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## Publications and Conference Presentations

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### Publications

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- 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," *J. Opt. Soc. Am. B* **28**, 445 (2011).
- D. H. Froula, S. H. Glenzer, N. C. Luhmann, and J. Sheffield, *Plasma Scattering of Electromagnetic Radiation: Theory and Measurement Techniques* (Elsevier, Burlington, MA, 2011).
- M. C. Ghilea, D. D. Meyerhofer, and T. C. Sangster, "A Freon-Filled Bubble Chamber for Neutron Detection in Inertial Confinement Fusion Experiments," *Rev. Sci. Instrum.* **82**, 033305 (2011).
- M. J. Guardalben and L. J. Waxer, "Improvements to Long-Pulse System Performance and Operational Efficiency on OMEGA EP," in *High Power Lasers for Fusion Research*, edited by A. A. S. Awwal, A. M. Dunne, H. Azechi, and B. E. Kruschwitz (SPIE, Bellingham, WA, 2011), Vol. 7916, Paper 79160G.
- J. B. Oliver, P. Kupinski, A. L. Rigatti, A. W. Schmid, J. C. Lambropoulos, S. Papernov, A. Kozlov, J. Spaulding, D. Sadowski, Z. R. Chrzan, R. D. Hand, D. R. Gibson, I. Brinkley, and F. Placido, "Large-Aperture Plasma-Assisted Deposition of Inertial Confinement Fusion Laser Coatings," *Appl. Opt.* **50**, C19 (2011).
- P. B. Radha, C. Stoeckl, V. N. Goncharov, J. A. Delettrez, D. H. Edgell, J. A. Frenje, I. V. Igumenshchev, J. P. Knauer, J. A. Marozas, R. L. McCrory, D. D. Meyerhofer, R. D. Petrasso, S. P. Regan, T. C. Sangster, W. Seka, and S. Skupsky, "Triple-Picket Warm Plastic-Shell Implosions on OMEGA," *Phys. Plasmas* **18**, 012705 (2011).
- J. M. Soures, "Opportunities for Inertial Fusion and High-Energy-Density Physics Research at the National Laser Users' Facility," in *High Power Lasers for Fusion Research*, edited by A. A. S. Awwal, A. M. Dunne, H. Azechi, and B. E. Kruschwitz (SPIE, Bellingham, WA, 2011), Vol. 7916, Paper 791603.
- L. Steponaviciene, J. Sulcas, A. Jukna, G. Jung, V. Plausinaitiene, A. Abrutis, A. Maneikis, M. Gong, and R. Sobolewski, "Investigation of Vortex Density in Laser-Written  $\Pi$ -Shaped Channel of YBCO Bridge by Means of  $I$ - $V$  Dependences," *Acta Phys. Pol. A* **119**, 180 (2011).
- J. Sulcas, L. Steponaviciene, A. Jukna, G. Jung, V. Plausinaitiene, A. Abrutis, M. Gong, and R. Sobolewski, "Current Distribution in Y-Ba-Cu-O Superconducting Microbridges Containing  $\Pi$ -Shaped Channel for Easy Vortex Motion," *Acta Phys. Pol. A* **119**, 183 (2011).
- W. Wang, T. B. Jones, and D. R. Harding, "On-Chip Double Emulsion Droplet Assembly Using Electrowetting-on-Dielectric and Dielectrophoresis," *Fusion Sci. Technol.* **59**, 240 (2011).
- S. K. H. Wei and S. H. Chen, "Spatially Resolved Lasers Using a Glassy Cholesteric Liquid Crystal Film with Lateral Pitch Gradient," *Appl. Phys. Lett.* **98**, 111112 (2011).
- S. K.-H. Wei, L. Zeng, K. L. Marshall, and S. H. Chen, "Room-Temperature Processing of  $\pi$ -Conjugated Oligomers into Uniaxially Oriented Monodomain Films on Coumarin-Based Photoalignment Layers," *J. Polym. Sci. B, Polym. Phys.* **49**, 725 (2011).

