Publications and Conference Presentations

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Conference Presentations

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R. Betti, "Theory of Ignition and Hydro-Equivalence for Inertial Confinement Fusion."

R. L. McCrory, D. D. Meyerhofer, R. Betti, T. R. Boehly, D. T. Casey, T. J. B. Collins, R. S. Craxton, J. A. Delettrez, D. H. Edgell, R. Epstein, J. A. Frenje, D. H. Froula, M. Gatu-Johnson, V. Yu. Glebov, V. N. Goncharov, D. R. Harding, M. Hohenberger, S. X. Hu, I. V. Igumenshchev, T. J. Kessler, J. P. Knauer, C. K. Li, J. A. Marozas, F. J. Marshall, P. W. McKenty, D. T. Michel, J. F. Myatt, P. M. Nilson, S. J. Padalino, R. D. Petrasso, P. B. Radha, S. P. Regan, T. C. Sangster, F. H. Séguin, W. Seka, R. W. Short, O. Shvydky, S. Skupsky, J. M. Soures, C. Stoeckl, W. Theobald, B. Yaakobi, and J. D. Zuegel, "Progress Toward Polar-Drive Ignition for the NIF."

The following presentations were made at Frontiers in Optics 2012, Rochester, NY, 14–18 October 2012:

C. Dorrer, V. Bagnoud, I. A. Begishev, J. Bromage, A. Consentino, M. J. Guardalben, A. V. Okishev, J. Qiao, R. G. Roides, and J. D. Zuegel, "OPCPA Front End and Contrast Optimization for the OMEGA EP Kilojoule, Picosecond Laser."

C. Dorrer, K. L. Marshall, S. H. Chen, M. Vargas, M. Statt, C. Caggiano, S. K.-H. Wei, J. B. Oliver, P. Leung, K. Wegman, J. Boulé, Z. Zhao, S. Papernov, A. Rakhmann, and I. Jovanovic, "High-Damage-Threshold Beam Shaping Using Optically Patterned Liquid Crystal Devices."

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The following presentations were made at the 54th Annual Meeting of the APS Division of Plasma Physics, Providence, RI, 29 October–2 November 2012:

K. S. Anderson, R. Betti, P. W. McKenty, T. J. B. Collins, M. Hohenberger, W. Theobald, R. S. Craxton, J. A. Delettrez, M. Lafon, J. A. Marozas, R. Nora, S. Skupsky, and A. Shvydky, "A Polar-Drive Shock-Ignition Design for the National Ignition Facility" (invited).

R. Betti, R. Nora, M. Lafon, J. F. Myatt, C. Ren, R. Yan, J. Li, A. V. Maximov, D. H. Froula, W. Seka, K. S. Anderson, R. Epstein, J. A. Delettrez, S. X. Hu, P. M. Nilson, V. A. Smalyuk, and W. Theobald, "High-*Z* Ablator Targets for Direct-Drive ICF."

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G. Fiksel, V. A. Goncharov, D. D. Meyerhofer, T. C. Sangster, B. Yaakobi, M. J. Bonino, and V. A. Smalyuk, "Experimental Reduction of Laser Imprinting and Rayleigh–Taylor Growth in Spherically Compressed, Medium-*Z*–Doped Plastic Targets."

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 Instablity."

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S. X. Hu, I. V. Igumenshchev, P. B. Radha, J. A. Delettrez, J. F. Myatt, R. W. Short, and V. N. Goncharov, "Two-Plasmon–Decay Electron-Divergence Measurements in Direct-Drive Implosions on OMEGA."

L. Gao, P. M. Nilson, I. V. Igumenshchev, S. X. Hu, J. R. Davies, C. Stoeckl, D. H. Froula, R. Betti, D. D. Meyerhofer, and M. G. Haines, "Magnetic-Field Generation by the Rayleigh–Taylor Instability in Planar Targets on OMEGA EP."

M. Gatu-Johnson, D. T. Casey, J. A. Frenje, C. K. Li, F. H. Séguin, R. D. Petrasso, V. Yu. Glebov, J. P. Knauer, T. C. Sangster, R. Bionta, M. J. Edwards, S. H. Glenzer, S. P. Hatchett, O. L. Landen, A. J. MacKinnon, D. McNabb, D. H. Munro, J. Pino, S. Sepke, P. J. Springer, and J. D. Kilkenny, "Measurements and Interpretation of TT and Down-Scattered DT Neutron Spectra on OMEGA and the NIF."

V. Yu. Glebov, C. Stoeckl, T. C. Sangster, C. Forrest, and R. A. Lerche, "Absolute Ion-Temperature Measurements in DD and 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, D. T. Michel, P. B. Radha, W. Seka, S. Skupsky, C. Stoeckl, D. T. Casey, J. A. Frenje, and M. Gatu-Johnson, "Improving Implosion Velocity in Cryogenic Deuterium–Tritium Implosions on OMEGA."

D. Haberberger, D. H. Froula, S. X. Hu, C. Joshi, S. Tochitsky, C. Gong, F. Fiuza, and L. Silva, "Collisionless Shock Wave Acceleration of Ions on OMEGA EP."

