
Publications and Conference Presentations

Publications

- S.-W. Bahk, I. A. Begishev, and J. D. Zuegel, "Precompensation of Gain Nonuniformity in a Nd:Glass Amplifier Using a Programmable Beam-Shaping System," *Opt. Comm.* **333**, 45 (2014).
- A. Davies, D. Haberberger, R. Boni, S. Ivancic, R. Brown, and D. H. Froula, "Polarimetry Diagnostic on OMEGA EP Using a 10-ps, 263-nm Probe Beam," *Rev. Sci. Instrum.* **85**, 11E611 (2014).
- A. K. Davis, D. T. Michel, S. X. Hu, R. S. Craxton, R. Epstein, V. N. Goncharov, I. V. Igumenshchev, T. C. Sangster, and D. H. Froula, "Mass-Ablation-Rate Measurements in Direct-Drive Cryogenic Implosions Using X-Ray Self-Emission Images," *Rev. Sci. Instrum.* **85**, 11D616 (2014).
- C. Dorrer, "Analysis of Nonlinear Optical Propagation in a Longitudinal Deuterated Potassium Dihydrogen Phosphate Pockels Cell," *J. Opt. Soc. Am. B* **31**, 1891 (2014).
- C. Dorrer, R. G. Roides, J. Bromage, and J. D. Zuegel, "Self-Phase Modulation Compensation in a Regenerative Amplifier Using Cascaded Second-Order Nonlinearities," *Opt. Lett.* **39**, 4466 (2014).
- D. Eimerl, E. M. Campbell, W. F. Krupke, J. Zweiback, W. L. Kruer, J. Marozas, J. Zuegel, J. Myatt, J. Kelly, D. Froula, and R. L. McCrory, "StarDriver: A Flexible Laser Driver for Inertial Confinement Fusion and High Energy Density Physics," *J. Fusion Energ.* **33**, 476 (2014).
- G. Fiksel, W. Fox, A. Bhattacharjee, D. H. Barnak, P.-Y. Chang, K. Germaschewski, S. X. Hu, and P. M. Nilson, "Magnetic Reconnection Between Colliding Magnetized Laser-Produced Plasma Plumes," *Phys. Rev. Lett.* **113**, 105003 (2014).
- V. Yu. Glebov, C. J. Forrest, K. L. Marshall, M. Romanofsky, T. C. Sangster, M. J. Shoup III, and C. Stoeckl, "A New Neutron Time-of-Flight Detector for Fuel-Areal-Density Measurements on OMEGA," *Rev. Sci. Instrum.* **85**, 11E102 (2014).
- M. Hohenberger, F. Albert, N. E. Palmer, J. J. Lee, T. Döppner, L. Divol, E. L. Dewald, B. Bachmann, A. G. MacPhee, G. LaCaille, D. K. Bradley, and C. Stoeckl, "Time-Resolved Measurements of the Hot-Electron Population in Ignition-Scale Experiments on the National Ignition Facility," *Rev. Sci. Instrum.* **85**, 11D501 (2014) (invited).
- S. X. Hu, L. A. Collins, V. N. Goncharov, T. R. Boehly, R. Epstein, R. L. McCrory, and S. Skupsky, "First-Principles Opacity Table of Warm Dense Deuterium for Inertial-Confinement-Fusion Applications," *Phys. Rev. E* **90**, 033111 (2014).
- H. P. H. Liddell, J. C. Lambropoulos, and S. D. Jacobs, "Thermomechanical Model to Assess Stresses Developed During Elevated-Temperature Cleaning of Coated Optics," *Appl. Opt.* **53**, 5865 (2014).
- F. J. Marshall and P. B. Radha, "Masked-Backlighter Technique Used to Simultaneously Image X-Ray Absorption and X-Ray Emission from an Inertial Confinement Fusion Plasma," *Rev. Sci. Instrum.* **85**, 11E615 (2014).
- J. B. Oliver, T. J. Kessler, C. Smith, B. Taylor, V. Gruschow, J. Hettrick, and B. Charles, "Electron-Beam-Deposited Distributed Polarization Rotator for High-Power-Laser Applications," *Opt. Express* **22**, 23883 (2014).
- F. Pérez, G. E. Kemp, S. P. Regan, M. A. Barrios, J. Pino, H. Scott, S. Ayers, H. Chen, J. Emig, J. D. Colvin, M. Bedzyk, M. J. Shoup III, A. Agliata, B. Yaakobi, F. J. Marshall, R. A. Hamilton, J. Jaquez, M. Farrell, A. Nikroo, and K. B. Fournier, "The NIF X-Ray Spectrometer Calibration Campaign at OMEGA," *Rev. Sci. Instrum.* **85**, 11D613 (2014).
- F. Philippe, V. Tassin, S. Depierreux, P. Gauthier, P. E. Masson-Laborde, M. C. Monteil, P. Seytor, B. Villette, B. Lasinski, H. S. Park, J. S. Ross, P. Amendt, T. Döppner, D. E. Hinkel, R. Wallace, E. Williams, P. Michel, J. Frenje, M. Gatu-Johnson, C. K. Li, R. Petrasso, V. Glebov, C. Sorce, C. Stoeckl, A. Nikroo, and E. Giraldez, "Demonstrated High

