

---

## Publications and Conference Presentations

---

### Publications

---

- J. Bromage, C. Dorrer, and J. D. Zuegel, "Angular-Dispersion-Induced Spatiotemporal Aberrations in Noncollinear Optical Parametric Amplifiers," *Opt. Lett.* **35**, 2251 (2010).
- C. E. Clayton, J. E. Ralph, F. Albert, R. A. Fonseca, S. H. Glenzer, C. Joshi, W. Lu, K. A. Marsh, S. F. Martins, W. B. Mori, A. Pak, F. S. Tsung, B. B. Pollock, J. S. Ross, L. O. Silva, and D. H. Froula, "Self-Guided Laser Wakefield Acceleration beyond 1 GeV Using Ionization-Induced Injection," *Phys. Rev. Lett.* **105**, 105003 (2010).
- E. Głowacki, K. Horovitz, C. W. Tang, and K. L. Marshall, "Photoswitchable Gas Permeation Membranes Based on Liquid Crystals," *Adv. Funct. Mater.* **20**, 2778 (2010).
- E. Głowacki, K. Hunt, D. Abud, and K. L. Marshall, "Photo-switchable Gas Permeation Membranes Based on Azobenzene-Doped Liquid Crystals. II. Permeation-Switching Characterization Under Variable Volume and Variable Pressure Conditions," in *Liquid Crystals XIV*, edited by I. C. Khoo (SPIE, Bellingham, WA, 2010), Vol. 7775, p. 77750G (invited).
- J. C. Lambropoulos, C. Miao, and S. D. Jacobs, "Magnetic Field Effects on Shear and Normal Stresses in Magnetorheological Finishing," *Opt. Express* **18**, 19,713 (2010).
- M. Margala, P. Ampadu, Y. Shapir, and R. Sobolewski, "Ballistic Electronics: Breaking the Barrier in Terahertz Speed Processing," in *Terahertz Physics, Devices, and Systems IV: Advanced Applications in Industry and Defense*, edited by M. Anwar, N. K. Dhar, and T. W. Crowe (SPIE, Bellingham, WA, 2010), Vol. 7671, p. 76710I.
- N. Marrocco, G. P. Pepe, A. Capretti, L. Parlato, V. Pagliarulo, G. Peluso, A. Barone, R. Cristiano, M. Ejrnaes, A. Casaburi, N. Kashiwazaki, T. Taino, H. Myoren, and R. Sobolewski, "Strong Critical Current Density Enhancement in NiCu/NbN Superconducting Nanostripes for Optical Detection," *Appl. Phys. Lett.* **97**, 092504 (2010).
- R. L. McCrory, D. D. Meyerhofer, R. Betti, T. R. Boehly, R. S. Craxton, J. A. Delettrez, D. H. Edgell, V. Yu. Glebov, V. N. Goncharov, D. R. Harding, S. X. Hu, J. P. Knauer, F. J. Marshall, P. W. McKenty, P. B. Radha, S. P. Regan, T. C. Sangster, W. Seka, R. W. Short, D. Shvarts, S. Skupsky, V. A. Smalyuk, J. M. Soures, C. Stoeckl, W. Theobald, B. Yaakobi, J. A. Frenje, C. K. Li, R. D. Petrasso, F. H. Séguin, and D. T. Casey, "Progress in Cryogenic Target Implosions on OMEGA," *J. Phys.: Conf. Ser.* **244**, 012004 (2010).
- P. W. McKenty, R. S. Craxton, F. J. Marshall, T. C. Sangster, J. A. Marozas, A. M. Cok, M. J. Bonino, D. R. Harding, D. D. Meyerhofer, R. L. McCrory, J. D. Kilkenny, A. Nikroo, J. Fooks, M. L. Hoppe, J. M. Edwards, A. J. MacKinnon, D. H. Munro, and R. J. Wallace, "Design of High-Neutron-Yield, Polar-Drive Targets for Diagnostic Activation Experiments on the NIF," *J. Phys.: Conf. Ser.* **244**, 032054 (2010).
- D. D. Meyerhofer, J. Bromage, C. Dorrer, J. H. Kelly, B. E. Kruschwitz, S. J. Loucks, R. L. McCrory, S. F. B. Morse, J. F. Myatt, P. M. Nilson, J. Qiao, T. C. Sangster, C. Stoeckl, L. J. Waxer, and J. D. Zuegel, "Performance of and Initial Results from the OMEGA EP Laser System," *J. Phys.: Conf. Ser.* **244**, 032010 (2010).
- S. P. Regan, P. B. Radha, T. R. Boehly, T. Doeppner, K. Falk, S. H. Glenzer, V. N. Goncharov, G. Gregori, O. L. Landen, R. L. McCrory, D. D. Meyerhofer, P. Neumayer, T. C. Sangster, and V. A. Smalyuk, "Inferring the Electron Temperature and Density of Shocked Liquid Deuterium Using Inelastic X-Ray Scattering," *J. Phys.: Conf. Ser.* **244**, 042017 (2010).
- S. N. Shafir, C. D. Roll, and P. D. Funkenbusch, "Optimization of Deterministic Microgrinding (DMG) Conditions for Opti-

cal Glasses and Ceramics,” in *International Optical Design Conference (IODC)/Optical Fabrication and Testing (OF&T) Technical Digest on CD-ROM* (Optical Society of America, Washington, DC, 2010), Paper OWD4.

