
Publications and Conference Presentations

Publications

- B. Ashe, K. L. Marshall, D. Mastro Simone, and C. McAtee, "Minimizing Contamination to Multilayer Dielectric Diffraction Gratings Within a Large Vacuum System," in *Optical System Contamination: Effects, Measurements, and Control 2008*, edited by S. A. Straka (SPIE, Bellingham, WA, 2008), Vol. 7069, Paper 706902.
- S.-W. Bahk, J. Bromage, I. A. Begishev, C. Mileham, C. Stoeckl, M. Storm, and J. D. Zuegel, "On-Shot Focal-Spot Characterization Technique Using Phase Retrieval," *Appl. Opt.* **47**, 4589 (2008).
- A. M. Cok, R. S. Craxton, and P. W. McKenty, "Polar-Drive Designs for Optimizing Neutron Yields on the National Ignition Facility," *Phys. Plasmas* **15**, 082705 (2008).
- C. Dorrer, J. Bromage, and J. D. Zuegel, "High-Dynamic-Range Single-Shot Cross-Correlator Based on an Optical Pulse Replicator," *Opt. Express* **16**, 13,534 (2008).
- T. Duffy, W. T. Shmayda, R. Janezic, S. J. Loucks, and J. Reid, "LLE's High-Pressure DT-Fill-Process Control System," *Fusion Sci. Technol.* **54**, 379 (2008).
- D. H. Edgell, W. Seka, R. E. Bahr, T. R. Boehly, and M. J. Bonino, "Effectiveness of Silicon as a Laser Shintthrough Barrier for 351-nm Light," *Phys. Plasmas* **15**, 092704 (2008).
- M. J. Guardalben, "Littrow Angle Method to Remove Alignment Errors in Grating Pulse Compressors," *Appl. Opt.* **47**, 4959 (2008).
- S. X. Hu, V. A. Smalyuk, V. N. Goncharov, S. Skupsky, T. C. Sangster, D. D. Meyerhofer, and D. Shvarts, "Validation of Thermal-Transport Modeling with Direct-Drive, Planar-Foil Acceleration Experiments on OMEGA," *Phys. Rev. Lett.* **101**, 055002 (2008).
- H. Irie, Q. Diduck, M. Margala, R. Sobolewski, and M. J. Feldman, "Nonlinear Characteristics of T-Branch Junctions: Transition from Ballistic to Diffusive Regime," *Appl. Phys. Lett.* **93**, 053502 (2008).
- C. Kim, K. L. Marshall, J. U. Wallace, J. J. Ou, and S. H. Chen, "Novel Cholesteric Glassy Liquid Crystals Comprising Benzene Functionalized with Hybrid Chiral-Nematic Mesogens," *Chem. Mater.* **20**, 5859 (2008).
- W. Manheimer, D. Colombant, and V. Goncharov, "The Development of a Krook Model for Nonlocal Transport in Laser Produced Plasmas. I. Basic Theory," *Phys. Plasmas* **15**, 083103 (2008).
- K. L. Marshall, J. Gan, G. Mitchell, S. Papernov, A. L. Rigatti, A. W. Schmid, and S. D. Jacobs, "Laser-Damage-Resistant Photoalignment Layers for High-Peak-Power Liquid Crystal Device Applications," in *Liquid Crystals XII*, edited by I. C. Khoo (SPIE, Bellingham, WA, 2008), Vol. 7050, Paper 70500L.
- P. M. Nilson, L. Willingale, M. C. Kaluza, C. Kamperidis, S. Minardi, M. S. Wei, P. Fernandes, M. Notley, S. Bandyopadhyay, M. Sherlock, R. J. Kingham, M. Tatarakis, Z. Najmudin, W. Rozmus, R. G. Evans, M. G. Haines, A. E. Dangor, and K. Krushelnick, "Bidirectional Jet Formation During Driven Magnetic Reconnection in Two-Beam Laser-Plasma Interactions," *Phys. Plasmas* **15**, 092701 (2008).
- S. Papernov and A. W. Schmid, "Testing Asymmetry in Plasma-Ball Growth Seeded by a Nanoscale Absorbing Defect Embedded in a SiO₂ Thin-Film Matrix Subjected to UV Pulsed-Laser Radiation," *J. Appl. Phys.* **104**, 063101 (2008).
- J. Qiao, A. Kalb, T. Nguyen, J. Bunkenburg, D. Canning, and J. H. Kelly, "Demonstration of Large-Aperture Tiled-Grating Compressors for High-Energy, Petawatt-Class, Chirped-Pulse Amplification Systems," *Opt. Lett.* **33**, 1684 (2008).

M. J. Quinlan, W. T. Shmayda, S. Lim, S. Salnikov, Z. Chambers, E. Pollock, and W. U. Schröder, "Effects of H₂O and H₂O₂ on Thermal Desorption of Tritium from Stainless Steel," *Fusion Sci. Technol.* **54**, 519 (2008).

