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## Publications and Conference Presentations

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- S.-W. Bahk, "Highly Accurate Wavefront Reconstruction Algorithms over Broad Spatial-Frequency Bandwidth," *Opt. Express* **19**, 18,997 (2011).
- T. R. Boehly, V. N. Goncharov, W. Seka, M. A. Barrios, P. M. Celliers, D. G. Hicks, G. W. Collins, S. X. Hu, J. A. Marozas, and D. D. Meyerhofer, "Velocity and Timing of Multiple Spherically Converging Shock Waves in Deuterium," *Phys. Rev. Lett.* **106**, 195005 (2011).
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- C. G. Freeman, G. Fiksel, C. Stoeckl, N. Sinenian, M. J. Canfield, G. B. Graeper, A. T. Lombardo, C. R. Stillman, S. J. Padalino, C. Mileham, T. C. Sangster, and J. A. Frenje, "Calibration of a Thomson Parabola Ion Spectrometer and Fujifilm Imaging Plate Detectors for Protons, Deuterons, and Alpha Particles," *Rev. Sci. Instrum.* **82**, 073301 (2011).
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S. P. Regan, R. Epstein, T. C. Sangster, D. D. Meyerhofer, B. A. Hammel, H. A. Scott, D. K. Bradley, D. Callahan, M. J. Edwards, M. J. Eckart, S. H. Glenzer, J. D. Kilkenny, O. L. Landen, N. B. Meezan, R. Prasad, V. A. Smalyuk, L. J. Suter, and R. C. Mancini, "Hydrodynamic Mix Experiments for NIF Implosions Based on Spectroscopic Observations of K-Shell Emission," 14th International Workshop on Radiative Properties of Hot Dense Matter, Marbella, Spain, 4–8 October 2010.

D. D. Meyerhofer, R. L. McCrory, R. Betti, T. R. Boehly, D. T. Casey, T. J. B. Collins, R. S. Craxton, J. A. Delettrez, D. H. Edgell, R. Epstein, K. A. Fletcher, J. A. Frenje, V. Yu. Glebov, V. N. Goncharov, D. R. Harding, S. X. Hu, I. V. Igumenshchev, J. P. Knauer, C. K. Li, J. A. Marozas, F. J. Marshall, P. W. McKenty, P. M. Nilson, S. P. Padalino, R. D. Petrasso, P. B. Radha, S. P. Regan, T. C. Sangster, F. H. Séguin, W. Seka,

R. W. Short, D. Shvarts, S. Skupsky, J. M. Soures, C. Stoeckl, W. Theobald, and B. Yaakobi, "High-Performance Inertial Confinement Fusion Target Implosions on OMEGA," 23rd IAEA Fusion Energy Conference, Daejeon, Korea, 11–16 October 2010.

W. Theobald, A. A. Solodov, C. Stoeckl, K. S. Anderson, R. Betti, T. R. Boehly, R. S. Craxton, J. A. Delettrez, J. A. Frenje, V. Yu. Glebov, H. Habara, F. J. Marshall, K. A. Tanaka, K. L. Marshall, D. D. Meyerhofer, P. M. Nilson, P. K. Patel, H. Chen, T. C. Sangster, W. Seka, N. Sinenian, F. Beg, and R. B. Stephens, "Fast-Ignition Integrated Experiments on OMEGA," 11th International Workshop on Fast Ignition of Fusion Targets, Shanghai, China, 17–21 October 2010.

J. H. Kelly and T. Z. Kosc, "Modeling the OMEGA Laser System at the University of Rochester Using Miró," 5th Miró User Meeting, Haut Carré, Talence, France, 18–19 October 2010.

W. Theobald, A. A. Solodov, C. Stoeckl, K. S. Anderson, R. Betti, T. R. Boehly, R. S. Craxton, J. A. Delettrez, J. A. Frenje, V. Yu. Glebov, H. Habara, K. A. Tanaka, F. J. Marshall, K. L. Marshall, D. D. Meyerhofer, P. M. Nilson, P. K. Patel, H. Chen, T. C. Sangster, W. Seka, N. Sinenian, F. Beg, and R. B. Stephens, "Fast-Ignition Research at LLE," Japan–U.S. Ignitor and High Energy Density Physics Workshop, Osaka, Japan, 23–24 October 2010.

The following presentations were made at Frontiers in Optics, Rochester, NY, 24–28 October 2010:

L. Ji, W. R. Donaldson, and T. Y. Hsiang, "The Stability of the Active Mode-Locked Erbium-Doped Fiber Laser and Its Application in a Novel Electro-Optic Sampling System."

T. J. Kessler, H. Huang, J. B. Oliver, A. L. Rigatti, S. D. Jacobs, A. W. Schmid, and A. Kozlov, "Grating Development for High-Peak-Power CPA Laser Systems."

J. P. Leidner and J. R. Marciante, "Non-Adiabatically Tapered Multimode Interference Coupler for High-Power Single-Mode Semiconductor Lasers."

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J. Qiao, A. Kalb, T. Nguyen, D. Canning, and J. Price, "Development and Operation of Large-Aperture Tiled-Grating Compressors for High-Energy, Petawatt-Class Laser Systems."

J. E. Schoenly, W. Seka, and P. Rechmann, "Selective Near-UV Laser Ablation of Subgingival Dental Calculus at a 20° Irradiation Angle."