Performance of Gas-Filled Rugby-Shaped Hohlräume on OMEGA,” *Phys. Plasmas* **21**, 074504 (2014).

H. G. Rinderknecht, H. Sio, J. A. Frenje, J. Magoon, A. Agliata, M. Shoup, S. Ayers, C. G. Bailey, M. Gatu Johnson, A. B. Zylstra, N. Sinenian, M. J. Rosenberg, C. K. Li, F. H. Séguin, R. D. Petrasso, J. R. Rygg, J. R. Kimbrough, A. Mackinnon, P. Bell, R. Bionta, T. Clancy, R. Zacharias, A. House, T. Döppner, H. S. Park, S. LePape, O. Landen, N. Meezan, H. Robey, V. U. Glebov, M. Hohenberger, C. Stoeckl, T. C. Sangster, C. Li, J. Parat, R. Olson, J. Kline, and J. Kilkenny, “A Magnetic Particle Time-of-Flight (MagPTOF) Diagnostic for Measurements of Shock- and Compression-Bang Time at the NIF,” *Rev. Sci. Instrum.* **85**, 11D901 (2014) (invited).

C. Stoeckl, M. Bedzyk, G. Brent, R. Epstein, G. Fiksel, D. Guy, V. N. Goncharov, S. X. Hu, S. Ingraham, D. W. Jacobs-Perkins,

R. K. Jungquist, F. J. Marshall, C. Mileham, P. M. Nilson, T. C. Sangster, M. J. Shoup III, and W. Theobald, “Soft X-Ray Backlighting of Cryogenic Implosions Using a Narrowband Crystal Imaging System,” *Rev. Sci. Instrum.* **85**, 11E501 (2014).

M. Storm, B. Eichman, C. Orban, S. Jiang, G. Fiksel, C. Stoeckl, G. Dyer, T. Ditmire, R. Stephens, W. Theobald, J. A. Delettrez, R. R. Freeman, and K. Akli “ K_{α} X-Ray Imaging of Laser-Irradiated, Limited-Mass Zirconium Foils,” *Phys. Plasmas* **21**, 072704 (2014).

J. Zhang, J. F. Myatt, R. W. Short, A. V. Maximov, H. X. Vu, D. F. DuBois, and D. A. Russell, “Multiple Beam Two-Plasmon Decay: Linear Threshold to Nonlinear Saturation in Three Dimensions,” *Phys. Rev. Lett.* **113**, 105001 (2014).