M. Hohenberger, W. Theobald, S. X. Hu, R. Betti, K. S. Anderson, T. R. Boehly, A. Casner, D. D. Meyerhofer, X. Ribeyre, T. C. Sangster, G. Schurtz, W. Seka, C. Stoeckl, and B. Yaakobi, "Shock-Ignition Studies in Planar Geometry on OMEGA."

S. X. Hu, V. N. Goncharov, and S. Skupsky, "Burning DT Plasmas with Ultrafast Soft X-Ray Pulses."

I. V. Igumenshchev, V. N. Goncharov, T. R. Boehly, T. C. Sangster, and S. Skupsky, "Fuel–Ablator Mix from Surface Nonuniformities in Directly Driven Implosions."

S. Ivancic, W. Theobald, R. Boni, D. H. Froula, S. X. Hu, and D. D. Meyerhofer, "Ray-Trace Simulations for the Optical 4ω Probe Diagnostic on OMEGA EP."

J. P. Knauer, "Neutron Spectroscopy at the National Ignition Facility" (invited).

M. Lafon, R. Nora, K. S. Anderson, and R. Betti, "Hydrodynamic Simulations of Direct-Drive Targets with Moderate-*Z* Ablators."

J. Li, R. Yan, C. Ren, A. V. Maximov, W. B. Mori, and F. S. Tsung, "Collisional Effects on Hot-Electron Generation in Two-Plasmon-Decay Instability in Inertial Confinement Fusion."

M. J.-E. Manuel, C. K. Li, F. H. Séguin, D. T. Casey, R. D. Petrasso, S. X. Hu, R. Betti, J. D. Hager, D. D. Meyerhofer, and V. A. Smalyuk, "Measurements of Rayleigh–Taylor-Induced Magnetic Fields During Linear and Nonlinear Growth Phases."

J. A. Marozas, T. J. B. Collins, D. H. Edgell, I. V. Igumenshchev, and J. F. Myatt, "Cross-Beam Energy Transfer with Additional Ion Heating Integrated into the 2-D Hydrodynamics Code *DRACO*."

F. J. Marshall, P. B. Radha, M. J. Bonino, J. A. Delettrez, R. Epstein, S. Skupsky, and E. Girladez, "Polar-Drive Experiments with Shimmed Targets on OMEGA."

A. V. Maximov, J. F. Myatt, R. W. Short, I. V. Igumenshchev, D. H. Edgell, and W. Seka, "Scattering of Multiple Crossing Laser Beams in Direct-Drive ICF Plasmas."

C. McCoy, T. R. Boehly, P. M. Nilson, T. J. B. Collins, T. C. Sangster, D. D. Meyerhofer, D. E. Fratanduono, P. M. Celliers, and D. G. Hicks, "The Release of Shocked Materials."

P. W. McKenty, R. S. Craxton, A. Shvydky, D. H. Froula, D. T. Michel, J. A. Marozas, T. C. Sangster, D. D. Meyerhofer, R. L. McCrory, J. D. Kilkenny, A. Nikroo, M. L. Hoppe, S. Le Pape, A. J. MacKinnon, and D. H. Munro, "Drive-Symmetry Studies of NIF Exploding-Pusher Experiments."

D. D. Meyerhofer, D. H. Froula, V. N. Goncharov, I. V. Igumenshchev, S. J. Loucks, P. W. McKenty, R. L. McCrory, P. B. Radha, and T. C. Sangster, "Polar-Drive–Ignition Experimental Plan on the NIF."

D. T. Michel, A. V. Maximov, R. W. Short, J. A. Delettrez, D. Edgell, S. X. Hu, I. V. Igumenshchev, J. F. Myatt, A. A. Solodov, C. Stoeckl, B. Yaakobi, and D. H. Froula, "Measured Hot-Electron Intensity Thresholds Quantified by a Two-Plasmon–Decay Gain in Various Experimental Configurations" (invited).

J. F. Myatt, J. Zhang, R. W. Short, A. V. Maximov, A. A. Solodov, W. Seka, D. H. Froula, B. Yaakobi, D. T. Michel, D. H. Edgell, D. F. DuBois, D. A. Russell, and H. X. Vu, "Mitigating Two-Plasmon–Decay Hot-Electron Generation Through the Modification of Langmuir and Ion-Acoustic Dissipation in Directly Driven Targets."

P. M. Nilson, G. Fiksel, C. Stoeckl, 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, "Tracking Intense Flows of Energy Inside OMEGA EP Laser-Irradiated Metal Targets."

R. Nora, W. Theobald, R. Betti, J. A. Delettrez, A. A. Solodov, K. S. Anderson, W. Seka, and M. Lafon, "Analysis of Fast Electrons in Shock-Ignition Implosions on OMEGA."

S. Padalino, M. Krieger, M. Russ, D. Polsin, M. Bienstock, D. Ellison, and A. Simone, "Design and Characterization of a Collimated Neutron Beam User Facility at SUNY Geneseo."

S. Padalino, D. Polsin, M. Russ, M. Krieger, M. Bienstock, D. Ellison, A. Simone, C. Stillman, M. Yuly, K. Mann, T. Reynolds, and T. C. Sangster, "Cross Section of the (n, 2n) Reaction in ^{12}C in the Energy Interval 20-30 MeV."

