, S. P. Regan, V. A. Smalyuk, D. A. Haynes, Jr., and R. W. Lee, "Multi-Objective Spectroscopic Analysis of Core Gradients: Extension from Two to Three Objectives," *J. Quant. Spectrosc. Radiat. Transf.* **99**, 649 (2006).

S. Wu, P. Geiser, J. Jun, J. Karpinski, J.-R. Park, and R. Sobolewski, "Long-Lived, Coherent Acoustic Phonon Oscillators in GaN Single Crystals," *Appl. Phys. Lett.* **88**, 041917 (2006).

Forthcoming Publications

R. Betti and C. Zhou, "Low-Adiabatic Implosions for Fast-Ignition Inertial Confinement Fusion," to be published in *Inertial Fusion Sciences and Applications 2005*.

T. R. Boehly, E. Vianello, J. E. Miller, R. S. Craxton, T. J. B. Collins, V. N. Goncharov, I. V. Igumenshchev, D. D. Meyerhofer, D. G. Hicks, P. M. Celliers, and G. W. Collins, "Shock-Timing Experiments Using Double-Pulse Laser Irradiation," to be published in *Physics of Plasmas* (invited).

J. Bromage, J. D. Zuegel, S.-W. Bahk, D. S. Vickery, L. J. Waxer, D. Irwin, V. Bagnoud, R. Boni, M. D. Moore, R. Jungquist, and C. Stoeckl, "High-Intensity Laser Diagnostics for OMEGA EP," to be published in *Inertial Fusion Sciences and Applications 2005*.

J. Bunkenburg, T. J. Kessler, W. Skulski, and H. Huang, "Phase-Locked Control of Tiled-Grating Assemblies for Chirped-Pulse-Amplified Lasers Using a Mach-Zehnder Interferometer," to be published in *Optics Letters*.

S. W. Culligan, A. C.-A. Chen, J. U. Wallace, K. P. Klubek, C. W. Tang, and S. H. Chen, "Effect of Hole Mobility Through Emissive Layer on Temporal Stability of Blue Organic Light-Emitting Diodes," to be published in *Advanced Functional Materials*.

J. L. DeCiantis, F. H. Séguin, J. A. Frenje, V. Berube, M. J. Canavan, C. D. Chen, S. Kurebayashi, C. K. Li, J. R. Rygg, B. E. Schwartz, R. D. Petrasso, J. A. Delettrez, S. P. Regan, V. A. Smalyuk, J. P. Knauer, F. J. Marshall, D. D. Meyerhofer, S. Roberts, T. C. Sangster, C. Stoeckl, K. Mikaelian, H. S. Park, and H. F. Robey, "Proton Core Imaging of the Nuclear Burn in Inertial Confinement Fusion Implosions," to be published in *Review of Scientific Instruments*.

D. H. Edgell, W. Seka, R. S. Craxton, L. M. Elasky, D. R. Harding, R. L. Keck, L. D. Lund, and M. D. Wittman, "Characterization of Cryogenic Direct-Drive ICF Targets During Layering Studies and Just Prior to Shot Time," to be published in *Inertial Fusion Sciences and Applications 2005*.

D. H. Edgell, W. Seka, R. S. Craxton, L. M. Elasky, D. R. Harding, R. L. Keck, and M. D. Wittman, "Analysis of Cryogenic Target Shadowgraphs at LLE," to be published in *Fusion Science and Technology*.

V. N. Goncharov, O. V. Gotchev, R. L. McCrory, P. W. McKenty, D. D. Meyerhofer, T. C. Sangster, S. Skupsky, and C. Cherfil-Clérouin, "Ablative Richtmyer-Meshkov Instability: Theory and Experimental Results," to be published in *Inertial Fusion Science and Applications 2005*.

D. R. Harding, D. D. Meyerhofer, S. J. Loucks, L. D. Lund, R. Janezic, L. M. Elasky, T. H. Hinterman, D. H. Edgell, W. Seka, M. D. Wittman, R. Q. Gram, and M. J. Bonino, "Forming Smooth Cryogenic Target Layers for OMEGA Direct-Drive ICF Implosions and Prospects for Direct-Drive Targets for the NIF," to be published in *Physics of Plasmas* (invited).

M. Haurylau, S. P. Anderson, K. L. Marshall, and P. M. Fauchet, "Electrical Tuning of Photonic Bandgap Structures," to be published in *SPIE Newsroom*.

A. Jukna, I. Barboy, G. Jung, X. Li, D. Wang, R. Sobolewski, and A. Abrutis, "Electric Properties of $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ Thin-Film Bridges with Laser-Written Channels of Easy Vortex Motion," to be published in the *Journal of Applied Physics*.

J. H. Kelly, L. J. Waxer, V. Bagnoud, I. A. Begishev, J. Bromage, B. E. Kruschwitz, T. J. Kessler, S. J. Loucks, D. N. Maywar, R. L. McCrory, D. D. Meyerhofer, S. F. B. Morse, J. B. Oliver, A. L. Rigatti, A. W. Schmid, C. Stoeckl, S. Dalton, L. Folsbee, M. J. Guardalben, R. Jungquist, J. Puth, M. J. Shoup III, D. Weiner, and J. D. Zuegel, "OMEGA EP: High-Energy Petawatt Capability for the OMEGA Laser Facility," to be published in *Inertial Fusion Sciences and Applications 2005*.