A. Simon, "Response to 'Comment on 'An Alternative Analysis of Some Recent Diffusion Experiments on the Large Plasma Device' " [Phys. Plasmas **15**, 074701 (2008)]," *Phys. Plasmas* **15**, 074702 (2008).

V. A. Smalyuk, S. X. Hu, V. N. Goncharov, D. D. Meyerhofer, T. C. Sangster, D. Shvarts, C. Stoeckl, B. Yaakobi, J. A. Frenje, and R. D. Petrasso, "Rayleigh–Taylor Growth Stabilization in Direct-Drive Plastic Targets at Laser Intensities of $\sim 1 \times 10^{15}$ W/cm²," *Phys. Rev. Lett.* **101**, 025002 (2008).

V. A. Smalyuk, S. X. Hu, V. N. Goncharov, D. D. Meyerhofer, T. C. Sangster, C. Stoeckl, and B. Yaakobi, "Systematic Study of Rayleigh–Taylor Growth in Directly Driven Plastic Targets in a Laser-Intensity Range of $\sim 2 \times 10^{14}$ to $\sim 1.5 \times 10^{15}$ W/cm²," *Phys. Plasmas* **15**, 082703 (2008).

M. S. Wei, A. A. Solodov, J. Pasley, R. B. Stephens, D. R. Welch, and F. N. Beg, "Study of Relativistic Electron Beam Production and Transport in High-Intensity Laser Interaction with a Wire Target by Integrated LSP Modeling," *Phys. Plasmas* **15**, 083101 (2008).

Forthcoming Publications

Z. A. Ali, V. Yu. Glebov, M. Cruz, T. Duffy, C. Stoeckl, S. Roberts, T. C. Sangster, R. Tommasini, A. Throop, M. Moran, L. Dauffy, and C. Horsefield, "Tests and Calibration of NIF Neutron Time of Flight Detectors," to be published in *Review of Scientific Instruments*.

S.-W. Bahk, J. D. Zuegel, J. R. Fienup, C. C. Widmayer, and J. Heebner, "Spot-Shadowing Optimization to Mitigate Damage Growth in a High-Energy Laser Amplifier Chain," to be published in *Applied Optics*.

Z.-M. Bei, T. B. Jones, A. Tucker-Schwartz, and D. R. Harding, "Electric Field Mediated Droplet Centering," to be published in *Applied Physics Letters*.

J. L. Bourgade, P. Troussel, A. Casner, G. Huser, T. C. Sangster, G. Pien, F. J. Marshall, J. Fariaud, C. Redmond, D. Gontier, C. Chollet, C. Zuber, C. Reverdin, A. Richard, P. A. Jaanimagi, R. L. Keck, R. E. Bahr, W. J. Armstrong, J. Dewandel, R. Maroni, F. Aubard, B. Angelier, C. Y. Cote, and S. Magnan, "A Versatile High-Resolution X-Ray Imager (HRXI) for Laser-Plasma Experiments on OMEGA," to be published in *Review of Scientific Instruments*.

J. Bromage, S.-W. Bahk, D. Irwin, J. Kwiatkowski, A. Pruyne, M. Millecchia, M. Moore, and J. D. Zuegel, "A Focal Spot Diagnostic for On-Shot Characterization of High-Energy Petawatt Lasers," to be published in *Optics Express*.

V. Yu. Glebov, M. Moran, C. Stoeckl, T. C. Sangster, and M. Cruz, "Neutron Bang Time Detector Based on a Light Pipe," to be published in *Review of Scientific Instruments*.

V. N. Goncharov, "Ablative Richtmyer–Meshkov Instability: Theory and Experimental Results," to be published in the *Proceedings of the Scottish Summer School*.

V. N. Goncharov, "Direct-Drive Inertial Fusion: Basic Concepts and Ignition Target Designing," to be published in the *Proceedings of the Scottish Summer School*.

Z. Jiang and J. R. Marciante, "Comments on 'Beam Quality Factor of Higher Order Modes in a Step-Index Fiber,'" to be published in the *Journal of Lightwave Technology*.

J. R. Marciante, "Gain Filtering for Single-Spatial-Mode Operation of Large-Mode-Area Fiber Amplifiers," to be published in the *IEEE Journal of Selected Topics in Quantum Electronics*.

D. Pan, G. P. Pepe, V. Pagliarulo, C. DeLisio, L. Parlato, I. Khafizov, and R. Sobolewski, "Layered Ferromagnet/Superconductor Heterostructures: Nonequilibrium Quasiparticle Dynamics and Photodetector Applications," to be published in *Physical Review B*.

S. N. Shafir, S. D. Jacobs, S. Adar, C. Miao, H. Romanofsky, and J. C. Lambropoulos, "Drag Force and Surface Texture

in Material Removal with MRF on Optical Glass and Hard Ceramics,” to be published in the Proceedings of the 12th Electromagnetic Windows Symposium.

A. A. Solodov, K. S. Anderson, R. Betti, V. Gotcheva, J. F. Myatt, J. A. Delettrez, S. Skupsky, W. Theobald, and C. Stoeckl, “Simulations of Electron Transport and Ignition for Direct-Drive Fast-Ignition Targets,” to be published in *Physics of Plasmas*.