S. Padalino, D. Polsin, M. Russ, M. Krieger, M. Bienstock, D. Ellison, A. Simone, C. Stillman, M. Yuly, K. Mann, T. Reynolds, and T. C. Sangster, "In Situ Calibration for Proton Particle Telescope."

S. Padalino, M. Russ, D. Polsin, M. Krieger, C. Stillman, M. Bienstock, D. Ellison, A. Simone, M. Yuly, K. Mann, T. Reynolds, and T. C. Sangster, "Coincidence Efficiency Measurement Using 11B(p,n)11C."

J. Park, C. Ren, J. C. Workman, and E. G. Blackman, "Particle-in-Cell Simulations of Particle Energization via Shock Drift Acceleration from Low Mach Number Quasi-Perpendicular Shocks in Solar Flares."

P. B. Radha, F. J. Marshall, J. A. Marozas, A. Shvydky, I. Gabalski, T. R. Boehly, T. J. B. Collins, R. S. Craxton, D. H. Edgell, R. Epstein, J. Frenje, D. H. Froula, V. N. Goncharov, M. Hohenberger, R. L. McCrory, P. W. McKenty, D. D. Meyerhofer, R. D. Petrasso, T. C. Sangster, and S. Skupsky, "Polar-Drive Implosions on OMEGA and the National Ignition Facility" (invited).

S. P. Regan, "X-Ray Thomson Scattering: Incisive Probe for Warm, Dense Matter."

S. P. Regan, R. Epstein, B. A. Hammel, L. J. Suter, J. Ralph, H. Scott, M. A. Barrios, D. K. Bradley, C. Cerjan, T. Doeppner, S. H. Glenzer, I. E. Golovkin, S. W. Haan, O. Jones, J. D. Kilkenny, J. L. Kline, and O. L. Landen, J. J. MacFarlane, R. C. Mancini, H.-S. Park, B. A. Remington, V. A. Smalyuk, and J. Springer, "Hot-Spot Mix and Compressed Ablator ρR Measurements in Ignition-Scale Implosions."

H. G. Rinderknecht, C. K. Li, M. Gatu-Johnson, A. Zylstra, M. Rosenberg, J. A. Frenje, F. H. Séguin, R. D. Petrasso, P. A. Amendt, A. Miles, J. R. Rygg, V. Yu. Glebov, C. Stoeckl, and T. C. Sangster, "Anomalous Shock Yields in Direct- and Indirect-Drive D^3He Exploding Pushers."

T. C. Sangster, V. N. Goncharov, R. Betti, P. B. Radha, T. R. Boehly, D. T. Casey, T. J. B. Collins, R. S. Craxton, J. A. Delettrez, D. H. Edgell, R. Epstein, C. J. Forrest, J. A. Frenje, D. H. Froula, M. Gatu-Johnson, V. Yu. Glebov, D. R. Harding, M. Hohenberger, S. X. Hu, I. V. Igumenshchev, R. T. Janezic, J. H. Kelly, T. J. Kessler, C. Kingsley, T. Z. Kosc, J. P. Knauer, S. J. Loucks, J. A. Marozas, F. J. Marshall, A. V. Maximov, R. L. McCrory, P. W. McKenty, D. D. Meyerhofer, D. T. Michel, J. F. Myatt, R. D. Petrasso, S. P. Regan, W. Seka, W. T. Shmayda, R. W. Short, A. Shvydky, S. Skupsky, J. M. Soures, C. Stoeckl, W.Theobald, V. Versteeg, B. Yaakobi, and J. D. Zuegel, "Improving Cryogenic DT Implosion Performance on OMEGA" (invited).

W. Seka, D. H. Edgell, D. H. Froula, J. Katz, J. F. Myatt, J. Zhang, R. W. Short, D. T. Michel, A. V. Maximov, and V. N. Goncharov, "Multibeam Two-Plasmon Decay: Experimental Signatures and Diagnostic Applications."

R. W. Short, J. F. Myatt, A. V. Maximov, D. T. Michel, D. H. Froula, and J. Zhang, "The Effects of Beam Polarization and Orientation on Convective and Absolute Two-Plasmon Decay by Multiple Laser Beams."

A. Shvydky, M. Hohenberger, J. A. Marozas, M. J. Bonino, D. Canning, T. J. B. Collins, T. J. Kessler, P. W. McKenty, T. C. Sangster, and J. D. Zuegel, "Two-Dimensional Numerical Evaluation of 1-D Multi-FM SSD Experiments."

N. Sinenian, M. J.-E. Manuel, J. A. Frenje, F. H. Séguin, C. K. Li, R. D. Petrasso, V. N. Goncharov, J. A. Delettrez, C. Stoeckl,

T. C. Sangster, and J. Cobble, "An Empirical Target-Discharging Model for Direct-Drive Implosions on OMEGA."

H. Sio, M. Rosenberg, H. G. Rinderknecht, D. T. Casey, A. Zylstra, C. Waugh, M. Gatu-Johnson, F. H. Séguin, C. K. Li, J. A. Frenje, R. D. Petrasso, J. A. Delettrez, V. Yu. Glebov, T. C. Sangster, C. Stoeckl, V. N. Goncharov, P. A. Amendt, C. Bellei, and S. C. Wilks, "Developing a D^3He Exploding-Pusher Platform to Study Kinetic Effects."