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**Forthcoming Publications**


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T. R. Boehly, V. N. Goncharov, W. Seka, M. A. Barrios, P. M. Celliers, D. G. Hicks, G. W. Collins, S. X. Hu, J. A. Marozas, and D. D. Meyerhofer, “Velocity and Timing of Multiple Spherically Converging Shock Waves in Deuterium,” to be published in *Physical Review Letters*.

J. Bromage, J. M. Fini, C. Dorrer, and J. D. Zuegel, “Characterization and Optimization of Yb-Doped Photonic-Crystal Fiber Rod Amplifiers Using Spatially Resolved Spectral Interferometry,” to be published in *Applied Optics*.

D. E. Fratanduono, T. R. Boehly, M. A. Barrios, D. D. Meyerhofer, J. H. Eggert, R. F. Smith, D. G. Hicks, P. M. Celliers, D. G. Braun, and G. W. Collins, “Refractive Index of Lithium Fluoride Ramp Compressed to 800 GPa,” to be published in the *Journal of Applied Physics*.

M. C. Ghilea, D. D. Meyerhofer, and T. C. Sangster, “Neutron-Induced Nucleation Inside Bubble Chambers Using Freon 115 as the Active Medium,” to be published in *Nuclear Instruments and Methods*.

S. X. Hu, “Attosecond Timing the Ultrafast Charge-Transfer Process in Atomic Collisions,” to be published in *Physical Review A*.

I. Íñiguez-de-la-Torre, S. Purohit, V. Kaushal, M. Margala, M. Gong, R. Sobolewski, D. Wolpert, P. Ampadu, T. González, and J. Mateos, “Exploring Digital Logic Design Using Nanometer-Scale Devices Through Monte Carlo Simulations,” to be published in *IEEE Transactions on Nanotechnology*.

D. D. Meyerhofer, R. L. McCrory, R. Betti, T. R. Boehly, D. T. Casey, T. J. B. Collins, R. S. Craxton, J. A. Delettrez, D. H. Edgell, R. Epstein, K. A. Fletcher, J. A. Frenje, Y. Yu. Glebov, V. N. Goncharov, D. R. Harding, S. X. Hu, I. V. Igumenshchev, J. P. Knauer, C. K. Li, J. A. Marozas, F. J. Marshall, P. W. McKenty, P. M. Nilson, S. P. Padalino, R. D. Petrasso, P. B. Radha, S. P. Regan, T. C. Sangster, F. H. Séguin, W. Seka, R. W. Short, D. Shvarts, S. Skupsky, J. M. Soures, C. Stoeckl, W. Theobald, and B. Yaakobi, “High-Performance Inertial Confinement Fusion Target Implosions on OMEGA,” to be published in *Nuclear Fusion*.

C. Miao, R. Shen, M. Wang, S. N. Shafrir, H. Yang, and S. D. Jacobs, “Rheological Study of Aqueous Magnetorheological Fluid Using Dual Oxide-Coated Carbonyl Iron Particles,” to be published in the *Journal of the American Ceramic Society*.

P. M. Nilson, A. A. Solodov, J. F. Myatt, W. Theobald, P. A. Jaanimagi, L. Gao, C. Stoeckl, R. S. Craxton, J. A. Delettrez, B. Yaakobi, J. D. Zuegel, B. E. Kruschwitz, C. Dorrer, J. H. Kelly, K. U. Akli, P. K. Patel, A. J. Mackinnon, R. Betti, T. C. Sangster, and D. D. Meyerhofer, “Scaling Hot-Electron Generation to Long-Pulse, High-Intensity Laser–Solid Interactions,” to be published in *Physics of Plasmas*.