The following presentations were made at the 9th International Conference on Tritium Science and Technology, Nara, Japan, 24–29 October 2010:

J. E. Fair and W. T. Shmayda, "A Model for Removal of Surface-Bound Tritium Using Humid Air."

W. T. Shmayda and J. E. Fair, "Tritium Outgassing from Contaminated Metal Surfaces."

W. T. Shmayda, D. R. Harding, S. J. Brereton, and F. Javier, "Tritium Inertial Fusion: Extrapolation to Ignition Machines."

The following presentations were made at the 52nd Annual Meeting of the APS Division of Plasma Physics, Chicago, IL, 8–12 November 2010:

K. S. Anderson, R. Betti, R. S. Craxton, R. Nora, and L. J. Perkins, "A Plastic-Ablator Cryogenic Shock-Ignition Design for the NIF."

M. A. Barrios, D. E. Fratanduono, T. R. Boehly, D. D. Meyerhofer, D. G. Hicks, P. M. Celliers, and J. H. Eggert, "Precision Measurements of the Equation of State (EOS) of GDP Ablator Materials at ~1 to 10 Mbar Using Laser-Driven Shock Waves."

T. R. Boehly, M. A. Barrios, D. E. Fratanduono, V. N. Goncharov, S. X. Hu, T. J. B. Collins, J. A. Marozas, T. C. Sangster, D. D. Meyerhofer, P. M. Celliers, H. F. Robey, D. G. Hicks, J. H. Eggert, G. W. Collins, and R. Smith, "Shock-Timing Measurements in ICF Targets Filled with Cryogenic Deuterium."

D. T. Casey, J. A. Frenje, F. H. Séguin, M. Manuel, N. Sinenian, R. D. Petrasso, V. Yu. Glebov, P. B. Radha, T. C. Sangster, D. D. Meyerhofer, D. McNabb, A. Miles, P. Navratil, and S. Quaglioni, "Measurements of Down-Scattered and TT-Neutron Spectra Using the Magnetic Recoil Spectrometer (MRS) on OMEGA."

P. Y. Chang, G. Fiksel, M. Hohenberger, J. P. Knauer, R. Nora, R. Betti, F. H. Séguin, C. K. Li, M.-J. E. Manuel, and R. D. Petrasso, “Magnetized Spherical Implosions on the OMEGA Laser.”

T. J. B. Collins, J. A. Marozas, S. Skupsky, P. W. McKenty, V. N. Goncharov, P. B. Radha, A. Shvydky, and M. M. Marinak, “Preparing for Polar Drive at the National Ignition Facility.”

R. S. Craxton, L. Tucker, T. Mo, K. S. Anderson, R. Betti, L. J. Perkins, G. P. Schurtz, X. Ribeyre, and A. Casner, “A 96/96-Beam Polar-Drive Configuration for Shock Ignition on the NIF.”

J. A. Delettrez, S. X. Hu, and A. Shvydky, “Numerical Investigation of the Effect of Two-Plasmon-Decay Preheat in Planar Rayleigh–Taylor Experiments.”

D. H. Edgell, J. Magoon, T. C. Sangster, M. J. Shoup III, F. J. Marshall, C. Stoeckl, A. G. MacPhee, S. Burns, J. Celeste, M. J. Eckart, J. D. Kilkenny, J. Kimbrough, J. Parker, and T. Thomas, “South-Pole Bang-Time X-Ray Diagnostic for the NIF.”

R. Epstein, S. P. Regan, F. J. Marshall, J. A. Delettrez, V. N. Goncharov, S. X. Hu, P. W. McKenty, G. Liu, D. D. Meyerhofer, P. B. Radha, T. C. Sangster, C. Stoeckl, W. Theobald, R. Tommasini, N. Landen, and A. J. MacKinnon, “Hard X-Ray Compton Radiography of Cryogenic Implosions on OMEGA.”

G. Fiksel, R. Jungquist, C. Mileham, P. M. Nilson, W. Theobald, and C. Stoeckl, “Development of a Spherical Crystal X-Ray-Imaging Diagnostic for OMEGA and OMEGA EP.”

D. E. Fratanduono, M. A. Barrios, T. R. Boehly, D. D. Meyerhofer, J. H. Eggert, R. Smith, D. G. Hicks, P. M. Celliers, and G. W. Collins, “The Refractive Index and Transparency of Lithium Fluoride Compressed to 800 GPa.”

J. A. Frenje, D. T. Casey, C. K. Li, F. H. Séguin, R. D. Petrasso, R. Bionta, C. Cerjan, M. Eckart, S. W. Haan, S. P. Hatchett, H. Kather, J. D. Kilkenny, O. L. Landen, A. J. MacKinnon, M. J. Moran, J. R. Rygg, V. Yu. Glebov, T. C. Sangster, D. D. Meyerhofer, K. Fletcher, and R. Leeper, “First Measurements of the Absolute Neutron Spectrum Using the Magnetic Recoil Spectrometer (MRS) at the NIF.”

D. H. Froula, V. N. Goncharov, S. X. Hu, J. F. Myatt, J. S. Ross, L. Divol, and S. H. Glenzer, “Ion-Acoustic Wave Instability from Laser-Driven Return Currents.”

L. Gao, P. M. Nilson, W. Theobald, C. Stoeckl, C. Dorrer, T. C. Sangster, D. D. Meyerhofer, L. Willingale, and K. M. Krushelnick, “Measurements of Proton Generation with Intense, Kilojoule Laser Pulses on OMEGA EP.”