C. Kim, A. Trajkovska, J. U. Wallace, and S. H. Chen, "New Insight into Photoalignment of Liquid Crystals on Coumarin-Containing Polymer Films," to be published in *Macromolecules*.

- A. K. Knight and D. R. Harding, "Modeling the Sensitivity of a Polymer Vapor Deposition Process to Different Operating Conditions and Parameters," to be published in *Fusion Science and Technology*.
- B. E. Kruschwitz, R. Jungquist, J. Qiao, S. Abbey, S. E. Dean, D. N. Maywar, M. D. Moore, L. J. Waxer, and M. E. Wilson, "Large-Aperture Deformable Mirror Correction of Tiled-Grating Wavefront Error," to be published in *Inertial Fusion Sciences and Applications 2005*.
- C. K. Li and R. D. Petrasso, "Energy Deposition of MeV Electrons in Compressed Targets of Fast-Ignition Inertial Confinement Fusion," to be published in *Physics of Plasmas*.
- S. G. Lukishova, N. Lepeshkin, R. W. Boyd, and K. L. Marshall, "Far-Field Patterns from Dye-Doped Planar-Aligned Nematic Liquid Crystals Under High-Power, Nanosecond Laser Irradiation," to be published in *Molecular Crystals and Liquid Crystals*.
- S. G. Lukishova, N. Lepeshkin, R. W. Boyd, and K. L. Marshall, "Feedback-Free Hexagon Pattern Formation with Liquid Crystals and Isotropic Liquids," to be published in *Molecular Crystals and Liquid Crystals*.
- S. G. Lukishova and A. W. Schmid, "Near-Field Optical Microscopy of Cholesteric Oligomeric Liquid Crystal Layers," to be published in *Molecular Crystals and Liquid Crystals*.
- S. G. Lukishova, A. W. Schmid, R. Knox, P. Freivald, L. Bissell, R. W. Boyd, C. R. Stroud, Jr., and K. L. Marshall, "Deterministically Polarized, Room-Temperature Source of Single Photons," to be published in the *Journal of Modern Optics*.
- S. G. Lukishova, A. W. Schmid, R. P. Knox, P. Freivald, A. McNamara, R. W. Boyd, C. R. Stroud, Jr., and K. L. Marshall, "Single-Photon Source for Quantum Information Based on a Single Dye Molecule Fluorescence in Liquid Crystal Host," to be published in *Molecular Crystals and Liquid Crystals*.
- J. A. Marozas, F. J. Marshall, R. S. Craxton, I. V. Igumenshchev, S. Skupsky, P. B. Radha, T. J. B. Collins, R. Epstein, P. W. McKenty, M. J. Bonino, D. Jacobs-Perkins, D. D. Meyerhofer, T. C. Sangster, J. P. Knauer, V. A. Smalyuk, V. Yu. Glebov, S. G. Noyes, W. Seka, and R. L. McCrory, "Progress in Polar-Direct-Drive Simulations and Experiments," to be published in *Physics of Plasmas* (invited).
- F. J. Marshall, R. S. Craxton, M. J. Bonino, R. Epstein, V. Yu. Glebov, D. Jacobs-Perkins, J. P. Knauer, J. A. Marozas, P. W. McKenty, S. G. Noyes, P. B. Radha, W. Seka, S. Skupsky, V. A. Smalyuk, J. A. Frenje, C. K. Li, R. D. Petrasso, and F. H. Séguin, "Polar-Direct-Drive Experiments on OMEGA," to be published in *Inertial Fusion Science and Applications 2005*.
- R. L. McCrory, D. D. Meyerhofer, S. J. Loucks, S. Skupsky, R. Betti, T. R. Boehly, T. J. B. Collins, R. S. Craxton, J. A. Delettrez, D. H. Edgell, R. Epstein, K. A. Fletcher, C. Freeman, J. A. Frenje, V. Yu. Glebov, V. N. Goncharov, D. R. Harding, I. V. Igumenshchev, R. L. Keck, J. D. Kilkenny, J. P. Knauer, C. K. Li, J. R. Marciante, J. A. Marozas, F. J. Marshall, A. V. Maximov, P. W. McKenty, S. F. B. Morse, J. Myatt, S. Padalino, R. D. Petrasso, P. B. Radha, S. P. Regan, T. C. Sangster, F. H. Séguin, W. Seka, V. A. Smalyuk, J. M. Soures, C. Stoeckl, B. Yaakobi, and J. D. Zuegel, "Progress in Direct-Drive Inertial Confinement Fusion Research at the Laboratory for Laser Energetics," to be published in *Inertial Fusion Sciences and Applications 2005*.
- J. B. Oliver and D. Talbot, "Optimization of Deposition Uniformity for Large-Aperture Substrates in a Planetary Rotation System," to be published in *Applied Optics*.
- S. N. Shafrir, J. C. Lambropoulos, and S. D. Jacobs, "A Magnetorheological Polishing-Based Approach for Studying Precision Microground Surfaces of Tungsten Carbides," to be published in *Precision Engineering*.
- W. T. Shmayda, R. Janezic, T. W. Duffy, D. R. Harding, and L. D. Lund, "Tritium Operations at the Laboratory for Laser Energetics," to be published in *Fusion Science and Technology*.
- S. Skupsky, R. S. Craxton, F. J. Marshall, R. Betti, T. J. B. Collins, R. Epstein, V. N. Goncharov, I. V. Igumenshchev, J. A. Marozas, P. W. McKenty, P. B. Radha, J. D. Kilkenny, D. D. Meyerhofer, T. C. Sangster, and R. L. McCrory, "Polar Direct Drive—Ignition at 1-MJ," to be published in *Inertial Fusion Sciences and Applications 2005*.
- V. A. Smalyuk, O. Sadot, R. Betti, V. N. Goncharov, J. A. Delettrez, D. D. Meyerhofer, S. P. Regan, T. C. Sangster, and D. Shvarts, "Rayleigh–Taylor Growth Measurements of 3-D Modulations in Nonlinear Regime," to be published in *Physics of Plasmas* (invited).

