
Publications and Conference Presentations

Publications

E. Brambrink, H. G. Wei, B. Barbrel, P. Audebert, A. Benuzzi-Mounaix, T. Boehly, T. Endo, C. Gregory, T. Kimura, R. Kodama, N. Ozaki, H.-S. Park, M. Rabec le Gloahec, and M. Koenig, "X-Ray Source Studies for Radiography of Dense Matter," *Phys. Plasmas* **16**, 033101 (2009).

H. Chen, S. C. Wilks, J. D. Bonlie, E. P. Liang, J. Myatt, D. F. Price, D. D. Meyerhofer, and P. Beiersdorfer, "Relativistic Positron Creation Using Ultraintense Short Pulse Lasers," *Phys. Rev. Lett.* **102**, 105001 (2009).

C. Dorrer, "Signal Analyser on an Optical Chip," *Nat. Photon.* **3**, 136 (2009).

C. Dorrer, "Statistical Analysis of Incoherent Pulse Shaping," *Opt. Express* **17**, 3341 (2009).

W. Guan and J. R. Marciante, "Complete Elimination of Self-Pulsations in Dual-Clad Ytterbium-Doped Fiber Lasers at All Pumping Levels," *Opt. Lett.* **34**, 815 (2009).

D. G. Hicks, T. R. Boehly, P. M. Celliers, J. H. Eggert, S. J. Moon, D. D. Meyerhofer, and G. W. Collins, "Laser-Driven Single Shock Compression of Fluid Deuterium from 45 to 220 GPa," *Phys. Rev. B* **79**, 014112 (2009).

A. M. Kaplan, G. P. Agrawal, and D. N. Maywar, "All-Optical Flip-Flop Operations of VC SOA," *Electron. Lett.* **45**, 127 (2009).

J. A. King, K. U. Akli, R. R. Freeman, J. Green, S. P. Hatchett, D. Hey, P. Jaanimagi, M. H. Key, J. Koch, K. L. Lancaster, T. Ma, A. J. MacKinnon, A. MacPhee, P. A. Norreys, P. K. Patel, T. Phillips, R. B. Stephens, W. Theobald, R. P. J. Town, L. Van Woerkom, B. Zhang, and F. N. Beg, "Studies of the

Transport of High Intensity Laser-Generated Hot Electrons in Cone Coupled Wire Targets," *Phys. Plasmas* **16**, 020701 (2009).

J. R. Marciante, "Gain Filtering for Single-Spatial-Mode Operation of Large-Mode-Area Fiber Amplifiers," *IEEE J. Sel. Top. Quantum Electron.* **15**, 30 (2009).

P. M. Nilson, W. Theobald, J. F. Myatt, C. Stoeckl, M. Storm, J. D. Zuegel, R. Betti, D. D. Meyerhofer, and T. C. Sangster, "Bulk Heating of Solid-Density Plasmas During High-Intensity-Laser Plasma Interactions," *Phys. Rev. E* **79**, 016406 (2009).

J. B. Oliver, S. Papernov, A. W. Schmid, and J. C. Lambropoulos, "Optimization of Laser-Damage Resistance of Evaporated Hafnia Films at 351 nm," in *Laser-Induced Damage in Optical Materials: 2008*, edited by G. J. Exarhos, D. Ristau, M. J. Soileau, and C. J. Stolz (SPIE, Bellingham, WA, 2008), Vol. 7132, Paper 71320J.

S. Papernov and A. W. Schmid, "Laser-Induced Surface Damage of Optical Materials: Absorption Sources, Initiation, Growth, and Mitigation," in *Laser-Induced Damage in Optical Materials: 2008*, edited by G. J. Exarhos, D. Ristau, M. J. Soileau, and C. J. Stolz (SPIE, Bellingham, WA, 2008), Vol. 7132, Paper 71321J.

S. K. H. Wei, S. H. Chen, K. Dolgaleva, S. G. Lukishova, and R. W. Boyd, "Robust Organic Lasers Comprising Glassy-Cholesteric Pentafluorene Doped with a Red-Emitting Oligofluorene," *Appl. Phys. Lett.* **94**, 041111 (2009).

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," *IEEE J. Solid-State Circuits* **44**, 808 (2009).

Forthcoming Publications

T. R. Boehly, D. Munro, P. M. Celliers, R. E. Olson, D. G. Hicks, V. N. Goncharov, G. W. Collins, H. F. Robey, S. X. Hu, J. A. Marozas, T. C. Sangster, O. L. Landen, and D. D. Meyerhofer, "Demonstration of the Shock-Timing Technique for Ignition Targets on the National Ignition Facility," to be published in *Physics of Plasmas* (invited).

X. L. Cross, X. Zheng, P. D. Cunningham, L. M. Hayden, Š. Chromik, M. Sojkova, V. Štrbík, P. Odier, and R. Sobolewski, "Pulsed-THz Characterization of Hg-Based, High-Temperature Superconductors," to be published in *IEEE Transactions on Applied Superconductivity*.

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*.

O. V. Gotchev, J. P. Knauer, P. Y. Chang, N. W. Jang, M. J. Shoup III, D. D. Meyerhofer, and R. Betti, "Seeding Magnetic Fields for Laser-Driven Flux Compression in High-Energy-Density Plasmas," to be published in *Review of Scientific Instruments*.

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. Kitaygorsky, S. Dorenbos, E. Reiger, R. Schouten, V. Zwiller, and R. Sobolewski, "New Read-Out Technique for Dark- and Photon-Count Studies in NbN Superconducting Single-Photon Detectors," to be published in *IEEE Transactions on Applied Superconductivity*.

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*.