P. M. Nilson, W. Theobald, C. Mileham, C. Stoeckl, J. F. Myatt, J. A. Delettrez, J. MacFarlane, I. A. Begishev, J. D. Zuegel, R. Betti, T. C. Sangster, and D. D. Meyerhofer, “Target-Heating Effects on the  $K_{\alpha 1,2}$ -Emission Spectrum from Solid Targets Heated by Laser-Generated Hot Electrons,” to be published in *Physics of Plasmas*.

A. V. Okishev, “Characterization of Highly Stable, Mid-IR, GaSb-Based Laser Diodes,” to be published in *Optics Express*.

P. B. Radha, R. Betti, T. R. Boehly, J. A. Delettrez, D. H. Edgell, V. N. Goncharov, I. V. Igumenshchev, J. P. Knauer, J. A. Marozas, F. J. Marshall, R. L. McCrory, D. D. Meyerhofer, S. P. Regan, T. C. Sangster, W. Seka, S. Skupsky, A. A. Solodov, C. Stoeckl, W. Theobald, J. A. Frenje, D. T. Casey, C. K. Li, and R. D. Petrasso, “Inertial Confinement Fusion Using the OMEGA Laser System,” to be published in *IEEE Transactions on Plasma Science*.

W. Theobald, A. A. Solodov, C. Stoeckl, K. S. Anderson, R. Betti, T. R. Boehly, R. S. Craxton, J. A. Delettrez, C. Dorrer, J. A. Frenje, V. Yu. Glebov, H. Habara, K. A. Tanaka, J. P. Knauer, F. J. Marshall, K. L. Marshall, D. D. Meyerhofer, P. M. Nilson, P. K. Patel, H. Chen, T. C. Sangster, W. Seka, N. Sinenian, T. Ma, F. N. Beg, E. Giraldez, and R. B. Stephens, “Initial Cone-in-Shell Target Fast-Ignition Experiments on OMEGA,” to be published in *Physics of Plasmas*.

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**Conference Presentations**


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The following presentations were made at LASE—SPIE Photonics West, San Francisco, CA, 22–27 January 2011:

M. J. Guardalben and L. J. Waxer, “Improvements to Long-Pulse System Performance and Operational Efficiency on OMEGA EP.”

J. M. Soures, “Opportunities for Inertial Fusion and High-Energy-Density Physics Research at the National Laser Users’ Facility.”

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J. D. Zuegel and J. Bromage, “Lasers at the University of Rochester’s Laboratory for Laser Energetics: Laser Fusion to Ultra-Intense Lasers,” ETH-Hönggerberg Seminar, Zurich, Switzerland, 10 February 2011.

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The following presentations were made at Advanced Solid-State Photonics, Istanbul, Turkey, 13–16 February 2011:

J. Bromage, C. Dorrer, and J. D. Zuegel, “Temporal Contrast Measurements of a Noncollinear Optical Parametric Amplifier Seeded by White-Light Continuum.”

R. Xin and J. D. Zuegel, “All-Fiber Regenerative Amplifier for Nanosecond Optical Pulses at 1053 nm.”

J. D. Zuegel, M. J. Shoup III, J. H. Kelly, and C. Frederickson, “Novel Actively Cooled Split-Disk Nd:Glass Laser Amplifier for High-Energy Applications with Improved Repetition Rate.”

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P. M. Nilson, R. Betti, J. A. Delettrez, L. Gao, P. A. Jaanimagi, J. F. Myatt, T. C. Sangster, A. A. Solodov, C. Stoeckl, W. Theobald, B. Yaakobi, J. D. Zuegel, A. J. MacKinnon, and P. K. Patel, “Hot-Electron Lifetime Measurements,” Fusion Science Center for Extreme States of Matter 10th Meeting, Rochester, NY, 7 March 2011.

The following presentations were made at the International Workshop on ICF Shock Ignition, Rochester, NY, 8–10 March 2011:

K. S. Anderson, R. Betti, P. W. McKenty, T. J. B. Collins, R. S. Craxton, R. Nora, A. A. Solodov, and L. J. Perkins, “Shock Ignition with Plastic-Ablator Cryogenic Shells on the NIF.”