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

C. Stoeckl, J. A. Delettrez, G. Fiksel, D. Guy, 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 Narrowband Crystal Imaging System."

W. Theobald, A. A. Solodov, C. Stoeckl, R. Epstein, V. Yu. Glebov, G. Fiksel, S. Ivancic, F. J. Marshall, G. McKiernan, C. Mileham, P. M. Nilson, T. C. Sangster, C. Jarrott, F. N. Beg, E. Giraldez, R. B. Stephens, M. S. Wei, H. McLean, H. Sawada, and J. Santos, "Monochromatic 8.05-keV Flash Radiography of Imploded Cone-in-Shell Targets."

C. Waugh, M. Rosenberg, J. A. Frenje, F. H. Séguin, R. D. Petrasso, V. Yu. Glebov, T. C. Sangster, and C. Stoeckl, "A New Platform for Calibrating nTOF Detectors at ICF Facilities Using CR-39-Based Proton Detectors."

J. Zhang, J. F. Myatt, R. W. Short, A. V. Maximov, H. X. Vu, D. A. Russell, and D. F. DuBois, "A Three-Dimensional Zakharov Model of the Two-Plasmon-Decay Instability in Inhomogeneous Plasmas Driven by Multiple Laser Beams."

The following presentations were made at the 12th International Workshop on Fast Ignition of Fusion Targets, Napa Valley, CA, 4–8 November 2012:

J. R. Davies, "Scaling of Ignition Laser Parameters with Fast-Electron Parameters."

A. A. Solodov, W. Theobald, K. S. Anderson, A. Shvydky, R. Betti, J. F. Myatt, and R. B. Stephens, "Integrated Fast-Ignition Experiments on OMEGA."

S. P. Regan, R. Epstein, B. A. Hammel, L. J. Suter, C. A. Iglesias, B. G. Wilson, M. A. Barrios, D. K. Bradley, D. A. Callahan, C. Cerjan, T. Doeppner, M. J. Edwards, S. H. Glenzer, I. E. Golovkin, S. W. Haan, N. Izumi, O. S. Jones, 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, H.-S. Park, K. J. Peterson, J. Ralph, B. A. Remington, T. C. Sangster, V. A. Smalyuk, P. Springer, and R. P. J. Town, "X-Ray Spectroscopy of Ignition-Scale Implosions on the National Ignition Facility," 15th Workshop on Radiative Properties of Hot Dense Matter, Santa Barbara, CA, 5–9 November 2012.

W. T. Shmayda, D. R. Harding, and T. B. Jones, "Tritium Fuel Cycle for Direct-Drive Inertial Fusion Reactors Using Microfluidics," 2012 American Nuclear Society Winter Meeting and Nuclear Technology Expo, San Diego, CA, 11–15 November 2012.

D. R. Harding, W. Wang, and T. B. Jones, "Textured Silicon Surfaces for Moving Oil Droplets in 'Lab-on-Chip' Devices," Material Research Society Fall Meeting, Boston, MA, 25–30 November 2012.

The following presentations were made at the Fusion Power Associates Meeting, Washington, DC, 5–6 December 2012:

R. Betti, "Fusion Science Center Activities on Advanced ICF Ignition."

R. L. McCrory, "Progress Toward Polar-Drive Ignition for the NIF."

R. L. McCrory, "LLE FY13–FY15 Plans," 2013 ICF Executives Meeting, Washington, DC, 10 January 2013.

J. E. Schoenly, W. Seka, G. Romanos, and P. Rechmann, "The Efficacy of Selective Calculus Ablation at 400 nm: Comparison

to Conventional Calculus Removal Methods," Lasers in Dentistry XIX, San Francisco, CA, 2–7 February 2013.

The following presentations were made at LASE Photonics West, San Francisco, CA, 2–7 February 2013:

M. Barczys, S.-W. Bahk, M. Spilatro, D. Coppenbarger, E. Hill, T. Hinterman, R. W. Kidder, J. Puth, T. Touris, and J. D. Zuegel, "Deployment of a Spatial Light Modulator-Based Beam-Shaping System on the OMEGA EP Laser."

J. H. Kelly, A. Shvydky, J. A. Marozas, M. J. Guardalben, B. E. Kruschwitz, L. J. Waxer, C. Dorrer, E. Hill, and A. V. Okishev, "Simulations of the Propagation of Multiple-FM Smoothing by Spectral Dispersion on OMEGA EP."

B. E. Kruschwitz, J. H. Kelly, C. Dorrer, A. V. Okishev, L. J. Waxer, G. Balonek, I. A. Begishev, W. A. Bittle, A. Consentino, R. Cuffney, E. Hill, J. A. Marozas, M. Moore, R. G. Roides, and J. D. Zuegel, "Commissioning of a Multiple-FM Smoothing by Spectral Dispersion Demonstration System on OMEGA EP."

A. V. Okishev, I. A. Begishev, R. Cuffney, S. Papernov, and J. D. Zuegel, "A Highly Energetic Multiwavelength Diode-Pumped Nanosecond Laser System with Flexible Pulse-Shaping Capability."