F. J. Marshall, P. W. McKenty, J. A. Delettrez, R. Epstein, J. P. Knauer, V. A. Smalyuk, J. A. Frenje, C. K. Li, R. D. Petrasso, F. H. Séguin, and R. C. Mancini, "Plasma Density Determination from X-Ray Radiography of Laser-Driven Spherical Implosions," to be published in *Physical Review Letters*.

C. Miao, S. N. Shafir, J. C. Lambropoulos, J. Mici, and S. D. Jacobs, "Shear Stress in Magnetorheological Finishing for Glasses," to be published in *Applied Optics*.

E. I. Moses, R. L. McCrory, D. D. Meyerhofer, and C. J. Keane, "A New Era for High-Energy-Density Physics," to be published in *Optics and Photonics News*.

G. P. Pepe, D. Pan, V. Pagliarulo, L. Parlato, N. Marrocco, C. De Lisio, G. Peluso, A. Barone, U. Scotti di Uccio, A. Casaburi, F. Tafuri, M. Khafizov, T. Taneda, and R. Sobolewski, "Ultrafast Photoresponse of Superconductor/Ferromagnet Hybrid Nanostructures," to be published in *IEEE Transactions on Applied Superconductivity*.

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*.

H. Sawada, S. P. Regan, P. B. Radha, R. Epstein, D. Li, V. N. Goncharov, S. X. Hu, D. D. Meyerhofer, J. A. Delettrez, P. A. Jaanimagi, V. A. Smalyuk, T. R. Boehly, T. C. Sangster, B. Yaakobi, and R. C. Mancini, "Al $1s-2p$ Absorption Spectroscopy of Shock-Wave Heating and Compression in Laser-Driven Planar Foil," to be published in *Physics of Plasmas*.

J. E. Schoenly, W. Seka, and P. Rechmann, "Laser Ablation of Dental Calculus Around 400 nm Using a Ti:Sapphire Laser," to be published in the *Proceedings of SPIE*.

W. Seka, D. H. Edgell, J. A. Myatt, A. V. Maximov, R. W. Short, V. N. Goncharov, and H. A. Baldis, "Two-Plasmon-Decay Instability in Direct-Drive Inertial Confinement Fusion Experiments," to be published in *Physics of Plasmas*.

V. A. Smalyuk, 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, R. L. McCrory, P. W. McKenty, D. D. Meyerhofer, P. B. Radha, S. P. Regan, T. C. Sangster, W. Seka, R. W. Short, D. Shvarts, S. Skupsky, J. M. Soures, C. Stoeckl, B. Yaakobi, J. A. Frenje,

C. K. Li, R. D. Petrasso, and F. H. Séguin, “Cryogenic-Target Performance and Implosion Physics Studies on OMEGA,” to be published in *Physics of Plasmas* (invited).

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

M. Storm, A. A. Solodov, J. F. Myatt, D. D. Meyerhofer, C. Stoeckl, C. Mileham, R. Betti, P. M. Nilson, T. C. Sangster, W. Theobald, and C. Guo, “High-Current, Relativistic Electron-

Beam Transport in Metals and the Role of Magnetic Collimation,” to be published in *Physical Review Letters*.

L. Sun, S. Jiang, J. D. Zuegel, and J. R. Marciante, “Effective Verdet Constant in Terbium-Doped-Core Phosphate Fiber,” to be published in *Optics Letters*.

J. D. Zuegel, S.-W. Bahk, J. Bromage, C. Dorrer, R. Earley, T. J. Kessler, B. J. Kruschwitz, S. F. B. Morse, D. N. Maywar, J. B. Oliver, J. Qiao, A. L. Rigatti, A. W. Schmid, M. J. Shoup III, L. J. Waxer, and J. H. Kelly, “Novel Laser and Diagnostic Technologies for the OMEGA EP High-Energy Petawatt Laser,” to be published in the *Review of Laser Engineering*.

Conference Presentations

J. E. Schoenly, W. Seka, and P. Rechmann, “Laser Ablation of Dental Calculus Around 400 nm Using a Ti:Sapphire Laser,” *Lasers in Dentistry XV*, San Jose, CA, 24–29 January 2009.

C. Stoeckl, K. S. Anderson, R. Betti, J. A. Delettrez, J. A. Frenje, V. N. Goncharov, V. Yu. Glebov, A. J. Mackinnon, R. L. McCrory, D. D. Meyerhofer, J. F. Myatt, P. A. Norreys, P. M. Nilson, R. D. Petrasso, T. C. Sangster, A. A. Solodov, R. B. Stephens, M. Storm, W. Theobald, B. Yaakobi, and C. D. Zhou, “Inertial Fusion Research at the Laboratory for Laser Energetics,” *29th International Workshop on Physics of High Energy Density in Matter*, Hirschegg, Austria, 1–6 February 2009.

S. P. Regan, P. B. Radha, T. R. Boehly, T. Doepfner, 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, “Experimental Investigation of Inelastic X-Ray Scattering from Shock-Heated and Compressed Deuterium,” *International Workshop on Warm Dense Matter*, Hakone, Japan, 16–19 March 2009.

P. M. Nilson, W. Theobald, J. F. Myatt, C. Stoeckl, P. A. Jaanimagi, J. A. Delettrez, C. Dorrer, J. D. Zuegel, R. Betti, D. D. Meyerhofer, T. C. Sangster, A. J. Mackinnon, P. K. Patel, and K. U. Akli, “Bulk Heating of Solid-Density Matter Using Kilojoule Pulses on OMEGA EP,” *16th International Conference on Atomic Processes in Plasmas*, Monterey, CA, 22–26 March 2009.