M. D. Skarlinski and S. D. Jacobs, “Modifying the Rheological Properties of Zirconia Coated Carbonyl Iron Suspensions through Acid-Base Titration and the Addition of Di-Ammonium Citrate,” in *International Optical Design Conference (IODC)/Optical Fabrication and Testing (OF&T) Technical Digest on CD-ROM* (Optical Society of America, Washington, DC, 2010), Paper JMB.

A. A. Solodov, M. Storm, J. F. Myatt, R. Betti, D. D. Meyerhofer, P. M. Nilson, W. Theobald, and C. Stoeckl, “Simulations of Electron-Beam Transport in Solid-Density Targets and the Role of Magnetic Collimation,” *J. Phys.: Conf. Ser.* **244**, 022063 (2010).

L. Sun, S. Jiang, and J. R. Marcianite, “All-Fiber Optical Faraday Mirror Using 56-wt%-Terbium-Doped Fiber,” *IEEE Photon. Technol. Lett.* **22**, 999 (2010).

H. X. Vu, D. F. DuBois, D. A. Russell, and J. F. Myatt, “The Reduced-Description Particle-in-Cell Model for the Two Plasmon Decay Instability,” *Phys. Plasmas* **17**, 072701 (2010).

L. Zeng, T. N. Blanton, and S. H. Chen, “Modulation of Phase Separation Between Spherical and Rodlike Molecules Using Geometric Surfactancy,” *Langmuir* **26**, 12,877 (2010).

L. Zeng, C. W. Tang, and S. H. Chen, “Effects of Active Layer Thickness and Thermal Annealing on Polythiophene: Fullerene Bulk Heterojunction Photovoltaic Devices,” *Appl. Phys. Lett.* **97**, 053305 (2010).

### Forthcoming Publications

B. Ciftcioglu, J. Zhang, R. Sobolewski, and H. Wu, “An 850-nm Germanium Metal–Semiconductor–Metal Photodetector with 13-GHz Bandwidth and 8- $\mu$ A Dark Current,” to be published in the *Journal of Lightwave Technology*.

A. S. Cross, J. P. Knauer, A. Mycielski, D. Kochanowska, M. Wiktowska-Baran, R. Jakieła, J. Domagala, Y. Cui, R. James, and R. Sobolewski, “(Cd,Mn)Te Detectors for Characterization of X-Ray Emissions Generated During Laser-Driven Fusion Experiments,” to be published in *Nuclear Instruments and Methods in Physics Research, A*.

W. R. Donaldson, D. N. Maywar, J. H. Kelly, and R. E. Bahr, “Measurement of the Self-Phase-Modulation–Induced Bandwidth in a 30-kJ-Class Laser Amplifier Chain,” to be published in the *Journal of the Optical Society of America B*.

D. H. Froula, S. H. Glenzer, N. C. Luhmann, and J. Sheffield, “Plasma Scattering of Electromagnetic Radiation: Experiment, Theory and Measurement Techniques,” to be published by Elsevier.

V. Yu. Glebov, T. C. Sangster, C. Stoeckl, J. P. Knauer, W. Theobald, K. L. Marshall, M. J. Shoup III, T. Buczek, M. Cruz, T. Duffy, M. Romanofsky, M. Fox, A. Pruyne, M. J. Moran, R. A. Lerche, J. McNaney, J. D. Kilkenney, M. Eckart, D. Schneider, D. Munro, W. Stoeffl, R. A. Zacharias, J. J. Haslam, T. Clancy, M. Yeoman, D. Warwas, C. J. Horsfield,

J.-L. Bourgade, O. Landoas, L. Disdier, G. A. Chandler, and R. J. Leeper, “The National Ignition Facility Neutron Time-of-Flight System and Its Initial Performance,” to be published in *Review of Scientific Instruments*.

S. X. Hu, V. N. Goncharov, P. B. Radha, J. A. Marozas, S. Skupsky, T. R. Boehly, T. C. Sangster, D. D. Meyerhofer, and R. L. McCrory, “Two-Dimensional Simulations of the Neutron-Yield in Cryogenic Deuterium-Tritium Implosions on OMEGA,” to be published in *Physics of Plasmas*.

V. Kaushal, I. Iñiguez-de-la-Torre, H. Irie, G. Guarino, W. R. Donaldson, P. Ampadu, R. Sobolewski, and M. Margala, “A Study of Geometry Effects on the Performance of Ballistic Deflection Transistors,” to be published in *IEEE Transactions on Nanotechnology*.

F. J. Marshall, T. DeHaas, and V. Yu. Glebov, “Charge-Injection-Device Performance in the High-Energy-Neutron Environment of Laser-Fusion Experiments,” to be published in *Review of Scientific Instruments*.