L. Gao, P. M. Nilson, I. V. Igumenshchev, G. Fiksel, R. Yan, J. R. Davies, D. Froula, R. Betti, D. D. Meyerhofer, M. G. Haines, D. Martinez, V. A. Smalyuk, and E. Blackman, "Observation of Self-Similarity in the Magnetic Fields Generated by the Nonlinear Rayleigh–Taylor Instability," Workshop on Exploratory Topics in Plasma and Fusion Research, Fort Worth, TX, 12–15 February 2013.

R. L. McCrory, "Direct-Drive and Alternate Approaches for Laser Inertial Confinement Fusion," 2013 AAAS Annual Meeting, Boston, MA, 14–18 February 2013.

D. H. Froula, J. Bromage, D. Haberberger, P. M. Nilson, J. D. Zuegel, and D. D. Meyerhofer, "Ultrahigh-Intensity Research Plans at the Laboratory for Laser Energetics," Workshop on Frontiers in Extreme Relativistic Optics, Columbus, OH, 20–21 February 2013.

M. M. Mayton, Z. Hobbs, and S. D. Jacobs, "Reclamation of Slurries Used in Optics Manufacturing," The Center for Emerging and Innovative Sciences, University Technology Showcase, Rochester, NY, 26 March 2013.

D. D. Meyerhofer, "Observation of Self-Similarity in the Magnetic Fields Generated by the Nonlinear Rayleigh–Taylor Instability," Reconnection Workshop, Princeton, NJ, 4 April 2013.

W. T. Shmayda, "Overview of Tritium Activities of the Laboratory for Laser Energetics," Tritium Focus Group Workshop, Germantown, MD, 23–25 April 2013.

The following presentations were made at the Omega Laser Facility Users Group Workshop, Rochester, NY, 24–26 April 2013:

A. T. Agliata, "How to Ensure Successful Diagnostic Qualification at the OMEGA Laser Facility."

E. F. Armstrong, M. Barczys, B. E. Kruschwitz, and S.-W. Bahk, "Wavefront Measurements of High-Power UV Lasers with a Hartmann Sensor."

M. Barczys, S.-W. Bahk, M. Spilatro, D. Coppenbarger, E. Hill, T. H. Hinterman, R. W. Kidder, J. Puth, T. Touris, and J. D. Zuegel, "Deployment of a Spatial Light Modulator-Based Beam-Shaping System on the OMEGA EP Laser."

C. M. Caggiano, "Fabrication and Characterization of Radial and Azimuthal Polarization Converters with Photoaligned Liquid Crystals."

D. Canning, S. Householder, M. Labuzeta, J. Puth, S. F. B. Morse, B. E. Kruschwitz, M. Barczys, E. Hill, J. Kwiatowski, and R. W. Kidder, "OMEGA EP Shot Performance and Facility Enhancement Status."

J. A. Fooks, M. J. Bonino, A. L. Greenwood, J. S. Jaquez, and M. L. Hoppe, Jr., "Assembly Techniques and Challenges of Two-Plasmon–Decay (TPD) Double-Shell Targets."

V. N. Goncharov, "Recent Progress in Omega Cryogenic Implosions."

D. Haberberger, R. Boni, M. Barczys, J. Brown, R. G. Roides, R. Huff, S. Ivancic, M. Bedzyk, R. S. Craxton, F. Ehrne, E. Hill, R. K. Jungquist, J. Magoon, D. Mastrosimone, J. Puth, W. Seka, M. J. Shoup III, W. Theobald, D. Weiner, C. Stoeckl, J. D. Zuegel, and D. H. Froula, "OMEGA EP 4ω Diagnostic: System Description and Recent Results."

E. Hill and J. Puth, "Omega Laser Facility Timing Management."

R. W. Kidder, M. Miller, C. Kingsley, and A. Zeller, "LLE Resources Are Established to Provide Access to Information for External Users."

R. L. McCrory, "Welcoming Remarks: Omega Laser Users' Group 5th Annual Meeting."

S. F. B. Morse, "Omega Laser Facility Update: 2013 Progress on OLUG Recommendations."

P. M. Nilson, R. Jungquist, C. Stoeckl, C. Mileham, P. A. Jaanimagi, I. A. Begishev, W. Theobald, J. R. Davies, J. F. Myatt, A. A. Solodov, J. D. Zuegel, D. H. Froula, R. Betti, D. D. Meyerhofer, K. Hill, M. Bitter, P. Efthmion, and B. Stratton, "High-Resolving-Power, Ultrafast Streaked X-Ray Spectrometer for OMEGA EP."

G. Pien, "Diagnostic Performance on OMEGA."

P. B. Radha, F. J. Marshall, M. Hohenberger, T. R. Boehly, T. J. B. Collins, R. S. Craxton, D. H. Edgell, D. H. Froula, V. N. Goncharov, J. A. Marozas, R. L. McCrory, P. W. McKenty, D. D. Meyerhofer, D. T. Michel, T. C. Sangster, S. Skupsky, J. A. Frenje, and R. D. Petrasso, "Recent Results from Polar-Drive–Implosions on OMEGA and the NIF."

R. Q. Rivlis, R. Boni, and S. Ivancic, "Optical Modeling and Analysis of a High-Throughput and High-Temporal-Resolution Spectrometer."