Forthcoming Publications

R. Epstein, S. P. Regan, B. A. Hammel, L. J. Suter, H. A. Scott, M. A. Barrios, D. K. Bradley, D. A. Callahan, C. Cerjan, G. W. Collins, S. N. Dixit, T. Doeppner, M. J. Edwards, D. R. Farley, K. B. Fournier, S. Glenn, S. H. Glenzer, I. E. Golovkin, A. Hamza, D. G. Hicks, N. Izumi, O. S. Jones, M. H. Key, J. D. Kilkenny, J. L. Kline, G. A. Kyrala, O. L. Landen, T. Ma, J. J. MacFarlane, A. J. Mackinnon, R. C. Mancini, R. L. McCrory, D. D. Meyerhofer, N. B. Meezan, A. Nikroo, H.-S. Park, P. K. Patel, J. E. Ralph, B. A. Remington, T. C. Sangster, V. A. Smalyuk, P. T. Springer, R. P. J. Town, and J. L. Tucker, “Applications and Results of X-Ray Spectroscopy in Implosion Experiments on the National Ignition Facility,” to be published in *Proceedings of Atomic Processes in Plasmas* (invited).

D. T. Michel, R. S. Craxton, A. K. Davis, R. Epstein, V. Yu. Glebov, V. N. Goncharov, S. X. Hu, I. V. Igumenshchev, D. D. Meyerhofer, P. B. Radha, T. C. Sangster, W. Seka, C. Stoeckl, and D. H. Froula, “Implosion Dynamics in Direct-Drive Experiments,” to be published in *Plasma Physics and Controlled Fusion*.

W. Theobald, A. A. Solodov, C. Stoeckl, K. S. Anderson, F. N. Beg, R. Epstein, G. Fiksel, E. M. Giraldez, V. Yu. Glebov, H. Habara, S. Ivancic, L. C. Jarrott, F. J. Marshall, G. McKiernan, H. S. McLean, C. Mileham, P. M. Nilson, P. K. Patel, F. Pérez, T. C. Sangster, J. J. Santos, H. Sawada, A. Shvydky, R. B. Stephens, and M. S. Wei, “Time-Resolved Compression of a Capsule with a Cone to High Density for Fast-Ignition Laser Fusion,” to be published in *Nature Communications*.

Conference Presentations

D. H. Froula, J. F. Myatt, A. Shvydky, S. H. Glenzer, L. Divol, O. L. Landen, O. S. Jones, C. H. Still, S. Langer, A. J. Mackinnon, J. S. Ross, B. B. Pollock, M. J. Edwards, R. P. J. Town, L. J. Suter, G. R. Tynan, and G. Gregori, “Effects of Thermal Transport and Laser-Beam Smoothing on Beam Propagation Through Long-Scale-Length Plasmas,” *Fundamental Science with Pulsed Power Workshop*, Albuquerque, NM, 20–23 July 2014.

The following presentations were made at *Turbulent Mixing and Beyond*, Trieste, Italy, 4–9 August 2014:

I. V. Igumenshchev, L. Gao, and P. M. Nilson, “Self-Generated Magnetic Fields in Rayleigh–Taylor Unstable Laser-Produced Plasma.”

S. P. Regan, R. Epstein, R. L. McCrory, D. D. Meyerhofer, T. C. Sangster, B. A. Hammel, L. J. Suter, H. A. Scott, M. A. Barrios,

D. K. Bradley, D. A. Callahan, C. Cerjan, G. W. Collins, T. Dittrich, S. N. Dixit, T. Doepfner, M. J. Edwards, K. B. Fournier, S. Glenn, S. W. Haan, A. Hamza, D. E. Hinkel, O. A. Hurricane, C. A. Iglesias, N. Izumi, O. S. Jones, O. L. Landen, T. Ma, A. J. Mackinnon, N. B. Meezan, A. Pak, H.-S. Park, P. K. Patel, J. Ralph, B. A. Remington, V. A. Smalyuk, P. T. Springer, R. P. J. Town, B. G. Wilson, S. H. Glenzer, I. E. Golovkin, J. J. MacFarlane, H. Huang, J. Jaquez, J. D. Kilkenny, A. Nikroo, J. L. Kline, G. A. Kyrala, and R. C. Mancini, "Diagnosing Hot-Spot Mix with X-Ray Spectroscopy."

