
Publications and Conference Presentations

Publications

- M. A. Barrios, T. R. Boehly, D. G. Hicks, D. E. Fratanduono, J. H. Eggert, G. W. Collins, and D. D. Meyerhofer, "Precision Equation-of-State Measurements on National Ignition Facility Ablator Materials from 1 to 12 Mbar Using Laser-Driven Shock Waves," *J. Appl. Phys.* **111**, 093515 (2012).
- J. Bromage, C. Dorrer, and R. K. Jungquist, "Temporal Contrast Degradation at the Focus of Ultrafast Pulses from High-Frequency Spectral Phase Modulation," *J. Opt. Soc. Am. B* **29**, 051125 (2012).
- J. Bromage, C. Dorrer, M. Millecchia, J. Bunkenburg, R. Jungquist, and J. D. Zuegel, "A Front End for Ultra-Intense OPCPA," in *Light at Extreme Intensities 2011, AIP Conf. Proc. 1462*, edited by K. Osvay, P. Dombi, J. A. Fulop, and K. Varju (American Institute of Physics, New York, 2012), pp. 74–77.
- S. H. Chen and S. K.-H. Wei, "Modification of the Stokes–Einstein Equation with a Semiempirical Microfriction Factor for Correlation of Tracer Diffusivities in Organic Solvents," *Ind. Eng. Chem. Res.* **50**, 12,304 (2011).
- T. J. B. Collins, J. A. Marozas, R. L. McCrory, P. B. Radha, D. R. Harding, P. W. McKenty, R. S. Craxton, A. Shvydky, V. N. Goncharov, S. Skupsky, and J. D. Zuegel, R. Betti, F. J. Marshall, J. A. Delettrez, K. S. Anderson, and D. D. Meyerhofer, "A Polar-Drive–Ignition Design for the National Ignition Facility," *Phys. Plasmas* **19**, 056308 (2012).
- W. R. Donaldson, C. Zhao, L. Ji, R. G. Roides, K. Miller, and B. Beeman, "A Single-Shot, Multiwavelength Electro-Optic Data-Acquisition System for ICF Applications," *Rev. Sci. Instrum.* **83**, 10D726 (2012).
- C. Dorrer, S. K.-H. Wei, P. Leung, M. Vargas, K. Wegman, J. Boulé, Z. Zhao, K. L. Marshall, and S. H. Chen, "High-Damage-Threshold Static Laser Beam Shaping Using Optically Patterned Liquid-Crystal Devices," *Opt. Lett.* **36**, 4035 (2011).
- D. H. Edgell, D. K. Bradley, E. J. Bond, S. Burns, D. A. Callahan, J. Celeste, M. J. Eckart, V. Yu. Glebov, D. S. Hey, G. Lacaille, J. D. Kilkenny, J. Kimbrough, A. J. Mackinnon, J. Magoon, J. Parker, T. C. Sangster, M. J. Shoup III, C. Stoeckl, T. Thomas, and A. MacPhee, "South Pole Bang-Time Diagnostic on the National Ignition Facility," *Rev. Sci. Instrum.* **83**, 10E119 (2012).
- K. Falk, S. P. Regan, J. Vorberger, M. A. Barrios, T. R. Boehly, D. E. Fratanduono, S. H. Glenzer, D. G. Hicks, S. X. Hu, C. D. Murphy, P. B. Radha, S. Rothman, A. P. Jephcoat, J. S. Wark, D. O. Gericke, and G. Gregori, "Self-Consistent Measurement of the Equation of State of Liquid Deuterium," *High Energy Density Phys.* **8**, 76 (2012).
- G. Fiksel, S. X. Hu, V. N. Goncharov, D. D. Meyerhofer, T. C. Sangster, V. A. Smalyuk, B. Yaakobi, M. J. Bonino, and R. Jungquist, "Experimental Reduction of Laser Imprinting and Rayleigh–Taylor Growth in Spherically Compressed, Medium-Z–Doped Plastic Targets," *Phys. Plasmas* **19**, 062704 (2012).
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- C. J. Forrest, V. Yu. Glebov, V. N. Goncharov, A. Pruyne, J. P. Knauer, P. B. Radha, M. Romanofsky, T. C. Sangster, M. J. Shoup III, C. Stoeckl, D. T. Casey, M. Gatu-Johnson, and S. Gardner, "High-Resolution Spectroscopy Used to Measure ICF Neutron Spectra on OMEGA," *Rev. Sci. Instrum.* **83**, 10D919 (2012).
- D. E. Fratanduono, J. H. Eggert, T. R. Boehly, M. A. Barrios, D. D. Meyerhofer, B. J. Jensen, and G. W. Collins, "Index of Refraction of Shock-Released Materials," *J. Appl. Phys.* **110**, 083509 (2011).
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- S. P. Regan, R. Epstein, B. A. Hammel, L. J. Suter, J. Ralph, H. Scott, M. A. Barrios, D. K. Bradley, D. A. Callahan, C. J. Cerjan, G. W. Collins, S. N. Dixit, T. Doeppner, M. J. Edwards, D. R. Farley, S. Glenn, S. H. Glenzer, I. E. Golovkin, S. W. Haan, A. Hamza, D. G. Hicks, N. Izumi, J. D. Kilkenny, J. L. Kline, G. A. Kyrala, O. L. Landen, T. Ma, J. J. MacFarlane, R. C. Mancini, R. L. McCrory, N. B. Meezan, D. D. Meyerhofer, A. Nikroo, K. J. Peterson, T. C. Sangster, P. Springer, and R. P. J. Town, "Hot-Spot Mix in Ignition-Scale Implosions on the NIF," *Phys. Plasmas* **19**, 056307 (2012).
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T. Ma, J. J. MacFarlane, A. J. MacKinnon, R. C. Mancini, F. J. Marshall, R. L. McCrory, N. B. Meezan, D. D. Meyerhofer, A. Nikroo, K. J. Peterson, T. C. Sangster, P. Springer, and R. P. J. Town, "Diagnosing Implosions at the National Ignition Facility with X-Ray Spectroscopy," in *The 17th International Conference on Atomic Processes in Plasmas (ICAPiP), AIP Conf. Proc. 1438*, edited by K. Aggarwal, and F. Shearer (American Institute of Physics, New York, 2012), pp. 49–54.