C. Sorce and M. Labuzeta, "Exploring the Capabilities of the Omega Laser Facility Web Pages."

S. Stagnitto, M. Labuzeta, and C. Sorce, "Qualifying as an External Instrument Specialist/Technician at LLE."

The following presentations were made at the 9th International Laser Operations Workshop, Livermore, CA, 13–16 May 2013:

D. Canning, G. Balonek, A. Consentino, C. Dorrer, E. Hill, S. Householder, B. E. Kruschwitz, S. F. B. Morse, J. Puth, and J. D. Zuegel, "Multi-FM and NIF PAM Operation on OMEGA EP."

S. F. B. Morse, R. E. Bahr, S. J. Loucks, J. Ulreich, B. Rice, M. J. Shoup III, D. W. Jacobs–Perkins, C. Stoeckl, and C. Mileham, "Cryogenic DT System Improvements for Enhanced ICF Platforms."

J. Puth, S. F. B. Morse, D. Canning, S. Stagnitto, S. Householder, M. Labuzeta, M. Barczys, E. Hill, M. Spilatro, D. Haberberger, J. Kwiatkowski, R. W. Kidder, B. E. Kruschwitz, G. Pien, and G. Fiksel, "Omega Laser Facility Status and Performance."

T. C. Sangster, "Migrating Polar Drive from OMEGA to the NIF."

C. Sorce, R. E. Bahr, J. Katz, D. Mastrosimone, M. McCluskey, C. Mileham, A. Sorce, N. Whiting, and D. H. Froula, "The Experimental Support Group's Role at the OMEGA Facility."

L. J. Waxer, J. H. Kelly, B. E. Kruschwitz, C. Dorrer, M. J. Guardalben, A. V. Okishev, and J. D. Zuegel, "Considerations for Successful Operation of the OMEGA EP Multi-FM SSD System."

P. M. Nilson, "High-Resolving Power, Ultrafast Streaked X-Ray Spectrometer for OMEGA EP," NIF Diagnostic Workshop, Livermore, CA, 21 May 2013.

The following presentations were made at Photonics North, Ottawa, Canada, 3–5 June 2013:

C. Chakraborty, J. Serafini, J. Zhang, R. Sobolewski, L. Q. Zhang, Y. Alimi, A. M. Song, I. Iñiguez-de-la-Torre, J. Mateos, and T. González, "Self-Switching Diodes as Optical Photodectors."

J. Serafini, Y. Wang, and R. Sobolewski, "Time Resolved Carrier Dynamics in Si-on-Glass Absorbers for Photovoltaic Cells."

J. Serafini, J. Zhang, Y. Akbas, R. Sobolewski, M. Mikulics, and R. Adam, "Time-Resolved Relaxation Dynamics of Non-equilibrium Carriers in Free-Standing GaAs Films."

The following presentations were made at CLEO 2013, San Jose, CA, 9–14 June 2013:

K. S. Anderson, R. Betti, P. W. McKenty, T. J. B. Collins, M. Hohenberger, W. Theobald, T. R. Boehly, R. S. Craxton, J. A. Delettrez, D. H. Edgell, S. X. Hu, M. Lafon, J. A. Marozas, D. D. Meyerhofer, R. Nora, T. C. Sangster, W. Seka, S. Skupsky, C. Stoeckl, A. Shvydky, B. Yaakobi, X. Ribeyre, G. Schurtz, A. Casner, L. J. Perkins, M. R. Terry, and D. E. Fratanduono, "Shock-Ignition OMEGA Experiments and Target Design for the NIF."

S.-W. Bahk, J. Bromage, J. D. Zuegel, and R. K. Jungquist, "An Off-Axis, Single-Pass Radial-Group-Delay Compensator Design Using an Offner Triplet for a Broadband OPCPA Laser."

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

D. Haberberger, S. Ivancic, M. Barczys, R. Boni, and D. H. Froula, "Plasma Refractometry Using Angular Spectral Filters on OMEGA EP."

T. Z. Kosc, A. Owens, A. L. Rigatti, S. D. Jacobs, and J. H. Kelly, "Long-Term Performance of Liquid Crystal Optics on Large Fusion Lasers."

J. Qiao, J. Papa, and A. Kalb, "Design and Analysis of Meter-Size Deformable Gratings for Compressing Kilojoule, Petawatt Laser Pulses."

T. C. Sangster, "Polar-Direct-Drive Ignition on the NIF."

The following presentations were made at the 25th Symposium on Fusion Engineering, San Francisco, CA, 10–14 June 2013:

D. R. Harding, T. B. Jones, W. Weiqiang, and Z. Bei, "Status and Challenges for Mass Producing Inertial Fusion Energy Targets Using an Automated Electromechanical Microfluidic Process."

S.-J. Scott and D. R. Harding, "Accelerated Evaporative Drying of RF Foam for ICF Target Fabrication."

W. T. Shmayda, "Evaluation of Tritium Capture Systems."

T. C. Sangster, "Polar-Drive ICF," NIF Management Advisory Committee, Livermore, CA, 11–12 June 2013.

J. B. Oliver, J. Bromage, C. Smith, D. Sadowski, C. Dorrer, and A. L. Rigatti, "Plasma-Ion–Assisted Coatings for 15-fs Laser Systems," Optical Interference Coatings 2013, Whistler, Canada, 16–21 June 2013.