V. Yu. Glebov, J. P. Knauer, T. C. Sangster, C. Stoeckl, E. J. Bond, J. A. Caggiano, T. J. Clancy, M. J. Eckart, J. D. Kilkenny, R. A. Lerche, J. McNaney, M. J. Moran, and D. H. Munro, “Neutron Time-of-Flight Diagnostic Performance During the National Ignition Facility’s 2010 Campaign.”

V. N. Goncharov, “Low-Adiabatic, High-Compression Cryogenic Deuterium–Tritium Implosions on OMEGA” (invited).

M. Hohenberger, W. Theobald, S. X. Hu, K. S. Anderson, D. D. Meyerhofer, C. Stoeckl, T. R. Boehly, D. E. Fratanduono, R. Betti, A. Casner, X. Ribeyre, and G. Schurtz, “Shock-Ignition Studies on OMEGA.”

S. X. Hu, V. N. Goncharov, T. R. Boehly, S. Skupsky, T. C. Sangster, D. D. Meyerhofer, and R. L. McCrory, “The Equation-of-State Dependence of Nonuniformity Growth in Cryogenic-DT Implosions on OMEGA.”

I. V. Igumenshchev, V. N. Goncharov, P. M. Nilson, T. C. Sangster, C. K. Li, R. D. Petrasso, and M. G. Haines, “Study of Self-Generated Magnetic Fields in Implosion Experiments on OMEGA.”

M. Manuel, C. K. Li, F. H. Séguin, J. A. Frenje, D. T. Casey, N. Sinenian, R. D. Petrasso, R. Betti, V. A. Smalyuk, J. Hager, and R. P. J. Town, “Using Proton Radiography to Measure Rayleigh–Taylor-Induced Magnetic Fields.”

J. A. Marozas, T. J. B. Collins, and J. D. Zuegel, “Smoothing by Spectral Dispersion (SSD) for Multiple-Picket Pulses on OMEGA and the NIF.”

F. J. Marshall, V. Yu. Glebov, P. W. McKenty, P. B. Radha, and A. Shvydky, “NIF-Relevant, Polar-Drive Irradiation Tests on OMEGA.”



- A. V. Maximov, J. F. Myatt, R. W. Short, W. Seka, and R. Yan, “Two-Plasmon-Decay Instability and Stimulated Brillouin Scattering in Direct-Drive ICF Plasmas.”
- P. W. McKenty, R. S. Craxton, F. J. Marshall, A. Shvydky, R. Epstein, A. M. Cok, J. A. Marozas, T. J. B. Collins, S. Skupsky, C. Stoeckl, T. C. Sangster, M. J. Bonino, R. T. Janezik, D. R. Harding, W. T. Shmayda, S. F. B. Morse, D. D. Meyerhofer, R. L. McCrory, A. Nikroo, J. D. Kilkenny, M. L. Hoppe, J. Fooks, A. J. MacKinnon, R. J. Wallace, D. K. Bradley, and G. A. Kyrala, “Evaluation of the First Polar-Drive, DT-Gas-Filled Target Implosions on the NIF.”
- 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, and L. J. Waxer, “Status of the OMEGA EP Laser System.”
- J. F. Myatt, J. A. Delettrez, A. V. Maximov, R. W. Short, D. H. Edgell, W. Seka, D. F. Dubois, D. A. Russell, and H. X. Vu, “Two-Plasmon-Decay Preheat Calculations for OMEGA and Ignition-Scale Direct-Drive Inertial Confinement Fusion.”
- P. M. Nilson, A. A. Solodov, J. F. Myatt, W. Theobald, P. A. Jaanimagi, L. Gao, C. Stoeckl, R. S. Craxton, J. A. Delettrez, J. D. Zuegel, B. E. Kruschwitz, C. Dorrer, J. H. Kelly, K. U. Akli, P. K. Patel, A. J. MacKinnon, R. Betti, T. C. Sangster, and D. D. Meyerhofer, “Scaling Hot-Electron Generation to Long-Pulse, High-Intensity Laser–Solid Interactions” (invited).
- R. Nora, R. Betti, K. S. Anderson, P. Y. Chang, and M. Hohenberger, “One-Dimensional Hydrodynamic Theory of Shock Ignition.”
- P. B. Radha, C. Stoeckl, J. P. Knauer, V. N. Goncharov, I. V. Igumenshchev, R. L. McCrory, D. D. Meyerhofer, T. C. Sangster, S. Skupsky, J. A. Frenje, and R. D. Petrasso, “The Effect of Nonuniformity Growth on Direct-Drive Plastic-Shell Implosions on the OMEGA Laser.”
- S. P. Regan, R. Epstein, T. C. Sangster, D. D. Meyerhofer, B. A. Hammel, H. A. Scott, D. K. Bradley, D. Callahan, M. J. Edwards, M. J. Eckart, S. H. Glenzer, J. D. Kilkenny, O. L. Landen, N. B. Meezan, R. Prasad, V. A. Smalyuk, and L. J. Suter, “Spectroscopic Observations of Ablator Mass Mixed into the Hot Spot of NIF Implosions.”
- H. Rinderknecht, “A CVD Diamond-Based Proton-Bang-Time Detector for OMEGA and the NIF.”
- M. Rosenberg, “Yield and Ion-Temperature Measurements in Exploding Pusher Experiments on OMEGA and the NIF.”
- T. C. Sangster, V. N. Goncharov, R. Betti, T. R. Boehly, J. A. Delettrez, D. H. Edgell, V. Yu. Glebov, S. X. Hu, J. P. Knauer, F. J. Marshall, R. L. McCrory, P. W. McKenty, D. D. Meyerhofer, P. B. Radha, S. P. Regan, S. Seka, S. Skupsky, C. Stoeckl, B. Yaakobi, J. A. Frenje, and D. T. Casey, “Areal Density and Ion-Temperature Measurements in Cryogenic-DT Implosions on OMEGA.”
- W. Seka, D. H. Froula, D. H. Edgell, R. E. Bahr, J. F. Myatt, J. A. Delettrez, R. S. Craxton, S. X. Hu, A. V. Maximov, and R. W. Short, “Competitive Laser–Plasma Interaction Processes Near Quarter Critical Relevant to Direct-Drive ICF.”
- R. W. Short, “Angular Dependence of Two-Plasmon Decay in Multibeam Direct-Drive Irradiation Geometries.”
- A. Shvydky, P. W. McKenty, F. J. Marshall, R. S. Craxton, J. A. Marozas, R. Epstein, S. Skupsky, and R. L. McCrory, “Numerical Investigation of NIF Diagnostic Commissioning Experiments on OMEGA.”
- N. Sinenian, J. A. Frenje, R. D. Petrasso, F. H. Séguin, C. K. Li, W. Theobald, and C. Stoeckl, “Observation of Fast Protons in Recent Electron Fast-Ignition Experiments on OMEGA.”
- A. A. Solodov, R. Betti, K. S. Anderson, J. F. Myatt, W. Theobald, and C. Stoeckl, “Controlling the Divergence of Laser-Generated Fast Electrons Through Resistivity Gradients in Fast-Ignition Targets.”
- C. Stoeckl, D. H. Edgell, C. Forrest, V. Yu. Glebov, J. P. Knauer, and T. C. Sangster, “Monte Carlo Simulations of Neutron Scattering in Current-Mode Neutron Time-of-Flight Detectors.”
- W. Theobald, A. A. Solodov, C. Stoeckl, K. S. Anderson, R. Betti, T. R. Boehly, R. S. Craxton, J. A. Delettrez, C. Dorrer, J. A. Frenje, V. Yu. Glebov, H. Habara, K. A. Tanaka, J. P. Knauer, F. J. Marshall, K. L. Marshall, D. D. Meyerhofer, P. M. Nilson, P. K. Patel, H. Chen, T. C. Sangster, W. Seka, N. Sinenian, T. Ma, F. N. Beg, E. Giraldez, and R. B. Stephens, “Initial Cone-in-Shell Target Fast-Ignition Experiments on OMEGA” (invited).
- R. Yan, A. V. Maximov, and C. Ren, “Saturation of Two-Plasmon-Decay and Ion-Density Fluctuations.”