J. E. Schoenly, W. Seka, J. D. B. Featherstone, and P. Rechmann, "Near-UV Laser Treatment of Extrinsic Dental Enamel Stains," *Lasers Surg. Med.* **44**, 339 (2012).

C. Stoeckl, J. A. Delettrez, R. Epstein, G. Fiksel, D. Guy, M. Hohenberger, R. K. Jungquist, C. Mileham, P. M. Nilson, T. C. Sangster, M. J. Shoup III, and W. Theobald, "Soft X-Ray Backlighting of Direct-Drive Implosions Using a Spherical Crystal Imager on OMEGA," *Rev. Sci. Instrum.* **83**, 10E501 (2012).

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A. J. Visco, R. P. Drake, S. H. Glenzer, T. Döppner, G. Gregori, D. H. Froula, and M. J. Grosskopf, "Measurement of Radiative Shock Properties by X-Ray Thomson Scattering," *Phys. Rev. Lett.* **108**, 145001 (2012).

B. Yaakobi, P.-Y. Chang, A. Solodov, C. Stoeckl, D. H. Edgell, R. S. Craxton, S. X. Hu, J. F. Myatt, F. J. Marshall, W. Seka, and D. H. Froula, "Fast-Electron Generation in Long-Scale-Length Plasmas," *Phys. Plasmas* **19**, 012704 (2012).

J.-H. Yang, R. S. Craxton, and M. G. Haines, "Explicit General Solutions to Relativistic Electron Dynamics in Plane-Wave Electromagnetic Fields and Simulations of Ponderomotive Acceleration," *Plasma Phys. Control. Fusion* **53**, 125006 (2011).

J. Zhang, A. Belousov, J. Karpiński, B. Batlogg, and R. Sobolewski, "Time-Resolved Femtosecond Optical Characterization of Multi-Photon Absorption in High-Pressure-Grown $\text{Al}_{0.86}\text{Ga}_{0.14}\text{N}$ Single Crystals," *J. Appl. Phys.* **110**, 113112 (2011).

OMEGA External Users' Publications

T. Caillaud, O. Landoas, M. Briat, S. Kime, B. Rossé, I. Thfoin, J. L. Bourgade, L. Disdier, V. Yu. Glebov, F. J. Marshall, and T. C. Sangster, "Development of the Large Neutron Imaging System for Inertial Confinement Fusion Experiments," *Rev. Sci. Instrum.* **83**, 033502 (2012).

D. A. Callahan, N. B. Meezan, S. H. Glenzer, A. J. MacKinnon, L. R. Benedetti, D. K. Bradley, J. R. Celeste, P. M. Celliers, S. N. Dixit, T. Döppner, E. G. Dzentitis, S. Glenn, S. W. Haan, C. A. Haynam, D. G. Hicks, D. E. Hinkel, O. S. Jones, O. L. Landen, R. A. London, A. G. MacPhee, P. A. Michel, J. D. Moody, J. E. Ralph, H. F. Robey, M. D. Rosen, M. B. Schneider, D. J. Strozzi, L. J. Suter, R. P. J. Town, K. Widmann, E. A. Williams, M. J. Edwards, B. J. MacGowan, J. D. Lindl, L. J. Atherton, G. A. Kyrala, J. L. Kline, R. E. Olson, D. Edgell, S. P. Regan, A. Nikroo, H. Wilkins, J. D. Kilkenney, and A. S. Moore, "The Velocity Campaign for Ignition on NIF," *Phys. Plasmas* **19**, 056305 (2012) (invited).

D. T. Casey, J. A. Frenje, M. Gatu Johnson, M. J.-E. Manuel, H. G. Rinderknecht, N. Sinenian, F. H. Séguin, C. K. Li, R. D. Petrasso, P. B. Radha, J. A. Delettrez, V. Yu. Glebov, D. D. Meyerhofer, T. C. Sangster, D. P. McNabb, P. A. Amendt, R. N. Boyd, J. R. Rygg, H. W. Herrmann, Y. H. Kim, and A. D. Bacher, "Evidence for Stratification of Deuterium-Tritium Fuel in Inertial Confinement Fusion Implosions," *Phys. Rev. Lett.* **108**, 075002 (2012).

D. T. Casey, J. A. Frenje, M. Gatu Johnson, M. J.-E. Manuel, N. Sinenian, A. B. Zylstra, F. H. Séguin, C. K. Li, R. D. Petrasso, V. Yu. Glebov, P. B. Radha, D. D. Meyerhofer, T. C. Sangster, D. P. McNabb, P. A. Amendt, R. N. Boyd, S. P. Hatchett, S. Quaglioni, J. R. Rygg, I. J. Thomson, A. D. Bacher, H. W. Herrmann, and Y. H. Kim, "Measurements of the $T(t,2n)^4\text{He}$ Neutron Spectrum at Low Reactant Energies from Inertial Confinement Implosions," *Phys. Rev. Lett.* **109**, 025003 (2012).

S. Sepke, S. Weber, R. Zacharias, E. Moses, J. Kilkenny, A. Nikroo, T. C. Sangster, V. Glebov, C. Stoeckl, R. Olson, R. J. Leeper, J. Kline, G. Kyrala, and D. Wilson, “Charged-Particle Spectroscopy for Diagnosing Shock ρR and Strength in NIF Implosions,” *Rev. Sci. Instrum.* **83**, 10D901 (2012).

A. B. Zylystra, C. K. Li, H. G. Rinderknecht, F. H. Séguin, R. D. Petrasso, C. Stoeckl, D. D. Meyerhofer, P. Nilson, T. C. Sangster, S. Le Pape, A. Mackinnon, and P. Patel, “Using High-Intensity Laser-Generated Energetic Protons to Radiograph Directly Driven Implosions,” *Rev. Sci. Instrum.* **83**, 013511 (2012).