S. D. Jacobs, T. Jacobs, D. Saulnier, M. M. Mayton, T. DePorter, J. Sydor, and Z. Hobbs, "Reclamation of Rare-Earth Oxides from Spent Optical Polishing Slurries: Expanding the Technology," Rochester Regional Optics/Photonics/Imaging Business Connections Symposium, Rochester, NY, 20 June 2013.

S.-W. Bahk and C. Dorrer, "Wavefront Sensing Improvements Using a Checkerboard Amplitude Mask," Computational Optical Sensing and Imaging, Arlington, VA, 23–27 June 2013.

R. Nora, W. Theobald, K. S. Anderson, M. Hohenberger, M. Lafon, J. A. Delettrez, A. A. Solodov, P. W. McKenty, W. Seka, T. R. Boehly, S. X. Hu, C. Stoeckl, B. Yaakobi, R. Yan, X. Ribeyre, G. Schurtz, A. Casner, and R. Betti, "Shock Ignition: Past, Present, and Future," 4th International Conference on High Energy Density Physics, Saint-Malo, France, 25–28 June 2013.

J. M. Soures, "The Omega Laser Facility Provides Unique High-Energy-Density Science Capabilities to University, National Laboratory, and Industry Researchers," 2013 User Science Exhibition, Washington, DC, 26 June 2013.

The following presentations were made at the 43rd Anomalous Absorption Conference, Stevenson, WA, 7–12 July 2013:

D. H. Edgell, T. J. B. Collins, V. N. Goncharov, I. V. Igumenshchev, J. A. Marozas, D. T. Michel, J. F. Myatt, P. B. Radha, W. Seka, and D. H. Froula, "Cross-Beam Energy Transfer in Polar-Drive Implosions on OMEGA and the NIF."

R. K. Follett, D. H. Froula, J. Katz, D. T. Michel, S. X. Hu, J. F. Myatt, and R. J. Henchen, "Observation of Two-Plasmon Decay Produced Electron Plasma Waves Using UV Thomson Scattering."

D. H. Froula, T. J. Kessler, I. V. Igumenshchev, V. N. Goncharov, H. Huang, S. X. Hu, E. Hill, J. H. Kelly, D. D. Meyerhofer, A. Shvydky, and J. D. Zuegel, "Implications of Two-State Focal Zooming on OMEGA to Mitigate Cross-Beam Energy Transfer."

D. Haberberger, D. H. Edgell, S. X. Hu, S. Ivancic, B. Yaakobi, R. Boni, and D. H. Froula, "Measurement of Long-Scale-Length Plasma Density Profiles for Two-Plasmon Decay Studies."

S. X. Hu, D. H. Edgell, D. H. Froula, V. N. Goncharov, D. T. Michel, J. F. Myatt, S. Skupsky, and B. Yaakobi, "Understanding the Creation of NIF-Scale Plasmas on OMEGA EP for Laser–Plasma Instability Studies."

J. A. Marozas, T. J. B. Collins, P. B. Radha, D. H. Edgell, D. H. Froula, M. Hohenberger, F. J. Marshall, D. T. Michel, and W. Seka, "Comparison of the 2-D *DRACO* Cross-Beam Energy Transfer (CBET) Simulations with OMEGA and NIF Experiments."

A. V. Maximov, J. F. Myatt, R. W. Short, I. V. Igumenshchev, and W. Seka, "Nonlinear Interaction Between Multiple Incoherent Laser Beams in the Plasmas of Direct-Drive ICF."

D. T. Michel, V. N. Goncharov, I. V. Igumenshchev, P. B. Radha, S. X. Hu, W. Seka, and D. H. Froula, "Comparison of Implosion Velocities for Be, C, and CH Ablators Measured in Direct-Drive Implosions."

W. Seka, J. F. Myatt, R. W. Short, D. H. Froula, J. Katz, V. N. Goncharov, and I. V. Igumenshchev, "Time-Resolved Electron Temperature Measurements Near $n_c/4$ Reveal Temperature Islands on Imploding Targets."

W. Seka, J. F. Myatt, J. Zhang, R. W. Short, D. H. Froula, D. T. Michel, A. V. Maximov, V. N. Goncharov, I. V. Igumenshchev, D. F. DuBois, D. A. Russell, and H. X. Vu, "The Nonlinear Behavior of the Two-Plasmon–Decay Instability."

R. W. Short, J. F. Myatt, and J. Zhang, "The Effects of Beam Geometry and Polarization on Two-Plasmon Decay Driven by Multiple Laser Beams."

A. A. Solodov, B. Yaakobi, J. F. Myatt, J. A. Delettrez, F. J. Marshall, C. Stoeckl, and D. H. Froula, "Measurements of the Divergence of Fast Electrons in Laser-Irradiated Spherical Targets."

J. Zhang, J. F. Myatt, A. V. Maximov, R. W. Short, D. F. DuBois, D. A. Russell, and H. X. Vu, "Linear Growth and Nonlinear Saturation of Two-Plasmon Decay Driven by Multiple Laser Beams."

