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## Publications and Conference Presentations

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### Publications

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- R. Betti, A. R. Christopherson, B. K. Spears, R. Nora, A. Bose, J. Howard, K. M. Woo, M. J. Edwards, and J. Sanz, “Alpha Heating and Burning Plasmas in Inertial Confinement Fusion,” *Phys. Rev. Lett.* **114**, 255003 (2015).
- A. Bose, K. M. Woo, R. Nora, and R. Betti, “Hydrodynamic Scaling of the Deceleration-Phase Rayleigh–Taylor Instability,” *Phys. Plasmas* **22**, 072702 (2015).
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- H. Habara, S. Ivancic, K. Anderson, D. Haberberger, T. Iwawaki, C. Stoeckl, K. A. Tanaka, Y. Uematsu, and W. Theobald, “Efficient Propagation of Ultra-Intense Laser Beam in Dense Plasma,” *Plasma Phys. Control. Fusion* **57**, 064005 (2015).
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### Omega External Users' Publications

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- N. Amadou, E. Brambrink, T. Vinci, A. Benuzzi-Mounaix, G. Huser, S. Brygoo, G. Morard, F. Guyot, T. de Resseguier, S. Mazevet, K. Miyanishi, N. Ozaki, R. Kodama, O. Henry, D. Raffestin, T. Boehly, and M. Koenig, “Probing Iron at Super-Earth Core Conditions,” *Phys. Plasmas* **22**, 022705 (2015).
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**Conference Presentations**


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D. D. Meyerhofer, S.-W. Bahk, J. Bromage, D. H. Froula, L. Gao, M. J. Guardalben, D. Haberberger, S. X. Hu, B. E. Kruschwitz, J. F. Myatt, P. M. Nilson, J. B. Oliver, C. Robillard, M. J. Shoup III, C. Stoeckl, W. Theobald, L. J. Waxer, B. Yaakobi, and J. D. Zuegel, “High-Energy-Density Physics with High-Energy and High-Intensity Lasers,” Second High-Power Laser Workshop, Palo Alto, CA, 7–8 October 2014.

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D. H. Froula, “An Overview of the Direct-Drive Program at the Laboratory for Laser Energetics,” NRL Colloquium, Washington, DC, 8 October 2014.

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The following presentations were made at ICUIL 2014, Goa, India, 12–17 October 2014:

J. Bromage, R. G. Roides, S.-W. Bahk, C. Mileham, J. B. Oliver, C. Dorrer, and J. D. Zuegel, “Technology Development for Ultra-Intense OPCPA.”

C. Dorrer, R. G. Roides, J. Bromage, and J. D. Zuegel, “Self-Phase Modulation Compensation in a Regenerative Amplifier Using Cascaded Second-Order Nonlinearities.”

D. Haberberger, J. Bromage, J. D. Zuegel, D. H. Froula, A. Cairns, R. Trines, R. Bingham, and P. A. Norreys, “Tunable Plasma-Wave Laser Amplifier.”

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B. W. Plansinis, “Spectral Changes Induced by a Phase Modulator Acting as a Time Lens,” *Frontiers in Optics*, Tucson, AZ, 19–23 October 2014.

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J. H. Kelly, “Laser-Driven Fusion at the University of Rochester and Parallels Between Laser/Optical and Radio-Frequency/Microwave Techniques,” *Microwave Update 2014*, Rochester, NY, 24–25 October 2014.

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The following presentations were made at the 56th Annual Meeting of the APS Division of Plasma Physics, New Orleans, LA, 27–31 October 2014:

K. S. Anderson, P. W. McKenty, T. J. B. Collins, J. A. Marozas, M. Lafon, and R. Betti, “An Implosion-Velocity Survey for Shock Ignition at the National Ignition Facility.”

D. H. Barnak, G. Fiksel, H. Chen, P.-Y. Chang, D. D. Meyerhofer, G. J. Williams, S. Kerr, and J. Park, “Collimation of a Positron Beam Using an Externally Applied Axially Symmetric Magnetic Field.”

R. Betti, A. R. Christopherson, J. Howard, A. Bose, and R. Nora, “Measurements of Alpha Heating in Inertial Confinement Fusion.”

T. R. Boehly, G. Fiksel, S. X. Hu, V. N. Goncharov, T. C. Sangster, and P. M. Celliers, “Measurements of Laser Imprinting Using 2-D Velocity Interferometry.”

A. Bose, R. Betti, K. Woo, R. Nora, R. Epstein, J. A. Delettrez, K. S. Anderson, and A. Shvydky, “Hydrodynamic Scaling of the Deceleration-Phase Rayleigh–Taylor Instability.”