Conference Presentations

The following presentations were made at the 8th International Laser Operations Workshop, Aldermaston, U.K., 4–6 October 2011:

D. Canning, S. F. B. Morse, J. Qiao, T. Nguyen, B. E. Kruschwitz, and A. Kalb, “OMEGA EP Grating Compressor Chamber Operations.”

B. E. Kruschwitz, M. D. Moore, and R. Jungquist, “OMEGA EP Focal-Spot Improvement Activities.”

S. F. B. Morse, “A Polar-Drive-Irradiation Platform for NIF is Being Developed Using OMEGA.”

J. Puth, “Omega Facility Status and Performance.”

S. J. Stagnitto, J. Kwiatkowski, S. F. B. Morse, M. Labuzeta, and V. Guiliano, “Characterizing Debris-Shield Transmission Degradation and Estimating On-Target Energy.”

G. Fiksel, A. Bhattacharjee, W. Fox, R. Betti, P.-Y. Chang, M. Hohenberger, and P. M. Nilson, “Studies of Magnetized and HED Plasmas—Recent Results and Future Plans,” presented at the Center for Magnetized Self-Organization Meeting, Durham, NH, 17–20 October 2011.

S. Friedrich, T. J. Clancy, M. J. Eckart, M. J. Shoup III, T. Buczek, and V. Yu. Glebov, “High-Speed Diamond Detectors for Fast-Neutron Analysis of Inertial Confinement Fusion,” presented at the IEEE Nuclear Science Symposium, Valencia, Spain, 23–29 October 2011.

J. H. Kelly, “The Optics of Inertial Confinement Fusion,” presented at The Institute of Optics Colloquium, Rochester, NY, 31 October 2011.

J. Bromage, C. Dorrer, M. Millecchia, J. Bunkenburg, R. K. Jungquist, and J. D. Zuegel, “A Front End for Ultra-Intense OPCPA,” presented at Light at Extreme Intensities, Szeged, Hungary, 14–18 November 2011.

The following presentations were made at the 53rd Annual Meeting of the APS Division of Plasma Physics, Salt Lake City, UT, 14–18 November 2011:

K. S. Anderson, R. Betti, P. W. McKenty, T. J. B. Collins, R. S. Craxton, J. A. Marozas, R. Nora, S. Skupsky, and L. J. Perkins, “Simulations of Shock-Ignition Targets for the NIF.”

T. R. Boehly, V. N. Goncharov, W. Seka, S. X. Hu, J. A. Marozas, D. D. Meyerhofer, P. M. Celliers, D. G. Hicks, M. A. Barrios, D. E. Fratanduono, G. W. Collins, “Multiple Spherically Converging Shock Waves in Liquid Deuterium.”

P.-Y. Chang, G. Fiksel, M. Hohenberger, J. P. Knauer, R. Betti, F. H. Séguin, C. K. Li, M. E. Manuel, and R. D. Petrasso, “Experiments and Simulations of Laser-Driven Magnetized ICF Targets on OMEGA.”

T. J. B. Collins, J. A. Marozas, K. S. Anderson, R. Betti, R. S. Craxton, J. A. Delettrez, V. N. Goncharov, D. R. Harding, F. J. Marshall, R. L. McCrory, D. D. Meyerhofer, P. W. McKenty, P. B. Radha, A. Shvydky, S. Skupsky, J. D. Zuegel, “A Polar-Drive-Ignition Design for the National Ignition Facility” (invited).

- R. S. Craxton, P. W. McKenty, E. J. Bond, S. Le Pape, A. J. MacKinnon, P. A. Michel, and J. D. Moody, "Three-Dimensional Distributions of Scattered Light in NIF 'Exploding-Pusher' Polar-Drive Experiments."
- J. A. Delettrez, W. Seka, D. H. Froula, and T. J. B. Collins, "Three-Dimensional Numerical Investigation of Oblique Laser Irradiation of Planar Targets."
- D. H. Edgell, J. Magoon, T. C. Sangster, M. J. Shoup III, F. J. Marshall, C. Stoeckl, V. Yu. Glebov, A. MacPhee, G. Krauter, S. Burns, J. Celeste, M. J. Eckart, J. R. Kimbrough, J. D. Kilkenny, G. Lacaille, N. B. Meezan, J. Parker, Z. Sober, and M. Thayne, "First Results from the South Pole Bang Time (SPBT) Diagnostic on the NIF."
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- G. Fiksel, P.-Y. Chang, M. Hohenberger, J. P. Knauer, F. J. Marshall, D. D. Meyerhofer, R. Betti, F. H. Séguin, and R. D. Petrasso, "Fusion-Yield Enhancement in Magnetized Laser-Driven Implosions."
- C. J. Forrest, V. Yu. Glebov, V. N. Goncharov, J. P. Knauer, D. D. Meyerhofer, P. B. Radha, T. C. Sangster, and C. Stoeckl, "Measurement of the Areal Density (ρR) Using nT Elastic Backscattering on OMEGA."
- D. E. Fratanduono, M. A. Barrios, T. R. Boehly, D. D. Meyerhofer, J. H. Eggert, D. G. Hicks, R. F. Smith, D. Braun, P. M. Celliers, and G. W. Collins, "Refractive Index of Lithium Fluoride Ramp Compressed to 800 GPa" (invited).
- D. H. Froula, I. V. Igumenshchev, D. T. Michel, C. Sorce, R. Follett, D. H. Edgell, W. Seka, and V. N. Goncharov, "Measurements of an Increased Neutron Yield with Reduced CBET."
- L. Gao, P. M. Nilson, I. V. Igumenshchev, S. X. Hu, C. Stoeckl, D. H. Froula, and D. D. Meyerhofer, "Magnetic-Field Generation in Planar Plastic Targets on OMEGA EP."
- V. Yu. Glebov, C. Stoeckl, T. C. Sangster, C. Forrest, J. P. Knauer, V. N. Goncharov, and P. B. Radha, "Measurements of DD Neutron Yield and Ion Temperature in DT Implosions on OMEGA."
- V. N. Goncharov, T. C. Sangster, R. Epstein, S. X. Hu, I. V. Igumenshchev, D. H. Froula, R. L. McCrory, D. D. Meyerhofer, P. B. Radha, W. Seka, S. Skupsky, and C. Stoeckl, "Cryogenic Deuterium-Tritium Implosions on OMEGA."
- M. Hohenberger, P.-Y. Chang, G. Fiksel, J. P. Knauer, D. D. Meyerhofer, R. Betti, F. J. Marshall, F. H. Séguin, and R. D. Petrasso, "Inertial Confinement Fusion Implosions with Seeded Magnetic Fields on OMEGA" (invited).
- S. X. Hu, G. Fiksel, V. N. Goncharov, S. Skupsky, and V. A. Smalyuk, "Analysis of Laser-Imprinting Reduction in Spherical-RT Experiments with Si-/Ge-Doped Plastic Targets."
- I. V. Igumenshchev, W. Seka, D. H. Edgell, D. H. Froula, V. N. Goncharov, R. S. Craxton, L. Divol, R. Follett, J. H. Kelly, T. Z. Kosc, D. T. Michel, P. Michel, R. L. McCrory, A. V. Maximov, D. D. Meyerhofer, J. F. Myatt, T. C. Sangster, A. Shvydky, S. Skupsky, and C. Stoeckl, "Crossed-Beam Energy Transfer in Direct-Drive Implosions" (invited).
- S. Ivancic, W. Theobald, C. Stoeckl, P. M. Nilson, T. C. Sangster, D. D. Meyerhofer, S. X. Hu, and L. Willingale, "Initial Channeling of a Kilojoule-Class Laser in Long-Scale-Length Plasmas."
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- J. A. Marozas, T. J. B. Collins, D. H. Edgell, I. V. Igumenshchev, and J. F. Myatt, "Two-Dimensional Analysis of Crossed-Beam Energy Transfer (CBET) in Direct-Drive ICF Target Implosions."
- F. J. Marshall, P. B. Radha, R. Epstein, V. Yu. Glebov, J. A. Frenje, C. K. Li, R. D. Petrasso, and F. H. Séguin, "High-Convergence-Ratio Polar-Drive Experiments on OMEGA."