C. Stoeckl, J. A. Delettrez, J. H. Kelly, T. J. Kessler, B. E. Kruschwitz, S. J. Loucks, R. L. McCrory, D. D. Meyerhofer, D. N. Maywar, S. F. B. Morse, J. Myatt, A. L. Rigatti, L. J. Waxer, J. D. Zuegel, and R. B. Stephens, "High-Energy Petawatt Project at the University of Rochester's Laboratory for Laser Energetics," to be published in *Fusion Science and Technology*.

W. Theobald, K. Akli, R. Clarke, J. A. Delettrez, R. R. Freeman, S. H. Glenzer, J. Green, G. Gregori, R. Heathcote, N. Izumi, J. A. King, J. A. Koch, K. Lancaster, A. J. MacKinnon, M. H. Key, C. Mileham, J. Myatt, D. Neely, P. A. Norreys, H.-S. Park, J. Pasley, P. Patel, S. P. Regan, H. Sawada, R. Shepherd, R. Snavely, R. B. Stephens, C. Stoeckl, M. Storm, B. Zhang, and T. C. Sangster, "Hot-Surface, Ionic-Line Emission and Cold

K-Inner-Shell Emission from Petawatt Laser Irradiated Cu Foil Targets," to be published in *Physics of Plasmas*.

J. D. Zuegel, V. Bagnoud, J. Bromage, I. A. Begishev, J. Puth, "High-Performance OPCPA Laser System," to be published in *Inertial Fusion Sciences and Applications 2005*.

J. D. Zuegel, S. Borneis, C. Barty, B. LeGarrec, C. Danson, N. Miyanaga, P. K. Rambo, T. J. Kessler, A. W. Schmid, L. J. Waxer, B. E. Kruschwitz, R. Jungquist, N. Blanchot, E. Moses, J. Britten, C. LeBlanc, F. Amiranoff, J. L. Porter, J. Schwarz, M. Geissel, I. C. Smith, I. Jovanovic, and J. Dawson, "Laser Challenges for Fast Ignition," to be published in *Fusion Science and Technology*.

Conference Presentations

The following presentations were made at Advanced Solid-State Photonics 2006, Incline Village, NV, 29 January–1 February 2006:

I. A. Begishev, V. Bagnoud, M. J. Guardalben, and J. D. Zuegel, "OPCPA Output Wavelength Tuning by Adjusting Time Delay Between Seed and Pump Pulses."

A. V. Okishev and J. D. Zuegel, "Athermal, Diode-Pumped Nd:YLF Regenerative Amplifier."

J. D. Zuegel, V. Bagoud, J. Bromage, and I. A. Begishev, "High-Performance OPCPA Laser System."

K. L. Marshall, A. Trajkovska-Petkoska, T. Z. Kosc, and S. D. Jacobs, "Polymer Cholesteric Liquid Crystal (PCLC) Flake/Fluid Host Electro-Optical Suspensions: Progress Toward Flexible Reflective Displays," USDC Fifth Annual Flexible Microelectronics and Displays Conference, Phoenix, AZ, 6–9 February 2006.

The following presentations were made at the 6th International Conference on High Energy Density Laboratory Astrophysics, Houston, TX, 11–14 March 2006:

S. Sublett, J. P. Knauer, I. V. Igumenshchev, A. Frank, and D. D. Meyerhofer, "Double-Pulse Laser-Driven Jets on OMEGA."

B. Yaakobi, "EXAFS Study of Shock Compression, Isentropic Compression, and Phase Transformation in Metals."

W. Seka, P. Rechmann, J. D. B. Featherstone, and D. Fried, "Lasers in Hard Tissue Dentistry," Academy of Laser Dentistry Annual Conference, Tucson, AZ, 15–18 March 2006.

J. Zhang and T. Y. Hsiang, "Dispersion Characteristics of Coplanar Waveguides at Subterahertz Frequencies," Progress in Electromagnetics Research Symposium, Cambridge, MA, 26–29 March 2006.