J. B. Oliver, P. Kupinski, A. L. Rigatti, A. W. Schmid, J. C. Lambropoulos, S. Papernov, A. Kozlov, J. Spaulding, D. Sadowski, Z. Chrzan, R. D. Hand, D. R. Gibson, I. Brinkley, and F. Placido, “Large-Aperture Plasma-Assisted Deposition of ICF Laser Coatings,” to be published in *Applied Optics*.

J. S. Ross, S. H. Glenzer, J. P. Palastro, B. B. Pollock, D. Price, G. R. Tynan, and D. H. Froula, "Thomson-Scattering Measurements in the Collective and Noncollective Regimes in Laser Produced Plasmas," to be published in *Review of Scientific Instruments*.

C. Stoeckl, M. Cruz, V. Yu. Glebov, J. P. Knauer, R. Lauck, K. L. Marshall, C. Mileham, T. C. Sangster, and W. Theobald, "A Gated Liquid-Scintillator-Based Neutron Detector for Fast-Ignitor Experiments and Down-Scattered Neutron Measurements," to be published in *Review of Scientific Instruments*.

W. Theobald, V. Ovchinnikov, S. Ivancic, B. Eichman, P. M. Nilson, J. A. Delettrez, R. Yan, G. Li, F. J. Marshall, D. D. Meyerhofer, J. F. Myatt, C. Ren, T. C. Sangster, C. Stoeckl, J. D. Zuegel, L. Van Woerkom, R. R. Freeman, K. U. Akli, E. Giraldez, and R. B. Stephens, "High-Intensity Laser-Plasma Interactions with Wedge-Shaped Cavity Targets," to be published in *Physics of Plasmas*.

W. Wang, T. B. Jones, and D. R. Harding, "On-Chip Double Emulsion Droplet Assembly Using Electrowetting-on-Dielectric (EWOD) and Dielectrophoresis (DEP)," to be published in *Fusion Science and Technology*.

### Conference Presentations

E. Głowacki, K. Hunt, D. Abud, and K. L. Marshall, "Photo-switchable Gas Permeation Membranes Based on Azobenzene-Doped Liquid Crystals. II. Permeation-Switching Characterization Under Variable Volume and Variable Pressure Conditions," *SPIE Optics and Photonics 2010*, San Diego, CA, 1–5 August 2010.

The following presentations were made at ICUIL, Watkins Glen, NY, 26 September–1 October 2010:

S.-W. Bahk, "A Simple Self-Referenced Piston Measurement for Characterizing a Segmented Wavefront from Tiled Gratings."

S.-W. Bahk, E. Fess, I. A. Begishev, and J. D. Zuegel, "High-Resolution, Adaptive Beam Shaping (HRABS) in a Multi-Terawatt Laser."

J. Bromage, C. Dorrer, and J. D. Zuegel, "A 160-nm-Bandwidth Front End for Ultra-Intense OPCPA."

C. Dorrer, "Temporal Characterization Diagnostics for High-Intensity Laser Systems."

C. Dorrer, D. Irwin, A. Consentino, and J. Qiao, "Contrast Measurements of Kilojoule Laser Pulses at the OMEGA EP Laser Facility."

C. Dorrer, P. Leung, M. Vargas, J. Boule, K. Wegman, Z. Zhao, and K. L. Marshall, "Development of High-Fluence Beam Shapers."

B. E. Kruschwitz, S.-W. Bahk, J. Bromage, D. Irwin, and M. D. Moore, "Improved On-Shot Focal-Spot Measurement Using Phase-Retrieval-Assisted Wavefront Measurements."

B. E. Kruschwitz, M. J. Guardalben, J. H. Kelly, J. Qiao, I. A. Begishev, J. Bromage, S.-W. Bahk, C. Dorrer, L. Folsbee, S. D. Jacobs, R. Jungquist, T. J. Kessler, R. W. Kidder, S. J. Loucks, J. R. Marciante, R. L. McCrory, D. D. Meyerhofer, S. F. B. Morse, A. V. Okishev, J. B. Oliver, G. Pien, J. Puth, A. L. Rigatti, A. W. Schmid, M. J. Shoup III, C. Stoeckl, K. A. Thorp, and J. D. Zuegel, "Current Performance of the OMEGA EP High-Energy Short-Pulse Laser System."

J. Qiao, A. W. Schmid, L. J. Waxer, T. Nguyen, J. Bunkenburg, C. Kingsley, A. Kozlov, and D. Weiner, "Real-Time Detection of Laser-Induced Damage on a 1.5-m Tiled-Grating Compressor During a 15-ps, 2.2-kJ Energy Ramp on OMEGA EP."

S. Papernov, A. Tait, W. Bittle, A. W. Schmid, J. B. Oliver, and P. Kupinski, "Submicrometer-Resolution Mapping of Ultraweak 355-nm Absorption in HfO<sub>2</sub> Monolayers Using Photothermal Heterodyne Imaging," *XLII Annual Symposium on Optical Materials for High Power Lasers*, Boulder, CO, 27–29 September 2010.