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D. D. Meyerhofer, S.-W. Bahk, J. Bromage, C. Dorrer, J. H. Kelly, B. E. Kruschwitz, S. J. Loucks, R. L. McCrory, S. F. B. Morse, J. Qiao, C. Stoeckl, L. J. Waxer, and J. D. Zuegel, "Status of the OMEGA EP Laser System."

D. T. Michel, B. Yaakobi, S. X. Hu, R. W. Short, J. F. Myatt, C. Stoeckl, D. H. Edgell, W. Seka, V. N. Goncharov, and D. H. Froula, "Measurements of Hot Electrons Produced by Two-Plasmon Decay in Near Direct-Drive-Ignition Plasma Conditions."

J. F. Myatt, J. Zhang, A. V. Maximov, R. W. Short, D. F. DuBois, D. A. Russell, and H. X. Vu, "A Self-Consistent Quasilinear Model for the Two-Plasmon-Decay Instability in Inhomogeneous Plasmas."

R. Nora, R. Betti, K. S. Anderson, W. Theobald, A. Casner, M. Lafon, X. Ribeyre, and G. Schurtz, "Cryogenic Shock-Ignition Target Designs for OMEGA."

P. B. Radha, F. J. Marshall, T. R. Boehly, T. J. B. Collins, R. S. Craxton, R. Epstein, V. N. Goncharov, J. A. Marozas, R. L. McCrory, D. D. Meyerhofer, A. Shvydkiy, S. Skupsky, J. A. Frenje, and R. D. Petrasso, "Polar-Drive Designs for OMEGA."

S. P. Regan, R. Epstein, B. A. Hammel, L. J. Suter, J. Ralph, H. Scott, M. A. Barrios, D. K. Bradley, D. A. Callahan, C. J. Cerjan, G. W. Collins, S. N. Dixit, T. Doepfner, M. J. Edwards, D. R. Farley, S. Glenn, S. H. Glenzer, I. E. Golovkin, S. W. Haan, A. Hamza, D. G. Hicks, N. Izumi, J. D. Kilkenny, J. L. Kline, G. A. Kyrala, O. L. Landen, T. Ma, J. J. MacFarlane, R. C. Mancini, R. L. McCrory, N. B. Meezan, D. D. Meyerhofer, A. Nikroo, K. J. Peterson, T. C. Sangster, P. Springer, and R. P. J. Town, "Hot-Spot Mix in Ignition-Scale Implosions at the National Ignition Facility" (invited).

T. C. Sangster, W. T. Shmayda, V. Versteeg, D. R. Harding, R. Janezic, V. N. Goncharov, D. H. Edgell, D. H. Froula, V. Yu.

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W. Seka, I. V. Igumenshchev, D. H. Froula, D. H. Edgell, J. F. Myatt, R. W. Short, V. N. Goncharov, and A. V. Maximov, "Absorption by the Two-Plasmon-Decay Instability in Direct-Drive Implosions."

R. W. Short and J. F. Myatt, "Convective Multibeam Two-Plasmon Decay for Spherical and Planar Irradiation Geometries."

A. Shvydkiy, P. W. McKenty, M. Hohenberger, G. Fiksel, T. J. B. Collins, J. A. Marozas, J. D. Zuegel, and T. C. Sangster, "Preparing for OMEGA EP Validation of 1-D Multi-FM SSD for the NIF."

A. A. Solodov, K. S. Anderson, A. Shvydkiy, W. Theobald, R. Betti, J. F. Myatt, and C. Stoeckl, "Simulations of Implosion Core Heating for Integrated Cone-in-Shell Fast-Ignition Experiments on OMEGA."

