Publications and Conference Presentations

Publications

A. Belousov, S. Katrych, J. Jun, J. Zhang, D. Günther, R. Sobolewski, J. Karpinski, and B. Batlogg, "Bulk Single-Crystal Growth of the Ternary $Al_xGa_{1-x}N$ from Solution in Gallium Under High Pressure," J. Cryst. Growth **311**, 3971 (2009).

B. Ciftcioglu, L. Zhang, J. Zhang, J. R. Marciante, J. Zuegel, R. Sobolewski, and H. Wu, "Integrated Silicon PIN Photodiodes Using Deep N-Well in a Standard 0.18-μm CMOS Technology," J. Lightwave Technol. **27**, 3303 (2009).

C. Dorrer, "High-Damage-Threshold Beam Shaping Using Binary Phase Plates," Opt. Lett. **34**, 2330 (2009).

G. Guarino, W. R. Donaldson, M. Mikulics, M. Marso, P. Kordoš, and R. Sobolewski, "Finite Element Simulation of Metal–Semiconductor–Metal Photodetector," Solid-State Electron. **53**, 1144 (2009).

S. X. Hu, L. A. Collins, and B. I. Schneider, "Attosecond Photoelectron Microscopy of H_2^+," Phys. Rev. A **80**, 023426 (2009).

I. V. Igumenshchev, "Magnetic Inversion as a Mechanism for the Spectral Transition of Black Hole Binaries," Astrophys. J. **702**, L72 (2009).

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B. Punsly, I. V. Igumenshchev, and S. Hirose, "Three-Dimensional Simulations of Vertical Magnetic Flux in the Immediate Vicinity of Black Holes," Astrophys. J. **704**, 1065 (2009).

J. Sanz, R. Betti, V. A. Smalyuk, M. Olazabal-Loume, V. Drean, V. Tikhonchuk, X. Ribeyre, and J. Feugeas, "Radiation Hydrodynamic Theory of Double Ablation Fronts in Direct-Drive Inertial Confinement Fusion," Phys. Plasmas **16**, 082704 (2009).

V. A. Smalyuk, S. X. Hu, J. D. Hager, J. A. Delettrez, D. D. Meyerhofer, T. C. Sangster, and D. Shvarts, "Rayleigh-Taylor Growth Measurements in the Acceleration Phase of Spherical Implosions on OMEGA," Phys. Rev. Lett. **103**, 105001 (2009).

W. Theobald, C. Stoeckl, P. A. Jaanimagi, P. M. Nilson, M. Storm, D. D. Meyerhofer, T. C. Sangster, D. Hey, A. J. MacKinnon, H.-S. Park, P. K. Patel, R. Shepherd, R. A. Snavely, M. H. Key, J. A. King, B. Zhang, R. B. Stephens, K. U. Akli, K. Highbarger, R. L. Daskalova, L. Van Woerkom, R. R. Freeman, J. S. Green, G. Gregori, K. Lancaster, and P. A. Norreys, "A Dual-Channel, Curved-Crystal Spectrograph for Petawatt Laser, X-Ray Backlighter Source Studies," Rev. Sci. Instrum. **80**, 083501 (2009).

Forthcoming Publications

J. Bromage, C. Dorrer, J. R. Marciante, M. J. Shoup III, and J. D. Zuegel, "Modal Measurement of a Large-Mode-Area Photonic-Crystal Fiber Amplifier Using Spatially Resolved Spectral Interferometry," to be published in Solid State Diode Laser Technology Review.

W. R. Donaldson, J. R. Marciante, and R. G. Roides, "An Optical Replicator for Single-Shot Measurements at 10 GHz with a Dynamic Range of 1800:1," to be published in the IEEE Journal of Quantum Electronics.

D. French, C. Dorrer, and I. Jovanovic, "Two-Beam SPIDER for Dual-Pulse Single-Shot Characterization," to be published in Optics Letters.