D. D. Meyerhofer, K. S. Anderson, S.-W. Bahk, R. Betti, T. R. Boehly, J. Bromage, R. S. Craxton, C. Dorrer, J. A. Delettez, L. Gao, V. Yu. Glebov, P. A. Jaanimagi, J. H. Kelly, B. E. Kruschwitz, S. J. Loucks, F. J. Marshall, K. L. Marshall, R. L. McCrory, S. F. B. Morse, J. F. Myatt, P. M. Nilson, J. Qiao, T. C. Sangster, W. Seka, A. A. Solodov, C. Stoeckl, L. J. Waxer, W. Theobald, B. Yaakobi, J. D. Zuegel, J. A. Frenje, N. Sinenian, H. Habara, K. A. Tanaka, A. J. MacKinnon, H. Chen, P. K. Patel, F. N. Beg, T. Ma, K. U. Akli, R. B. Stephens, L. Willingale, and K. M. Krushelnick, "Initial Experiments on the OMEGA EP High-Energy Petawatt Laser System," International Symposium on Chirped Pulse Amplification, Quebec City, Canada, 17–21 November 2010.

D. R. Harding, T. B. Jones, Z. Bei, W. Wang, S. H. Chen, R. Q. Gram, M. Moynihan, and G. Randall, "Microfluidic Methods for Producing Millimeter-Size Fuel Capsules for Inertial Fusion," 2010 Materials Research Society Fall Meeting, Boston, MA, 29 November–3 December 2010.

J. M. Soures and R. L. McCrory, "The University of Rochester's Laboratory for Laser Energetics' Role in Inertial Fusion Energy Development," 31st Fusion Power Associates Annual Meeting and Symposium, Washington, DC, 1–2 December 2010.

The following presentations were made at LASE—SPIE Photonics West, San Francisco, CA, 22–27 January 2011:

M. J. Guardalben and L. J. Waxer, "Improvements to Long-Pulse System Performance and Operational Efficiency on OMEGA EP."

J. M. Soures, "Opportunities for Inertial Fusion and High-Energy-Density Physics Research at the National Laser Users' Facility."

J. D. Zuegel and J. Bromage, "Lasers at the University of Rochester's Laboratory for Laser Energetics: Laser Fusion to

Ultra-Intense Lasers," ETH-Hönggerberg Seminar, Zurich, Switzerland, 10 February 2011.