A. Sorokovikova, M. S. Wei, R. B. Stephens, J. Jaquez, R. Nishra, H. Sawada, W. Theobald, P. Patel, H. McLean, Y. Sentoku, and F. N. Beg, "Study of Dependence of Fast Electron Transport on Target Material Using the 10 ps, 1.5 kJ Omega EP Laser."

C. Stoeckl, P. B. Radha, R. E. Bahr, J. A. Delettrez, D. H. Edgell, V. Yu. Glebov, V. N. Goncharov, I. V. Igumenshchev, T. C. Sangster, W. Seka, J. A. Frenje, and R. D. Petrasso, "Pre-heat Studies Using Low-Adiabatic Plastic-Shell Implosions with Triple-Picket Pulses on OMEGA."

W. Theobald, M. Hohenberger, S. X. Hu, K. S. Anderson, R. Betti, T. R. Boehly, A. Casner, D. H. Edgell, D. E. Fratanduono, M. Lafon, D. D. Meyerhofer, R. Nora, X. Ribeyre, T. C. Sangster, G. Schurtz, W. Seka, C. Stoeckl, B. Yaakobi, "High-Intensity Shock-Ignition Experiments in Planar Geometry."

R. Yan, A. V. Maximov, C. Ren, and F. S. Tsung, "Energetic-Electron Generation in Two-Plasmon-Decay Instabilities in Inertial Confinement Fusion."

The following presentations were made at the International Collaboration on High Energy Density Science Workshop, Kanazawa, Japan, 25–29 November 2011:

T. R. Boehly, D. E. Fratanduono, M. A. Barrios, D. D. Meyerhofer, J. H. Eggert, D. G. Hicks, R. F. Smith, D. Braun, P. M. Celliers, and G. W. Collins, “Refractive-Index Measurements of LiF Ramp Compressed to 800 GPa.”

T. R. Boehly, V. N. Goncharov, W. Seka, S. X. Hu, J. A. Marozas, D. D. Meyerhofer, P. M. Celliers, D. G. Hicks, M. A. Barrios, D. E. Fratanduono, and G. W. Collins, “Radiative Precursors and Temperature Measurements in Shock Deuterium.”

R. L. McCrory, “LLE’s Perspective on FY13–FY18 Planning,” ICF Executives Meeting, Albuquerque, NM, 18 January 2012.

A. V. Okishev, C. Dorrer, Y. Fisher, and M. Pavia, “A Multiwavelength, Variable-Pulse-Width, Diode-Pumped Laser System,” Solid State Lasers XXI: Technology and Devices, San Francisco, CA, 21–26 January 2012.

The following presentations were made at the MAGLIF Workshop, Albuquerque, NM, 5–8 February 2012:

G. Fiksel, P.-Y. Chang, M. Hohenberger, J. P. Knauer, F. J. Marshall, D. D. Meyerhofer, R. Betti, F. H. Séguin, and R. D. Petrasso, “Effect of Magnetic Fields on Neutron Emission from ICF Implosions.”

J. P. Knauer, P.-Y. Chang, M. Hohenberger, G. Fiksel, F. J. Marshall, D. D. Meyerhofer, R. Betti, F. H. Séguin, and R. D. Petrasso, “Compressing Magnetic Fields with High-Energy Lasers.”

J. D. Hager, J. P. Knauer, V. A. Smalyuk, T. J. B. Collins, J. A. Delettrez, S. X. Hu, D. D. Meyerhofer, and T. C. Sangster, “Rayleigh–Taylor Measurements in Planar Targets with CH and SiO₂ Ablators on OMEGA,” NIF User Group Meeting, Livermore, CA, 12–15 February 2012.

J. M. Soures, “High-Energy-Density-Physics Research at the Omega Laser Facility,” 2012 Stewardship Science Academic Alliances Symposium, Washington, DC, 22–23 February 2012.

The following presentations were made at the 2012 Materials Research Society Spring Meeting and Exhibit, San Francisco, CA, 9–13 April 2012:

K. Mehrotra, H. P. Howard, S. D. Jacobs, and J. C. Lambropoulos, “Mechanical Characterization of ‘Blister’ Defects on Optical Oxide Multilayers Using Nanoindentation.”

K. Mehrotra, H. P. Howard, S. D. Jacobs, and J. C. Lambropoulos, “Nanoindentation Probing of High-Aspect-Ratio Pillar Structures on Optical Multilayer Dielectric Diffraction Gratings.”

The following presentations were made at the Omega Laser Facility Users Group Workshop, Rochester, NY, 25–27 April 2012:

D. Canning, “Omega EP Facility Update and Progress on OLUG Recommendations.”

G. Fiksel, P.-Y. Chang, M. Hohenberger, R. Betti, M. J. Shoup III, C. Taylor, T. Duffy, D. Lonobile, and W. Bittle, “Developing Magnetic Platforms for Inertial Confinement Fusion and Basic High-Energy-Density Science.”

D. H. Froula, R. Boni, M. Bedzyk, R. Brown, R. S. Craxton, T. Duffy, F. Ehrne, S. Ivancic, R. Jungquist, N. Kugland, J. Puth, R. G. Roides, M. C. Rushford, W. Seka, M. J. Shoup III, W. Theobald, and D. Weiner, “Optical Diagnostic Suite (Schlieren, Interferometry, and Grid Refractometry) on OMEGA EP Using a 10-ps, 263-nm Probe Beam.”

R. Jungquist, “Laser Retroreflected and Reflected Light Management.”

J. Katz, R. Boni, D. Froula, G. Gates, A. Nauss, J. Szczepanski, M. Shoup, and T. Agliata, “OMEGA Thomson-Scattering System Upgrade.”

J. Kwiatkowski, S. Stagnitto, S. F. B. Morse, M. Labuzeta, and V. Guiliano, “Characterizing Debris-Shield Transmission Degradation and Estimating On-Target Energy.”