D. Cao, G. Moses, J. A. Delettrez, T. J. B. Collins, “Design Process for Applying the Nonlocal Thermal Transport iSNB Model to a Polar-Drive ICF Simulation.”

P.-Y. Chang, J. R. Davies, D. H. Barnak, G. Fiksel, R. Betti, A. Harvey-Thompson, and D. Sinars, “Design of Scaled-Down Magnetized Liner Inertial Fusion on OMEGA.”

A. R. Christopherson, R. Epstein, F. J. Marshall, R. Nora, C. Stoeckl, C. J. Forrest, J. A. Delettrez, P. B. Radha, and J. Howard, “Comprehensive Analysis of a High-Adiabatic Cryogenic Implosion on OMEGA.”

T. J. B. Collins, J. A. Marozas, J. A. Delettrez, P. W. McKenty, S. Skupsky, D. Cao, J. Chenhall, and G. Moses, “A Polar-Drive, Alpha-Heating Platform for the National Ignition Facility.”

A. Davies, L. Ceurvorst, P. A. Norreys, D. Haberberger, D. H. Froula, R. Yan, and C. Ren, “Self-Generated Magnetic Fields in New Laser-Produced Plasma with High-Intensity Beams.”



- J. R. Davies, D. H. Barnak, R. Betti, A. Carreon, P.-Y. Chang, G. Fiksel, E. L. Campbell, and D. B. Sinars, "Instability Driven by a Self-Generated Magnetic Field: Relevance to Helical Structures in MagLIF Experiments."
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- J. A. Delettrez, T. J. B. Collins, and C. Ye, "Limits on the Level of Fast-Electron Preheat in Direct-Drive-Ignition Designs."
- T. Eckert, L. Vincett, M. Yuly, S. Padalino, M. Russ, M. Bienstock, A. Simone, D. Ellison, H. Desmitt, T. C. Sangster, and S. P. Regan, "Coincidence Efficiency of Sodium Iodide Detectors for Positron Annihilation."
- D. H. Edgell, I. V. Igumenshchev, D. T. Michel, J. F. Myatt, D. H. Froula, R. J. Henchen, and V. N. Goncharov, "Empirical Scaling of Hot Electrons with the Two-Plasmon-Decay Common-Wave Gain."
- R. Epstein, F. J. Marshall, V. N. Goncharov, R. Betti, R. Nora, and A. R. Christopherson, "Fuel-Shell Mix Measurements Based on X-Ray Continuum Emission from Isobaric Implosion Cores on OMEGA."
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- T. M. Filkins, J. Steidle, D. M. Ellison, J. Steidle, C. G. Freeman, S. J. Padalino, G. Fiksel, S. P. Regan, and T. C. Sangster, "Measurements of Proton Energy Spectra Using a Radiochromic Film Stack."
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- C. J. Forrest, C. Stoeckl, V. Yu. Glebov, T. C. Sangster, P. B. Radha, V. N. Goncharov, J. A. Frenje, and M. Gatu Johnson, "Measurements of Areal-Density Anisotropies Using Elastic Scattering in Cryogenic Direct-Drive Implosions."
- W. Fox, G. Fiksel, D. Barnak, P. Nilson, S. X. Hu, A. Bhattacharjee, W. Deng, "Astrophysical Weibel Instability in Counter-Streaming Laser-Driven Plasmas" (invited).
- J. Frenje, C. K. Li, F. Séguin, A. Zylstra, R. Petrasso, P. Grabowski, R. Mancini, S. Regan, J. Delettrez, V. Glebov, and T. Sangster, "Measurements of Charged-Particle Stopping Around the Bragg Peak in OMEGA ICF Plasmas."
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- L. Gao, "Observation of Self-Similarity in the Magnetic Fields Generated by the Ablative Nonlinear Rayleigh-Taylor Instability."
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- V. N. Goncharov, T. C. Sangster, R. Epstein, S. X. Hu, I. V. Igumenshchev, C. J. Forrest, D. H. Froula, F. J. Marshall, D. T. Michel, P. B. Radha, W. Seka, C. Stoeckl, J. A. Frenje, and M. Gatu Johnson, "Understanding the Performance of Low-Adiabatic Cryogenic Implosions on OMEGA."
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S. X. Hu, V. N. Goncharov, T. R. Boehly, R. L. McCrory, S. Skupsky, L. A. Collins, J. D. Kress, and B. Militzer, “Impact of First-Principles Properties of Deuterium–Tritium on Inertial Confinement Fusion Target Designs” (invited).