W. Guan and J. R. Marciante, "A 1-W Single-Frequency Hybrid Brillouin/Ytterbium Fiber Laser," to be published in Optics Letters.

J. Kitaygorsky, R. Shouten, S. Dorenbos, E. Reiger, V. Zwiller, and R. Sobolewski, "Resolving Dark Pulses from Photon Pulses in NbN Superconducting Single-Photon Detectors," to be published in the Journal of Modern Optics.

G. P. Pepe, L. Parlato, N. Marrocco, V. Pagliarulo, G. Peluso, A. Barone, F. Tafuri, U. Scotti di Uccio, F. Miletto, M. Radovic, D. Pan, and R. Sobolewski, "Novel Superconducting Proximized Heterostructures for Ultrafast Photodetection," to be published in Cryogenics.

S. P. Regan, "Applied Plasma Spectroscopy I: Laser-Fusion Experiments," to be published in High Energy Density Physics.

S. N. Shafrir, H. J. Romanofsky, M. Skarlinski, M. Wang, C. Miao, S. Salzman, T. Chartier, J. Mici, J. C. Lambropoulos, R. Shen, H. Yang, and S. D. Jacobs, "Zirconia Coated Carbonyl Iron Particle-Based Magnetorheological Fluid for Polishing Optical Glasses and Ceramics," to be published in Applied Optics.

R. Shen, S. N. Shafrir, C. Miao, M. Wang, J. C. Lambropoulos, S. D. Jacobs, and H. Yang, "Synthesis and Corrosion Study of Zirconia Coated Carbonyl Iron Particles," to be published in the Journal of Colloid and Interface Science.

W. Theobald, K. S. Anderson, R. Betti, R. S. Craxton, J. A. Delettrez, J. A. Frenje, V. Yu. Glebov, O. V. Gotchev, J. H. Kelly, C. K. Li, A. J. Mackinnon, F. J. Marshall, R. L. McCrory, D. D. Meyerhofer, J. F. Myatt, P. A. Norreys, P. M. Nilson, P. K. Patel, R. D. Petrasso, P. B. Radha, C. Ren, T. C. Sangster, W. Seka, V. A. Smalyuk, A. A. Solodov, R. B. Stephens, C. Stoeckl, and B. Yaakobi, "Advanced-Ignition-Concept Exploration on OMEGA," to be published in Plasma Physics and Controlled Fusion.

B. Yaakobi, O. V. Gotchev, R. Betti, and C. Stoeckl, "Study of Fast-Electron Transport in Laser-Illuminated Spherical Targets," to be published in Physics of Plasmas.

L. Zeng, T. Y.-H. Lee, P. B. Merkel, and S. H. Chen, "A New Class of Non-Conjugated Bipolar Hybrid Hosts for Phosphorescent Organic Light-Emitting Diodes," to be published in the Journal of Materials Chemistry.

Conference Presentations

L. Ji, W. R. Donaldson, and T. Y. Hsiang, "Electro-Optic Sampling Using Two/Multiple Optical Pulses," 14th Opto-Electronics and Communications Conference, Hong Kong, 13–17 July 2009.

The following presentations were made at Optical Manufacturing and Testing VIII, San Diego, CA, 2–6 August 2009:

C. Miao, J. C. Lambropoulos, S. N. Shafrir, H. Romanofsky, and S. D. Jacobs, "Contributions of Nanodiamond Abrasives and Deionized Water in Magnetorheological Finishing of Aluminum Oxynitride."

C. Miao, S. N. Shafrir, J. C. Lambropoulos, and S. D. Jacobs, "Normal Force and Drag Force in Magnetorheological Finishing."

S. N. Shafrir, R. Shen, C. Miao, H. Romanofsky, M. Wang, J. Mici, J. Yang, J. C. Lambropoulos, and S. D. Jacobs, "Zirconia Coated Carbonyl Iron Particle-Based Magnetorheological Fluid for Polishing."