S. F. B Morse, "Omega Facility Updates: Progress on OLUG Recommendations."

G. Pien and J. Puth, "Omega Experimental Systems Performance and Improvements Since OLUG 2011."

S. P. Regan, G. Gregori, P. B. Radha, S. X. Hu, T. R. Boehly, B. Crowley, S. H. Glenzer, O. L. Landen, D. O. Gericke, T. Doeppner, D. D. Meyerhofer, C. D. Murphy, T. C. Sangster, and J. Vorberger, "X-Ray Thomson Scattering: An Incisive Probe for Warm, Dense Matter."

W. T. Shmayda, "Isotope Separation System and Gas Chromatograph Support Non-Standard Fills."

C. Sorce, M. Millecchia, D. Mastro Simone, A. Sorce, J. Katz, S. Ingraham, A. Pruyne, R. Bahr, D. Hassett, and D. Guy, "Omega Facility Diagnostic Highlights."

S. Stagnitto, W. R. Donaldson, E. Hill, M. Labuzeta, and M. Millecchia, "OMEGA Performance Metrics and Status Update on OLUG Recommendations."

C. Stoeckl, G. Fiksel, R. Jungquist, P. M. Nilson, and W. Theobald, "Spherical Crystal X-Ray Imaging for OMEGA and OMEGA EP."

The following presentations were made at the 19th Topical Conference on High-Temperature Plasma Diagnostics, Monterey, CA, 6–10 May 2012:

M. A. Barrios, A. MacPhee, S. P. Regan, J. Kimbrough, S. R. Nagel, L. R. Benedetti, S. F. Khan, D. Bradley, P. Bell, D. H. Edgell, and G. W. Collins, "X-Ray Bang-Time Measurements at the National Ignition Facility (NIF) Using a Polar Diamond Detector."

W. R. Donaldson, C. Zhao, L. Ji, R. G. Roides, K. Miller, and B. Beeman, "A Single-Shot, Multiwavelength Electro-Optic Data-Acquisition System for ICF Applications" (invited).

D. H. Edgell, A. MacPhee, D. K. Bradley, E. Bond, S. Burns, J. Celeste, M. J. Eckart, V. Yu. Glebov, D. S. Hey, G. Lacaille, J. D. Kilkenny, J. R. Kimbrough, A. J. Mackinnon, J. Magoon,

J. Parker, T. C. Sangster, M. J. Shoup III, C. Stoeckl, and T. Thomas, "South Pole Bang-Time Diagnostic on the NIF."

C. J. Forrest, V. Yu. Glebov, V. N. Goncharov, A. Pruyne, J. P. Knauer, P. B. Radha, M. Romanofsky, T. C. Sangster, M. J. Shoup III, C. Stoeckl, D. T. Casey, M. Gatu-Johnson, and S. Gardner, "High-Resolution Spectroscopy Used to Measure ICF Neutron Spectra on OMEGA."

D. H. Froula, R. Boni, M. Bedzyk, R. Brown, R. S. Craxton, T. Duffy, F. Ehrne, S. Ivancic, R. Jungquist, N. Kugland, J. Puth, R. G. Roides, M. C. Rushford, W. Seka, M. J. Shoup III, W. Theobald, and D. Weiner, "Optical Diagnostic Suite (Schlieren, Interferometry, and Grid-Image Refractometry) on OMEGA EP Using a 10-ps, 263-nm Probe Beam."

V. Yu. Glebov, C. Forrest, J. P. Knauer, A. Pruyne, M. Romanofsky, T. C. Sangster, M. J. Shoup III, C. Stoeckl, J. A. Caggiano, M. L. Carman, T. J. Clancy, R. Hatarik, J. McNaney, and N. P. Zautseva, "Testing a New NIF Neutron Time-of-Flight Detector with a Bibenzyl Scintillator on OMEGA."

J. Katz, R. Boni, M. J. Shoup III, R. Follett, and D. H. Froula, "A Reflective Optical Transport for Streaked Thomson Scattering and Gated Imaging on OMEGA."

J. P. Knauer, V. Yu. Glebov, C. Forrest, C. Stoeckl, T. C. Sangster, D. D. Meyerhofer, J. A. Caggiano, M. J. Moran, R. Hatarik, J. M. McNaney, S. Friedrich, E. J. Bond, M. J. Eckart, S. J. Padalino, and J. D. Kilkenny, "Neutron Spectra from 1 to 15 MeV Measured with Time-of-Flight Detectors at the National Ignition Facility."

F. J. Marshall, "Compact Kirkpatrick–Baez Microscope Mirrors for Imaging Laser–Plasma X-Ray Emission."

D. T. Michel, C. Sorce, R. Epstein, N. Whiting, I. V. Igumenshchev, R. Jungquist, and D. H. Froula, "Shell-Trajectory Measurements from Direct-Drive Experiments."

M. Millecchia, S. P. Regan, C. Sorce, R. E. Bahr, C. M. Romanofsky, and "Streaked X-Ray Spectrometer (SXS) Having a Discrete Selection of Bragg Geometries for Omega."

P. M. Nilson, C. Stoeckl, G. Fiksel, P. A. Jaanimagi, C. Mileham, W. Theobald, J. R. Davies, J. F. Myatt, A. A. Solodov, D. H.

Froula, R. Betti, and D. D. Meyerhofer, “Streaked X-Ray Imaging of Ultrafast Ionization Waves Inside a Metal.”

C. Stoeckl, J. A. Delettrez, G. Fiksel, D. Guy, R. Jungquist, C. Mileham, P. M. Nilson, T. C. Sangster, M. J. Shoup III, and W. Theobald, “Soft X-Ray Backlighting of Direct-Drive Implosions Using a Spherical Crystal Imager on OMEGA.”

The following presentations were made at CLEO 2012, San Jose, CA, 6–11 May 2012:

J. Bromage, C. Dorrer, and R. K. Jungquist, “Temporal Contrast Degradation at the Focus of Ultrashort Pulses from High-Frequency Spectral Phase Noise.”

J. Bromage, C. Dorrer, M. Millicchia, J. Bunkenburg, R. Jungquist, and J. D. Zuegel, “A Front End for Ultra-Intense OPCPA.”