The following presentations were made at Advanced Solid-State Photonics, Istanbul, Turkey, 13–16 February 2011:

J. Bromage, C. Dorrer, and J. D. Zuegel, "Temporal Contrast Measurements of a Noncollinear Optical Parametric Amplifier Seeded by White-Light Continuum."

R. Xin and J. D. Zuegel, "All-Fiber Regenerative Amplifier for Nanosecond Optical Pulses at 1053 nm."

J. D. Zuegel, M. J. Shoup III, J. H. Kelly, and C. Frederickson, "Novel Actively Cooled Split-Disk Nd:Glass Laser Amplifier for High-Energy Applications with Improved Repetition Rate."

P. M. Nilson, R. Betti, J. A. Delettez, L. Gao, P. A. Jaanimagi, J. F. Myatt, T. C. Sangster, A. A. Solodov, C. Stoeckl, W. Theobald, B. Yaakobi, J. D. Zuegel, A. J. MacKinnon, and P. K. Patel, "Hot-Electron Lifetime Measurements," Fusion Science Center for Extreme States of Matter 10th Meeting, Rochester, NY, 7 March 2011.

The following presentations were made at the International Workshop on ICF Shock Ignition, Rochester, NY, 8–10 March 2011:

K. S. Anderson, R. Betti, P. W. McKenty, T. J. B. Collins, R. S. Craxton, R. Nora, A. A. Solodov, and L. J. Perkins, "Shock Ignition with Plastic-Ablator Cryogenic Shells on the NIF."

K. S. Anderson, W. Theobald, C. Stoeckl, R. Betti, R. S. Craxton, J. A. Delettez, O. V. Gotchev, V. Yu. Glebov, V. N. Goncharov, F. J. Marshall, D. N. Maywar, R. L. McCrory, D. D. Meyerhofer, R. Nora, P. B. Radha, W. Seka, T. C. Sangster, V. A. Smalyuk, B. Yaakobi, C. D. Zhou, J. A. Frenje, C. K. Li, F. H. Séguin, R. D. Petrasso, L. J. Perkins, M. Lafon, X. Ribeyre, G. Schurtz, A. Casner "60-Beam Shock-Ignition OMEGA Experiments and Simulations."

R. Betti, "An Overview of Shock Ignition."

T. J. B. Collins, J. A. Marozas, A. Shvydky, R. S. Craxton, and P. W. McKenty, "Polar-Drive Hot-Spot Ignition on the NIF."

R. S. Craxton, P. W. McKenty, E. Bond, S. LePape, A. J. MacKinnon, P. A. Michel, and J. D. Moody, "Three-Dimensional Distributions of Deposited Energy and Scattered Light in NIF 'Exploding-Pusher' Polar-Drive Experiments."

R. S. Craxton, L. Tucker, T. Mo, K. S. Anderson, R. Betti, L. J. Perkins, G. P. Schurtz, X. Ribeyre, and A. Casner, "Three-Dimensional Design of a 96-Beam NIF Target to Test the Compression Phase of Shock Ignition."

T. J. Kessler, "Phase and Polarization Plates for NIF Polar Drive."

J. A. Marozas, "Picket Pulses with 1-D Multi-FM Smoothing by Spectral Dispersion (SSD) for the NIF Drive."

F. J. Marshall, P. B. Radha, and A. Shvydky, "Backlighting of OMEGA Polar-Drive Experiments."

P. W. McKenty, R. S. Craxton, F. J. Marshall, A. Shvydky, R. Epstein, A. M. Cok, J. A. Marozas, T. J. B. Collins, S. Skupsky, C. Stoeckl, T. C. Sangster, M. J. Bonino, R. Janezic, D. R. Harding, W. T. Shmayda, S. F. B. Morse, D. D. Meyerhofer, R. L. McCrory, A. Nikroo, J. D. Kilkenny, M. L. Hoppe, J. Fooks, A. J. MacKinnon, S. LePape, R. J. Wallace, D. K. Bradley, and G. A. Kyrala, "Results of Polar-Drive, Exploding-Pusher Shots on the NIF."

P. B. Radha, F. J. Marshall, R. S. Craxton, and A. Shvydky, "Results from Polar-Drive OMEGA Experiments."

A. Shvydky, P. W. McKenty, F. J. Marshall, R. S. Craxton, J. A. Marozas, R. Epstein, S. Skupsky, and R. L. McCrory, "Numerical Investigation of NIF Diagnostic Commissioning Experiments on OMEGA."

W. Theobald, M. Hohenberger, R. Nora, K. S. Anderson, R. Betti, T. R. Boehly, D. E. Fratanduono, J. A. Frenje, S. X. Hu, D. D. Meyerhofer, T. C. Sangster, W. Seka, C. Stoeckl, B. Yaakobi, A. Casner, X. Ribeyre, and G. Schurtz, "Shock-Ignition Experiments on OMEGA."

J. D. Zuegel, "Demonstrating Polar-Drive Smoothing Technology for the NIF on OMEGA EP"

J. E. Schoenly, W. Seka, and P. Rechmann, "Fluence Dependency of the 400-nm Ablation Rates of Supra- and Subgingival Dental Calculus," American Society of Laser Medicine and Surgery 2011 Annual Conference, Grapevine, TX, 30 March–3 April 2011.