The following presentations were made at the High-Energy-Density Physics Summer School, Columbus, OH, 15–19 July 2013:

D. D. Meyerhofer, "Diagnostics for High-Energy-Density Physics."

P. B. Radha, "Hydrodynamic Simulations of HED Plasmas."

J. D. Zuegel, J. Bromage, S.-W. Bahk, I. A. Begishev, J. Bunkenburg, T. Conley, C. Dorrer, H. Huang, R. K. Jungquist, C. Kellogg, T. J. Kessler, E. Kowaluk, J. R. Marciante, S. F. B. Morse, A. V. Okishev, J. B. Oliver, T. Petersen, C. Stoeckl, D. Haberberger, P. M. Nilson, G. Fiksel, J. F. Myatt, and D. D. Meyerhofer, "Technology Development and Prospects for Exawatt-Class OPCPA Pumped by OMEGA EP," 3rd IZEST Meeting, Livermore, CA, 17–18 July 2013.

D. H. Froula, "Direct-Drive Inertial Confinement Fusion: Where We Started (60 kJ), Where We Stand Today (1.5 MJ), and Where We Will be in 50 Years (100 kJ)," Intense Laser and Beam Plasma Interactions Workshop, Los Angeles, CA, 19–20 July 2013.

J. Bromage, R. G. Roides, S. -W. Bahk, J. B. Oliver, C. Mileham, C. Dorrer, and J. D. Zuegel, "Noncollinear Optical Parametric

Amplifiers for Ultra-Intense Lasers," Nonlinear Optics 2013, Kamuela, HI, 21–26 July 2013.

The following presentations were made at Optics and Photonics, San Diego, CA, 25–29 August 2013:

M. Hohenberger, N. E. Palmer, G. LaCaille, E. L. Dewald, L. Divol, E. J. Bond, T. Döppner, J. J. Lee, J. D. Salmonson, C. A. Thomas, D. K. Bradley, C. Stoeckl, and T. C. Sangster, "Measuring the Hot-Electron Population Using Time-Resolved, Hard X-Ray Detectors on the NIF."

K. L. Marshall, D. Saulnier, H. Xianyu, S. Serak, N. Tabiryan, and C. Dorrer, "Liquid Crystal Near-IR Beam Shapers Employing Photoaddressable Alignment Layers for High-Peak-Power Applications."

D. Saulnier, B. Taylor, K. L. Marshall, T. J. Kessler, and S. D. Jacobs, "Liquid Crystal Chiroptical Polarization Rotators for the Near UV Region: Theory, Materials, and Device Applications."

The following presentations were made at the University of Alberta ICF Committee, Rochester, NY, 28 August 2013:

K. S. Anderson, R. Betti, P. W. McKenty, T. J. B. Collins, M. Hohenberger, W. Theobald, T. R. Boehly, R. S. Craxton, J. A. Delettrez, D. H. Edgell, S. X. Hu, M. Lafon, J. A. Marozas, D. D. Meyerhofer, R. Nora, T. C. Sangster, W. Seka, S. Skupsky, C. Stoeckl, A. Shvydky, B. Yaakobi, R. Yan, X. Ribeyre, G. Schurtz, A. Casner, L. J. Perkins, M. R. Terry, and D. E. Fratanduono, "Shock-Ignition OMEGA Experiments and Target Design for the NIF."

D. H. Froula, "Experimental Plasma Physics Program."

D. R. Harding, T. B. Jones, D. D. Meyerhofer, S. H. Chen, R. Q. Gram, M. Bobeica, Z. Bei, M. Moynihan, W. Wang, W. T. Shmayda, S.-J. Scott, A. Nikroo, J. Hund, R. Paguio, G. Randall, J. Fooks, D. Goodin, R. Garrell, and A. Tucker-Schwartz, "Mass Production of Targets for Inertial Fusion Energy."

J. F. Myatt, R. W. Short, A. V. Maximov, A. A. Solodov, J. Zhang, C. Ren, R. Yan, I. V. Igumenshchev, S. X. Hu, V. N. Goncharov, W. Seka, D. H. Edgell, D. H. Froula, B. Yaakobi, D. T. Michel, D. F. DuBois, D. A. Russell, and H. X. Vu, "The Theoretical Plasma Physics Program at LLE."

T. C. Sangster, "The Polar-Drive–Ignition Campaign Plan Through FY15."

P. B. Radha, "Overview of Direct-Drive–Implosion Physics: Results from OMEGA and the NIF," 8th International Conference on Inertial Fusion Sciences and Applications, Nara, Japan, 8–13 September 2013.

S. Papernov, A. A. Kozlov, J. B. Oliver, and B. Marozas, "Near-Ultraviolet Absorption Annealing Effects in HfO_2 Thin Films Subjected to Continuous-Wave Laser Irradiation at 355 nm," Laser Damage 2013, Boulder, CO, 22–25 September 2013.

J. Katz, N. Fillion, R. J. Henchen, C. Sorce, D. H. Froula, and J. S. Ross, "A Reflective Image Rotating Periscope of Spatially Resolved Thomson-Scattering Experiments on OMEGA," 16th International Symposium on Laser Aided Plasma Diagnostics, Madison, WI, 22–26 September 2013.