The following presentations were made at Optics and Photonics, San Diego, CA, 17–21 August 2014:

K. L. Marshall, O. Didovets, and D. Saulnier, "Contact-Angle Measurements as a Means of Probing the Surface Alignment Characteristics of Liquid Crystal Materials on Photoalignment Layers."

S. P. Regan, M. Bedzyk, M. J. Shoup III, R. K. Jungquist, C. Abbott, A. Agliata, F. J. Marshall, R. A. Hamilton, B. Yaakobi, C. Sorce, R. E. Bahr, N. Whiting, E. Kowaluk, J. M. Schoen, W. Byrne, P. Mittermeyer, A. L. Rigatti, J. Hettrick, K. L. Marshall, T. Lewis, T. Clark, S. Lombardo, R. Callari, R. Fellows, S. Gross, C. DeBottis, S. Ross, G. Pien, J. DeWandel, T. C. Sangster, D. D. Meyerhofer, R. Epstein, J. Magoon, B. Staerker, J. Rodas, J. Church, M. Callahan, J. Kendrick, H. Beck, M. Schleigh, B. Ruth, T. Davlin, D. Neyland, D. Walker, S. Dent, C. Lucas, M. Rowland, S. Stagnitto, D. Mastro Simone, W. J. Armstrong, M. Labuzeta, T. Klingenberg, C. Kingsley, M. J. Bonino, J. Fooks, D. R. Harding, S. F. B. Morse, R. L. McCrory, K. B. Fournier, M. A. Barrios, H. Chen, F. Perez, S. Ayers, N. Izumi, A. G. MacPhee, P. Bell, J. D. Kilkenny, D. K. Bradley, J. Emig, B. Ehrlich, D. H. Kalantar, R. Wood, C. Bailey, G. E. Kemp, J. Pino, D. Larson, J. Celeste, B. W. Hatch, J. Jaquez, M. Farrell, A. Nikroo, C. Shipbaugh, S. C. Wilks, and A. Dalton, "Streaked X-Ray Spectrometer for the National Ignition Facility."

C. M. Sorce, R. Boni, S. Ingraham, C. Mileham, A. Sorce, and P. Jaanimagi, "Streak Camera Usage at the Laboratory for Laser Energetics: Past, Present, and Future," Streak Camera Workshop, Albuquerque, NM, 26–27 August 2014.

The following presentations were made at Laser Damage 2014, Boulder, CO, 14–17 September 2014:

K. Mikami, S. Papernov, S. Motokoshi, S. D. Jacobs, and T. Jitsuno, "Detection of the Laser-Damage Onset in Optical Coatings by the Photothermal-Deflection Method."

J. B. Oliver, J. Bromage, C. Smith, and D. Sadowski, "Large-Aperture Plasma-Ion-Assisted Coatings for Femtosecond-Pulsed Laser Systems" (invited).

J. B. Oliver, T. J. Kessler, S. Papernov, C. Smith, B. Taylor, V. Gruschow, J. Hettrick, and B. Charles, "Electron-Beam-Deposited Distributed-Polarization Rotator for High-Power Laser Applications."

S. Papernov, A. A. Kozlov, and J. B. Oliver, "Interface Absorption Versus Film Absorption in $\text{HfO}_2/\text{SiO}_2$ Thin-Film Pairs in the Near-Ultraviolet and Relation to Pulsed-Laser Damage."

A. A. Solodov, W. Theobald, K. S. Anderson, A. Shvydky, C. Stoeckl, R. Epstein, G. Fiksel, V. Yu. Glebov, S. Ivancic, F. J. Marshall, G. McKiernan, C. Mileham, P. M. Nilson, T. C. Sangster, L. C. Jarrott, C. McGuffey, B. Qiao, F. N. Beg, E. Giraldez, R. B. Stephens, M. S. Wei, H. Habara, K. Tanaka, H. McLean, H. Sawada, and J. Santos, "Hydrodynamics of Cone-in-Shell Implosions on OMEGA," 13th International Fast Ignition Workshop, Oxford, UK, 14–18 September 2014.