The following presentations were made at the Omega Laser Facility Users Group Workshop, Rochester, NY, 27–29 April 2011:

D. H. Froula, M. Bedzyk, R. Boni, R. Brown, R. S. Craxton, T. Duffy, F. Ehrne, S. Ivancic, R. Jungquist, J. Puth, W. Seka, M. J. Shoup, III, C. Stoeckl, W. Theobald, D. Weiner, and N. Kugland "The OMEGA EP  $4\omega$  Probe and Associated Plasma Diagnostics."

V. N. Goncharov, "Tuning Low-Adiabatic Cryogenic Implosions on OMEGA."

B. E. Kruschwitz, "Static Wavefront Correction on OMEGA EP"

P. W. McKenty, K. S. Anderson, R. Nora, C. Stoeckl, W. Theobald, J. Bates, A. Schmitt, M. Lafon, X. Ribeyre, G. Schurtz, S. Weber, V. Tykhonchuk, S. Atzeni, J. Perkins, and O. Klimov, "Overview of the Current Status of Shock Ignition."

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

G. Pien, "OMEGA Experimental Operations 2011 OLUG Status Report."

The following presentations were made at CLEO 2011, Baltimore, MD, 1–6 May 2011:

C. Dorrer, "Characterization of a High-Contrast Front-End Prototype for the Omega EP Laser Facility."

C. Dorrer, A. Consentino, and D. Irwin, "Direct Estimation of the Intensity Contrast of High-Energy Laser Pulses."

A. V. Okishev, "A Highly Efficient Diode-Pumped Pulsed Laser Based on Room-Temperature Yb:YAG Ceramics."

R. Xin and J. D. Zuegel, "Amplification to the Period-Doubling Limit in an All-Fiber Regenerative Amplifier for High-Intensity Laser Systems."

The following presentations were made at Siemens PLM Connection, Las Vegas, NV, 2–5 May 2011:

C. Robillard, "The Engineer's Notebook."

T. Smith, "TDM to Teamcenter Meta Data Migration Strategy."

The following presentations were made at the Third International Conference on High Energy Density Physics, Lisbon, Portugal, 17–20 May 2011:

T. R. Boehly, "The Velocity and Timing of Multiple Spherically Converging Shock Waves in Liquid Deuterium."

G. Fiksel, P.-Y. Chang, M. Hohenberger, J. P. Knauer, R. Betti, F. J. Marshall, D. D. Meyerhofer, F. H. Séguin, and R. D. Petrasso, "Fusion-Yield Enhancement in Magnetized Laser-Driven Implosions."

S. P. Regan, R. Epstein, B. Hammel, L. J. Suter, J. Ralph, H. Scott, M. A. Barrios, D. K. Bradley, D. A. Callahan, G. W. Collins, S. Dixit, M. J. Edwards, D. R. Farley, 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, "National Ignition Facility (NIF) Implosions: Hydrodynamic Mixing Experiments."

The following presentations were made at the NAS/NAE Committee on the Prospects for IFE Systems, Rochester, NY, 17 June 2011:

V. N. Goncharov, "Modeling of Cryogenic Implosions on OMEGA is Approaching Precision Required for Ignition."

T. J. Kessler, "Diffractive Optics Technology for ICF."

R. L. McCrory, "Laser-Driven Inertial Fusion Energy: Direct-Drive Targets Overview."

J. B. Oliver and A. L. Rigatti, "High-Damage Threshold Coating for ICF Laser Applications."

J. M. Soures, "The Omega Facility is Operated as a User Facility and has Produced the World's Largest ICF Physics and High-Energy-Density-Science Database."

W. Theobald, "Shock-Ignition and Fast-Ignition Research at LLE."

J. D. Zuegel, "New Laser Technologies for OMEGA EP."

The following presentations were made at the 41st Annual Anomalous Absorption Conference, San Diego, CA, 19–24 June 2011:

S. F. DuBois, D. A. Russell, H. X. Vu, and J. F. Myatt, "Strong Langmuir Turbulence in the Nonlinear Saturation of Parametric Instabilities Driven by Coherent Electromagnetic Waves."

D. H. Edgell, I. V. Igumenshchev, W. Seka, J. F. Myatt, V. N. Goncharov, R. S. Craxton, J. A. Delettrez, A. V. Maximov, R. W. Short, P. W. McKenty, "Crossed-Beam Energy Transfer in Polar Direct-Drive Implosions."

D. H. Froula, D. H. Edgell, I. V. Igumenshchev, P. B. Radha, and V. N. Goncharov, "Thomson Scattering Study of the Coronal Plasma Conditions in Direct-Drive Implosions."

S. X. Hu, D. H. Edgell, D. H. Froula, V. N. Goncharov, W. Seka, S. Skupsky, and B. Yaakobi, "Simulations and Analyses of Long-Scale-Length Plasma Experiments on the Omega EP Laser Facility."

A. V. Maximov, J. F. Myatt, R. W. Short, I. V. Igumenshchev, D. H. Edgell, and W. Seka, "Modeling of Energy Transfer Between Spatially Incoherent Crossing Laser Beams."

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

W. Seka, I. V. Igumenshchev, D. H. Froula, D. H. Edgell, J. F. Myatt, V. N. Goncharov, R. W. Short, and A. V. Maximov, "Reducing the Cross-Beam Energy Transfer in Direct-Drive Implosion Targets Through Laser-Irradiation Control."

R. W. Short and J. F. Myatt, "Convective Multibeam Two-Plasmon Decay for Beam Configurations Relevant to Polar Direct Drive."