E. Glowacki, C. W. Ching, and K. L. Marshall, "Photoswitchable Gas Permeation Membranes Based on Azobenzene-Doped Liquid Crystals," Optics and Photonics, San Diego, CA, 2–6 August 2009 (invited).

The following presentations were made at the Ultrafast Optics and High Field Short Wavelength Meeting, Arcachon, France, 31 August–4 September 2009:

C. Dorrer, "High-Damage-Threshold Beam Shapers for High-Energy Laser Systems."

C. Dorrer and J. Bromage, "Simple High-Sensitivity, Electro-Optic Sagnac Spectral Shearing Interferometry for Optical Pulse Characterization."

C. Dorrer, J. Bromage, and J. D. Zuegel, "Single-Shot High-Dynamic-Range Cross-Correlator for High-Energy Laser Systems."

The following presentations were made at the Sixth International Conference on Inertial Fusion Sciences and Applications, San Francisco, CA, 6–11 September 2009:

R. Betti, K. S. Anderson, P. Y. Chang, R. Nora, and C. D. Zhou, "A Measurable Lawson Criterion for Inertial Confinement Fusion."

T. R. Boehly, V. N. Goncharov, D. E. Fratanduono, M. A. Barrios, S. X. Hu, T. C. Sangster, D. D. Meyerhofer, D. Munro, P. M. Celliers, D. G. Hicks, H. F. Robey, G. W. Collins, N. Landen, R. E. Olson, and A. Nikroo, "Demonstration of the Shock-Timing Technique for Ignition Targets at the National Ignition Facility."

V. N. Goncharov, T. C. Sangster, T. R. Boehly, R. L. McCrory, D. D. Meyerhofer, P. B. Radha, V. A. Smalyuk, S. Skupsky, J. A. Frenje, and R. D. Petrasso, "Multiple-Picket, Cryogenic Target Designs and Performance for OMEGA and the NIF."

R. L. McCrory, R. Betti, 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, D. D. Meyerhofer, 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."

P. W. McKenty, R. S. Craxton, 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. 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."

D. D. Meyerhofer, R. Betti, T. R. Boehly, J. Bromage, C. Dorrer, V. Yu. Glebov, 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, A. A. Solodov, C. Stoeckl, W. Theobald, J. D. Zuegel, H. S. Park, B. Maddox, A. MacPhee, J. Workman, M. Koenig, E. Brimbrank, C. Szabo, and G. Holland "Performance of and Initial Experimental Results from the Omega EP Laser System."

S. P. Regan, P. B. Radha, T. R. Boehly, T. Doeppner, K. Falk, V. N. Goncharov, S. H. Glenzer, G. Gregori, O. L. Landen, 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."

T. C. Sangster, L. Ahle, D. Bleuel, D. T. Casey, M. J. Eckart, M. J. Edwards, R. J. Fortner, J. A. Frenje, V. Yu. Glebov, G. P. Grim, H. W. Herrmann, C. J. Horsfield, J. D. Kilkenny, O. Landoas, R. A. Lerche, K. J. Moody, M. J. Moran, R. D. Petrasso, M. Schmitt, D. Schneider, D. A. Shaughnessy, C. Stoeckl, W. Stoeffl, and M. D. Wilke, "The Nuclear Diagnostics Suite for the NIF."

A. A. Solodov, M. Storm, J. F. Myatt, R. Betti, D. D. Meyerhofer, P. M. Nilson, W. Theobald, and C. Stoeckl, "The Role of Resistive Filamentation and Self-Generated Magnetic Fields in Hot-Electron-Beam Transport Through Solid Targets."

A. L. Rigatti, J. B. Oliver, A. Kozlov, and A. W. Schmid, "Comparison of 10-ps In-Air and In-Vacuum Damage Thresholds," Laser Damage 2009, Boulder, CO, 21–23 September 2009.