J. Bromage, M. Millicchia, J. Bunkenburg, R. K. Jungquist, C. Dorrer, and J. D. Zuegel, “A Cylindrical Öffner Stretcher for Reduced Chromatic Aberrations and Improved Temporal Contrast.”

C. Dorrer, “Broadband Operation of High-Damage-Threshold Phase and Polarization Binary Beam Shapers.”

C. Dorrer, A. V. Okishev, R. G. Roides, R. Cuffney, W. Bittle, and J. D. Zuegel, “Fiber Front End for an OMEGA EP Demonstration of Beam-Smoothing Techniques for NIF Polar-Drive Ignition.”

J. Qiao, P. A. Jaanimagi, R. Boni, J. Bromage, and E. Hill, “Beam-Homogenization and Space-Charge–Broadening Calibration for Accurately Measuring High-Intensity Laser Pulses Using a High-Speed Streak Camera.”

M. Statt, M. Vargas, J. B. Oliver, S. H. Chen, K. L. Marshall, and C. Dorrer, “High-Damage-Threshold Components for Radially and Azimuthally Polarized Beam Generation.”

R. Xin and J. D. Zuegel, “A Negative-Feedback-Stabilization System for an All-Fiber Regenerative Amplifier.”

The following presentations were made at the 20th Target Fabrication Meeting, Santa Fe, NM, 20–24 May 2012:

Z. Bei, G. Randall, T. B. Jones, and D. R. Harding, “Implementation of Dielectrophoretic Droplet Centering in a Miniaturized Centering Cell for ICF Foam Capsule.”

M. J. Bonino, F. J. Marshall, D. H. Froula, S. P. Regan, D. Turner, D. R. Harding, S. G. Noyes, J. Fooks, and E. Giraldez, “Overview of the Requirements and Construction of Targets for Experiments on OMEGA and OMEGA EP.”

R. Q. Gram, D. R. Harding, and T. B. Jones, “Dielectrophoresis of Liquid Deuterium for IFE Target Filling.”

D. R. Harding, M. D. Wittman, and D. H. Edgell, “Considerations and Requirements for Providing Cryogenic Targets for Direct-Drive Inertial Fusion Implosions at the National Ignition Facility.”

W. T. Shmayda, D. R. Harding, M. J. Bonino, V. Versteeg, A. Greenwood, and M. Farrel, “Mitigating Defects on Cryotargets.”

D. Turner, M. J. Bonino, D. R. Harding, S. G. Noyes, and B. Rice, “Properties and Performance of Target Mounts for Cryogenic Experiments on OMEGA.”

S. X. Hu, V. N. Goncharov, S. Skupsky, L. A. Collins, M. J. N. Dijokap, A. F. Starace, and B. I. Schneider, “Probing Ultrafast Processes in Intense Laser–Matter Interactions,” presented at the 43rd Annual APS Division of Atomic, Molecular, and Optical Physics Meeting, Anaheim, CA, 4–8 June 2012.

The following presentations were made at the OSA Topical Meeting on Optical Fabrication and Testing, Monterey, CA, 24–28 June 2012:

H. P. Howard, J. C. Lambropoulos, and S. D. Jacobs, “Dependence of Thermal Stresses on Substrate Thickness During Wet Processing of Large Coated Optics.”

J.C. Lambropoulos, K. Mehrotra, H. P. Howard, and S. D. Jacobs, “Glass Ductility and Fracture at the 50- to 100-nm Scale.”

The following presentations were made at the 42nd Annual Anomalous Absorption Conference, Key West, FL, 25–29 June 2012:

D. H. Edgell, P. B. Radha, D. H. Froula, V. N. Goncharov, I. V. Igumenshchev, J. F. Myatt, and W. Seka, “Mitigation of Cross-Beam Energy Transfer in Polar-Drive Implosions.”

R. K. Follett, D. T. Michel, J. F. Myatt, S. X. Hu, B. Yaakobi, and D. H. Froula, “Thomson-Scattering Measurements of Ion-Acoustic Wave Amplitudes Driven by the Two-Plasmon Decay.”

D. H. Froula, I. V. Igumenshchev, D. T. Michel, D. H. Edgell, R. Follett, V. Yu. Glebov, V. N. Goncharov, J. Marozas, P. B. Radha, W. Seka, C. Sorce, and C. Stoeckl, “Mitigation of Cross-Beam Energy Transfer in Direct-Drive Plasmas.”

L. Gao, P. M. Nilson, I. V. Igumenshchev, J. R. Davies, S. X. Hu, C. Stoeckl, M. G. Haines, D. H. Froula, R. Betti, and D. D. Meyerhofer, “Magnetohydrodynamic Effects in Ablatively Driven High-Energy-Density System Experiments.”

S. X. Hu, D. H. Edgell, D. H. Froula, V. N. Goncharov, D. T. Michel, S. Skupsky, and B. Yaakobi, “Analyses of Long-Scale-Length Plasma Experiments with Different Ablator Materials on the OMEGA EP Laser System.”

A. V. Maximov, J. F. Myatt, R. W. Short, I. V. Igumenshchev, D. H. Edgell, and W. Seka, “Interaction of Multiple Laser Beams via Common Waves and Beam Energy Transfer.”

D. T. Michel, A. V. Maximov, B. Yaakobi, S. X. Hu, J. F. Myatt, A. A. Solodov, R. W. Short, and D. H. Froula, “Experimental Validation of the Two-Plasmon-Decay Common-Wave Process.”

J. F. Myatt, J. Zhang, V. N. Goncharov, A. V. Maximov, R. W. Short, D. F. DuBois, D. A. Russell, and H. X. Vu, “The Mitigating Effect of Wave Dissipation on Hot-Electron Generation Caused by the Two-Plasmon Decay in Inhomogeneous Plasmas.”

D. A. Russell, H. X. Vu, D. F. DuBois, and J. F. Myatt, “Two-Plasmon-Decay Turbulence Driven by the Shared-Wave Triad of Two Crossed Beams.”