M. Storm, I. A. Begishev, R. J. Brown, C. Guo, D. D. Meyerhofer, C. Mileham, J. F. Myatt, P. M. Nilson, T. C. Sangster, C. Stoeckl, W. Theobald, and J. D. Zuegel, “A High-Resolution Coherent Transition-Radiation Diagnostic for Laser-Produced Electron Transport Studies,” to be published in *Review of Scientific Instruments*.

A. Trajkovska-Petkoska and S. D. Jacobs, “Effect of Different Dopants on Polymer Cholesteric Liquid Crystals,” to be published in *Molecular Crystals and Liquid Crystals*.

C. D. Zhou and R. Betti, “A Measurable Lawson Criterion and Hydro-Equivalent Curves for Inertial Confinement Fusion,” to be published in *Physics of Plasmas*.

Y. Zhu, J. D. Zuegel, J. R. Marciante, and H. Wu, “Distributed Waveform Generator: A New Circuit Technique for Ultra-Wideband Pulse Generation, Shaping, and Modulation,” to be published in the *IEEE Journal of Solid-State Circuits*.

Conference Presentations

T. Pfuntner and S. D. Jacobs, “The Optics Suitcase and Liquid Crystal Mood Patches,” Boulder Workshop on Light-Controlled Liquid Crystalline Complex Adaptive Materials, Boulder, CO, 6 August 2008.

The following presentations were made at SPIE Optics and Photonics, San Diego, CA, 10–14 August 2008:

B. Ashe, G. Myhre, D. Mastrosimone, and C. McAtee, “Minimizing Contamination to Multilayer Dielectric Diffraction Gratings Within a Large Vacuum System.”

K. L. Marshall, J. Gan, G. Mitchell, S. Papernov, A. L. Rigatti, A. W. Schmid, and S. D. Jacobs, “Laser-Damage Resistant Photoalignment Layers for High-Peak-Power Liquid Crystal Device Applications.”

The following presentations were made at the HEDLP FESAC Workshop, Washington, DC, 25–27 August 2008:

W. Theobald, R. Betti, C. Stoeckl, K. S. Anderson, T. R. Boehly, J. A. Delettrez, J. A. Frenje, V. N. Goncharov, V. Yu. Glebov, C. K. Li, R. L. McCrory, D. D. Meyerhofer, L. J. Perkins, R. D. Petrasso, P. B. Radha, T. C. Sangster, W. Seka,

A. A. Solodov, B. Yaakobi, and C. D. Zhou, “Driving Gigabar Shocks with High-Power Lasers and Their Applications to Shock Ignition.”

W. Theobald, C. Stoeckl, R. Betti, K. S. Anderson, T. R. Boehly, J. A. Delettrez, R. R. Freeman, J. A. Frenje, V. N. Goncharov, V. Yu. Glebov, D. R. Harding, M. H. Key, A. J. MacKinnon, R. L. McCrory, D. D. Meyerhofer, J. F. Myatt, P. M. Nilson, A. V. Okishev, P. K. Patel, R. D. Petrasso, C. Ren, T. C. Sangster, W. Seka, R. B. Stephens, A. A. Solodov, L. Van Woerkom, B. Yaakobi, and C. D. Zhou, “Fast Ignition with OMEGA/OMEGA EP.”

The following presentations were made at the Boulder Damage Symposium, Boulder, CO, 22–24 September 2008:

J. B. Oliver, S. Papernov, A. W. Schmid, and J. C. Lambropoulos, “Optimization of Laser-Damage Resistance of Evaporated Hafnia at 351 nm.”

S. Papernov and A. W. Schmid, “Laser-Induced Surface Damage of Optical Materials: Absorption Sources, Initiation, Growth, and Mitigation.”

The following presentations were made at the 18th Topical Meeting on the Technology of Fusion, San Francisco, CA, 28 September–2 October 2008:

R. Betti, P. W. McKenty, W. Theobald, C. D. Zhou, C. Stoeckl, K. S. Anderson, J. A. Delettrez, D. D. Meyerhofer, V. N. Goncharov, P. B. Radha, T. C. Sangster, A. A. Solodov, V. A. Smalyuk, S. Skupsky, C. K. Li, R. D. Petrasso, J. A. Frenje, L. J. Perkins, D. Shvarts, and A. Schmitt, “Shock Ignition of Thermonuclear Fuel with High Areal Density.”

S. F. B. Morse, J. Bromage, C. Dorrer, M. J. Guardalben, J. H. Kelly, B. E. Kruschwitz, S. J. Loucks, R. L. McCrory, D. D. Meyerhofer, J. Qiao, and L. J. Waxer, “OMEGA Extended Performance Short-Pulse Laser: Technology and Operational Flexibility.”

J. M. Soures, “The OMEGA Facility: Providing Unique Capabilities for Inertial Fusion and High-Energy-Density Physics Experiments.”