K. S. Anderson, W. Theobald, C. Stoeckl, R. Betti, R. S. Craxton, J. A. Delettrez, O. V. Gotchev, V. Yu. Glebov, V. N. Goncharov, F. J. Marshall, D. N. Maywar, R. L. McCrory, D. D. Meyerhofer, R. Nora, P. B. Radha, W. Seka, T. C. Sangster, V. A. Smalyuk, B. Yaakobi, C. D. Zhou, J. A. Frenje, C. K. Li, F. H. Séguin, R. D. Petrasso, L. J. Perkins, M. Lafon, X. Ribeyre, G. Schurtz, A. Casner “60-Beam Shock-Ignition OMEGA Experiments and Simulations.”

R. Betti, “An Overview of Shock Ignition.”

T. J. B. Collins, J. A. Marozas, A. Shvydky, R. S. Craxton, and P. W. McKenty, “Polar-Drive Hot-Spot Ignition on the NIF.”

R. S. Craxton, P. W. McKenty, E. Bond, S. LePape, A. J. MacKinnon, P. A. Michel, and J. D. Moody, “Three-Dimensional Distributions of Deposited Energy and Scattered Light in NIF ‘Exploding-Pusher’ Polar-Drive Experiments.”

R. S. Craxton, L. Tucker, T. Mo, K. S. Anderson, R. Betti, L. J. Perkins, G. P. Schurtz, X. Ribeyre, and A. Casner, “Three-Dimensional Design of a 96-Beam NIF Target to Test the Compression Phase of Shock Ignition.”

T. J. Kessler, “Phase and Polarization Plates for NIF Polar Drive.”

J. A. Marozas, “Picket Pulses with 1-D Multi-FM Smoothing by Spectral Dispersion (SSD) for the NIF Drive.”

F. J. Marshall, P. B. Radha, and A. Shvydky, “Backlighting of OMEGA Polar-Drive Experiments.”

P. W. McKenty, R. S. Craxton, F. J. Marshall, A. Shvydky, R. Epstein, A. M. Cok, J. A. Marozas, T. J. B. Collins, S. Skupsky, C. Stoeckl, T. C. Sangster, M. J. Bonino,

R. Janezic, D. R. Harding, W. T. Shmayda, S. F. B. Morse, D. D. Meyerhofer, R. L. McCrory, A. Nikroo, J. D. Kilkenny, M. L. Hoppe, J. Fooks, A. J. MacKinnon, S. LePape, R. J. Wallace, D. K. Bradley, and G. A. Kyrala, "Results of Polar-Drive, Exploding-Pusher Shots on the NIF."

P. B. Radha, F. J. Marshall, R. S. Craxton, and A. Shvydky, "Results from Polar-Drive OMEGA Experiments."

A. Shvydky, P. W. McKenty, F. J. Marshall, R. S. Craxton, J. A. Marozas, R. Epstein, S. Skupsky, and R. L. McCrory, "Numerical Investigation of NIF Diagnostic Commissioning Experiments on OMEGA."

W. Theobald, M. Hohenberger, R. Nora, K. S. Anderson, R. Betti, T. R. Boehly, D. E. Fratanduono, J. A. Frenje, S. X. Hu, D. D. Meyerhofer, T. C. Sangster, W. Seka, C. Stoeckl, B. Yaakobi, A. Casner, X. Ribeyre, and G. Schurtz, "Shock-Ignition Experiments on OMEGA."

J. D. Zuegel, "Demonstrating Polar-Drive Smoothing Technology for the NIF on OMEGA EP"

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J. E. Schoenly, W. Seka, and P. Rechmann, "Fluence Dependency of the 400-nm Ablation Rates of Supra- and Subgingival Dental Calculus," American Society of Laser Medicine and Surgery 2011 Annual Conference, Grapevine, TX, 30 March–3 April 2011.