W. Seka, D. H. Edgell, D. H. Froula, J. Katz, J. F. Myatt, J. Zhang, R. W. Short, T. D. Michel, A. V. Maximov, and V. N. Goncharov, “Half-Integer Harmonic Images and Spectra Point Toward Localized, Multibeam Two-Plasmon Decay.”

R. W. Short, J. Myatt, A. Maximov, T. Michel, and D. Froula, “The Effects of Beam Polarization on Convective and Absolute Two-Plasmon-Decay Driven by Multiple Laser Beams.”

A. A. Solodov, K. S. Anderson, W. Theobald, A. Shvydky, R. Betti, J. F. Myatt, and C. Stoeckl, “Simulations of Cone-in-Shell Targets for Integrated Fast-Ignition Experiments on OMEGA.”

H. X. Vu, D. Russell, D. F. DuBois, and J. F. Myatt, “Hot-Electron Generation by ‘Cavitating’ Langmuir Turbulence in the Nonlinear Stage of the Two Plasmon Decay Instability.”

A. V. Okishev, C. Dorrer, B. E. Kruschwitz, J. H. Kelly, E. Hill, A. Consentino, G. Balonek, J. A. Marozas, M. Hohenberger, A. Shvydky, R. G. Roides, R. Cuffney, W. Bittle, and J. D. Zuegel, “Multifrequency Smoothing by Spectral Dispersion on OMEGA EP for NIF Polar-Drive Implosions,” presented at Laser Optics 2012, St. Petersburg, Russia, 25–29 June 2012 (invited).

The following presentations were made at the European Physical Society 2012 Conference, Stockholm, Sweden, 2–6 July 2012:

D. H. Froula, D. T. Michel, R. S. Craxton, D. H. Edgell, R. Follett, V. Yu. Glebov, V. N. Goncharov, S. X. Hu, I. V. Igumenshchev, F. J. Marshall, J. F. Myatt, P. B. Radha, T. C. Sangster, W. Seka, R. W. Short, A. A. Solodov, C. Stoeckl, and B. Yaakobi, “Direct-Drive Laser-Plasma Interaction Experiments.”

M. LaFon, X. Ribeyre, G. Schurtz, A. Casner, W. Theobald, R. Nora, M. Hohenberger, K. S. Anderson, R. Betti, C. Stoeckl,

and D. D. Meyerhofer, “Hydrodynamic Modeling for Shock-Ignition Implosions and Simulations for Experiments on OMEGA.”

The following presentations were made at the Optics and Photonics 2012, San Diego, CA, 12–16 August 2012:

B. Beeman, A. G. MacPhee, J. R. Kimbrough, G. A. Lacaille, M. A. Barrios, J. Emig, J. R. Hunter, E. K. Miller, and W. R. Donaldson, “Mach-Zehnder Modulator Performance Using the Comet Laser Facility and Implications for Use on NIF.”

K. L. Marshall, C. Dorrer, M. Vargas, A. Gnolek, M. Statt, and S.-H. Chen, “Photoaligned Liquid Crystal Devices for High-Peak-Power Laser Applications.”

C. Mileham, C. Stoeckl, W. Theobald, G. Fiksel, D. Guy, R. K. Jungquist, P. M. Nilson, T. C. Sangster, and M. J. Shoup III, “Crystal Imager Development at the Laboratory for Laser Energetics.”

K. L. Marshall, A. Schulz, J. Lee, M. Rutan, E. Jones, G. Mitchell, C. Smith, and A. L. Rigatti, “Chemically Modified Organosilane Optical Coatings and Their Applications in High-Peak-Power Lasers,” presented at the 244th American Chemical Society Fall 2012 National Meeting, Philadelphia, PA, 19–23 August 2012.

The following presentations were made at the International Committee on Ultra-High Intensity Lasers, Mamaia, Romania, 16–21 September 2012:

S.-W. Bahk, I. A. Begishev, and J. D. Zuegel, “An Anamorphically Imaged, Programmable Beam-Shaping System for High-Power Lasers.”

J. Bromage, J. B. Oliver, C. Dorrer, and J. D. Zuegel, “Optical Coatings for Ultra-Intense OPCPA Systems.”

C. Dorrer, “Characterization of Highly Dispersive Components Using Direct Instantaneous Frequency Measurements.”

C. Dorrer, K. L. Marshall, S. H. Horn, M. Vargas, M. Statt, C. Caggiano, S. K.-H. Wei, J. B. Oliver, P. Leung, K. Wegman, J. Boulé, and Z. Zhao, “High-Damage-Threshold Beam Shaping Using Optically Patterned Liquid Crystal Devices.”

H. P. Howard, A. F. Aiello, J. G. Dressler, N. R. Edwards, T. J. Kessler, A. A. Kozlov, S. LaDelia, J. B. Oliver, S. Papernov, A. L. Rigatti, A. W. Schmid, C. C. Smith, B. N. Taylor, and S. D. Jacobs, “An Improved Cleaning Method to Enhance the Damage Threshold of MLD Gratings.”

J. Qiao, P. A. Jaanimagi, R. Boni, J. Bromage, and E. Hill, “Uniform Illumination and Space-Charge–Broadening Calibration for Accurate Short-Pulse Measurement Using a High-Speed Streak Camera.”

J. Qiao, A. Kalb, Z. De Santis, and J. Papa, “Design and Analysis of a Meter-Scale Deformable Multilayer-Dielectric-Grating–Based Compressor for Kilojoule, Petawatt Laser Systems.”

J. D. Zuegel, I. A. Begishev, J. Bromage, S.-W. Bahk, C. Dorrer, R. B. Brannon, and D. D. Meyerhofer, “Design and Status of an Energy Upgrade to the Multi-Terawatt Laser at the University of Rochester’s Laboratory for Laser Energetics.”

S. Papernov, E. Shin, T. Murray, A. W. Schmid, and J. B. Oliver, “355-nm Absorption in HfO₂ and SiO₂ Monolayers with Embedded Hf Nanoclusters Studied Using Photothermal Heterodyne Imaging,” presented at Laser Damage, Boulder, CO, 23–26 September 2012.