A. A. Solodov, R. Betti, K. S. Anderson, J. F. Myatt, W. Theobald, and C. Stoeckl, "Controlling the Divergence of Laser-Generated Fast Electrons Through Resistivity Gradients in Fast-Ignition Targets."

H. X. Vu, D. F. DuBois, J. F. Myatt, and D. A. Russell, "Langmuir Turbulence and Suprathermal Electron Production from the Two-Plasmon Decay Instability Driven by Crossed Laser Beams in an Inhomogeneous Plasma."

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

J. P. Knauer, V. Yu. Glebov, 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 Time-of-Flight Measurements

on the National Ignition Facility," 38th IEEE International Conference on Plasma Science, Chicago, IL, 26–30 June 2011.

T. R. Boehly, V. N. Goncharov, M. A. Barrios, D. E. Fratanduono, S. X. Hu, T. J. B. Collins, J. A. Marozas, T. C. Sangster, D. D. Meyerhofer, P. M. Celliers, H. F. Robey, D. G. Hicks, and G. W. Collins, "Shock-Timing Measurements in ICF Targets Filled with Cryogenic Deuterium," 2011 APS Shock Compression of Condensed Matter, Chicago, IL, 26 June–1 July 2011.

The following presentations were made at the NAS/NAE ICF Targets Panel, Rochester, NY, 6–8 July 2011:

D. H. Froula, "Laser-Plasma Interaction in Direct-Drive Implosions."

R. L. McCrory, "Overview of LLE's ICF Program."

D. D. Meyerhofer, "Facilitating NIF Polar Drive."

D. D. Meyerhofer, "Shock and Fast Ignition."

P. B. Radha, "Polar-Drive Target Design."

T. C. Sangster, "Direct-Drive Progress on OMEGA."

M. J. Grosskopf, R. P. Drake, C. C. Kuranz, E. M. Rutter, H. S. Park, N. Kugland, S. Pollaine, S. Ross, B. A. Remington, D. Ryutov, A. Spikovsky, L. Gargate, G. Gregori, A. Bell, C. Murphy, Y. Sakawa, Y. Kuramitsu, H. Takabe, D. Froula, G. Fiksel, F. Miniati, M. Koenig, A. Ravasio, E. Liang, and N. Woolsey, "Hydrodynamic Simulation of Laboratory Astrophysics Experiments Generating Collisionless Shocks with Intense Lasers," Interrelationship Between Plasma Experiments in Laboratory and Space, Whistler, Canada, 10–15 July 2011.

D. D. Meyerhofer, "Diagnostics for High-Energy-Density Physics," HEDP Summer School, San Diego, CA, 10–16 July 2011.

P. W. McKenty, "ICF Research at the Laboratory for Laser Energetics: The Path to Polar-Drive Ignition," JOWOG 37, Aldermaston, United Kingdom, 11–15 July 2011.

S. P. Regan, R. Epstein, B. A. Hammel, L. J. Suter, J. Ralph, H. Scott, M. A. Barrios, D. K. Bradley, D. A. Callahan, G. W. Collins, S. Dixit, M. J. Edwards, D. R. Farley, 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, 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," 17th International Conference on Atomic Processes and Plasmas, Belfast, Ireland, 19–22 July 2011.

K. L. Marshall, S. K.-H. Wei, M. Vargas, K. Wegman, C. Dorrer, P. Leung, J. Boule III, Z. Zhao, and S. H. Chen, "Liquid Crystal Beam-Shaping Devices Employing Patterned Photoalignment Layers for High-Peak-Power Laser Applications," SPIE Optics and Photonics, Liquid Crystals XV, San Diego, CA, 21–25 August 2011.

S. D. Jacobs, "MRF with Adjustable pH," Optical Fabrication, Testing and Metrology IV, Marseille, France, 5–8 September 2011.

The following presentations were made at the 7th International Conference on Inertial Fusion Sciences and Applications, Bordeaux, France, 12–16 September 2011:

R. L. McCrory, D. D. Meyerhofer, R. Betti, T. R. Boehly, T. J. B. Collins, R. S. Craxton, J. A. Delettrez, D. H. Edgell, R. Epstein, D. H. Froula, V. Yu. Glebov, V. N. Goncharov, D. R. Harding, S. X. Hu, I. V. Igumenshchev, J. P. Knauer, S. J. Loucks, J. A. Marozas, F. J. Marshall, P. W. McKenty, T. Michel, P. M. Nilson, 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, D. T. Casey, C. K. Li, R. D. Petrasso, F. H. Séguin, S. P. Padalino, K. A. Fletcher, P. M. Celliers, G. W. Collins, and H. F. Robey, "Progress in Direct-Drive Inertial Confinement Fusion."

P. W. McKenty, T. J. B. Collins, J. A. Marozas, T. J. Kessler, J. D. Zuegel, M. J. Shoup III, R. S. Craxton, F. J. Marshall, A. Shvydky, S. Skupsky, V. N. Goncharov, P. B. Radha, R. Epstein, T. C. Sangster, D. D. Meyerhofer, R. L. McCrory, J. D. Kilkenny, A. Nikroo, M. L. Hoppe, M. M. Marinak, A. J. MacKinnon, M. J. Schmitt, P. A. Bradley, G. R. Magelssen, and T. J. Murphy, "Preparing for Polar-Drive Ignition on the NIF."

H.-S. Park, N. Kugland, S. Ross, B. Remington, S. Pollaine, D. Ryutov, A. Spitkovsky, L. Gargate, G. Gregori, A. Bell, C. Murphy, Y. Sakawa, Y. Kuramitsu, H. Takabe, D. Froula, G. Fiksel, F. Miniati, M. Koenig, A. Ravasio, E. Liang, N. Woolsey, and M. Grosskopf, "Collisionless Shocks in Laser Driven Laboratory High Energy Density Plasmas."

P. B. Radha, F. J. Marshall, T. R. Boehly, T. J. B. Collins, R. S. Craxton, D. H. Edgell, R. Epstein, J. A. Frenje, V. N. Goncharov, J. A. Marozas, R. L. McCrory, P. W. McKenty, D. D. Meyerhofer, R. D. Petrasso, T. C. Sangster, A. Shvydky, and S. Skupsky, "Polar Drive on OMEGA."

S. P. Regan, R. Epstein, B. A. Hammel, L. J. Suter, J. Ralph, H. Scott, M. A. Barrios, D. K. Bradley, D. Callahan, C. Cerjan, G. W. Collins, S. N. Dixit, 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, "Diagnosing Implosions at the National Ignition Facility with X-Ray Spectroscopy."

A. Richard, V. Allouche, E. Alozy, F. Aubard, S. Bazzoli, T. Beck, J. Baggio, J. L. Bourgade, J. Y. Boutin, M. Briat, S. Brygoo, T. Caillaud, C. Cherfils, C. Chollet, P. Combis, S. Darbon, D. Dennetière, J. L. Desmeuzes, A. Duval, J. Fariat, J. Favier, S. Gary, J. Gazave, S. Girard, V. Glebov, J. C. Gomme, D. Gontier, O. Henry, S. Huevlan, H. P. Jacquet, J. P. Jadaud, O. Landoas, P. Llavador, B. Marchet, R. Marmoret, R. Maroni, I. Masclet-Gobin, D. D. Meyerhofer, J. P. Le Breton, G. Oudot, S. Perez, G. Pien, J. Raimbourg, C. Reverdin, P. Romary, R. Rosch, B. Rosse, A. Rousseau, D. Rubin de Cervens, T. C. Sangster, C. Schoech, P. Semécurbe, G. Souillé, P. Stemmler,

C. Stoeckl, I. Thfoin, C. Trosseille, P. Troussel, J. L. Ulmer, L. Videau, B. Villette, R. Wrobel, and C. Zuber, "Diagnosis Development for Plasma Experiments on LMJ."

T. C. Sangster, E. J. Bond, J. A. Caggiano, D. T. Casey, M. J. Eckart, J. A. Frenje, S. Friedrich, M. Gatu-Johnson, V. Yu. Glebov, E. P. Hartouni, R. Hatarik, S. P. Hatchett, H. W. Herrmann, C. J. Horsfield, M. Hutton, J. D. Kilkenny, J. P. Knauer, R. A. Lerche, J. McNaney, M. J. Moran, D. H. Munro, S. J. Padalino, P. K. Patel, D. Schneider, and C. Stoeckl, "High-Accuracy Ion-Temperature and Areal-Density Measurements with the NIF nTOF Suite."

W. Theobald, A. Casner, R. Nora, X. Ribeyre, K. S. Anderson, R. Betti, R. S. Craxton, J. A. Delettrez, J. A. Frenje, V. Yu. Glebov, O. V. Gotchev, M. Hohenberger, M. Lafon, F. J. Marshall, R. L. McCrory, D. D. Meyerhofer, L. J. Perkins, T. C. Sangster, G. Schurtz, W. Seka, V. A. Smalyuk, C. Stoeckl, and B. Yaakobi, "Progress in the Shock-Ignition Inertial Confinement Fusion Concept."

J. D. Zuegel, C. Dorrer, I. A. Begishev, R. Cuffney, T. J. B. Collins, E. Hill, J. H. Kelly, B. E. Kruschwitz, J. A. Marozas, P. W. McKenty, A. V. Okishev, R. G. Roides, D. F. Browning, G. V. Erbert, and M. W. Bowers, "Polar-Drive Beam Smoothing for Direct-Drive Ignition on the National Ignition Facility."

D. H. Froula, "Laser-Plasma Interactions in Direct-Drive Implosions," Assessment of Inertial Confinement Fusion Targets, Washington, DC, 20–21 September 2011.

The following presentations were made at Ultrafast Optics 2011, Monterey, CA, 26–30 September 2011:

J. Bromage, C. Dorrer, and R. K. Jungquist, "Temporal Contrast Degradation at the Focus of Ultrafast Pulses from High-Frequency Spectral Phase Modulation."

J. Bromage, M. Millecchia, J. Bunkenburg, R. K. Jungquist, C. Dorrer, and J. D. Zuegel, "A Cylindrical Öffner Stretcher Design for Reduced Chromatic Aberrations and Improved Temporal Contrast in Ultrafast Laser Systems."

C. Dorrer, "Interferometric Techniques for Optical-Pulse Characterization."

J. Qiao, P. A. Jaanimagi, R. Boni, J. Bromage, and E. Hill, "Measuring Short Pulse Using a High-Speed Streak Camera on Kilojoule, Petawatt-Class Laser Systems."

R. Xin and J. D. Zuegel, "All-Fiber Directly Chirped Laser Source (DCLS) for Chirped-Pulse Amplification."