I. V. Igumenshchev, “Effects of Self-Generated Magnetic Fields in Rayleigh–Taylor Unstable Laser-Irradiated Plastic Foils.”

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P. M. Nilson, M. Lafon, C. R. Stillman, C. Mileham, R. Boni, T. R. Boehly, D. H. Froula, and D. D. Meyerhofer, “Direct Shock-Timing Measurements in CH Using Streaked X-Ray Radiography.”

R. Nora, W. Theobald, F. J. Marshall, D. T. Michel, W. Seka, B. Yaakobi, M. Lafon, C. Stoeckl, J. A. Delettrez, A. A. Solodov, R. Betti, A. Casner, C. Reverdin, X. Ribeyre, A. Vallet, J. Peebles, F. N. Beg, and M. S. Wei, “Gigabar Spherical Shock Experiments on OMEGA.”

S. Padalino, A. Simone, E. Turner, M. K. Ginnane, N. Dubois, T. C. Sangster, and S. P. Regan, “Time-Resolved Tandem Faraday Cup for High Energy TNSA Particles.”

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- M. J. Rosenberg, F. H. Séguin, H. G. Rinderknecht, H. Sio, A. B. Zylstra, M. Gatu Johnson, J. A. Frenje, C. K. Li, R. D. Petrasso, P. A. Amendt, C. Bellei, S. C. Wilks, G. Zimmerman, N. M. Hoffman, G. Kagan, K. Molvig, V. Yu. Glebov, C. Stoeckl, F. J. Marshall, W. Seka, J. A. Delettrez, T. C. Sangster, R. Betti, V. N. Goncharov, D. D. Meyerhofer, S. Atzeni, and A. Nikroo, "Studies of Ion Kinetic Effects in OMEGA Shock-Driven Implosions Using Fusion Burn Imaging."
- T. C. Sangster, V. N. Goncharov, P. B. Radha, R. Betti, T. R. Boehly, C. J. Forrest, D. H. Froula, V. Yu. Glebov, S. X. Hu, I. V. Igumenshchev, J. Kwiatkowski, F. J. Marshall, R. L. McCrory, P. W. McKenty, D. D. Meyerhofer, D. T. Michel, J. F. Myatt, W. Seka, C. Stoeckl, J. A. Frenje, M. Gatu Johnson, W. T. Shmayda, S. Reid, N. Redden, R. Earley, R. T. Janezic, M. D. Wittman, J. H. Kelly, T. Z. Kosc, E. Hill, J. Puth, T. J. Kessler, and A. Shvydky, "Cryogenic Implosion Performance Using High-Purity Deuterium-Tritium Fuel."
- W. Seka, W. Theobald, R. Nora, R. Betti, J. F. Myatt, R. W. Short, and R. E. Bahr, "Multibeam Laser-Plasma Interactions Lead to Localized Interaction Regions."
- R. W. Short, J. F. Myatt, J. Zhang, and W. Seka, "Absolute and Convective Two-Plasmon Decay Driven by Multiple Laser Beams."
- A. Shvydky, M. Hohenberger, P. B. Radha, R. S. Craxton, V. N. Goncharov, J. P. Knauer, J. A. Marozas, F. J. Marshall, P. W. McKenty, D. D. Meyerhofer, and T. C. Sangster, "Preparing for Polar-Drive Imprint Experiments at the National Ignition Facility."
- A. Simone, S. Padalino, E. Turner, M. K. Ginnane, N. Dubois, K. Fletcher, M. Giordano, P. Lawson-Keister, H. Harrison, H. Visca, T. C. Sangster, and S. P. Regan, "Characterizing ICF Neutron Diagnostics on the nTOF Line at SUNY Geneseo."
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- A. A. Solodov, B. Yaakobi, J. F. Myatt, C. Stoeckl, and D. H. Froula, "Fast-Electron Temperature Measurements in Laser Irradiation at  $10^{14}$  W/cm<sup>2</sup>."
- C. R. Stillman, P. M. Nilson, M. Lafon, C. Mileham, R. Boni, T. R. Boehly, D. D. Meyerhofer, D. H. Froula, and D. E. Fratanduono, "Direct Measurements of Shock-Wave Propagation in CH Using Streaked X-Ray Radiography and VISAR."
- C. Stoeckl, R. Epstein, G. Fiksel, V. N. Goncharov, S. X. Hu, D. W. Jacobs-Perkins, R. K. Jungquist, C. Mileham, P. M. Nilson, T. C. Sangster, and W. Theobald, "Measuring Mix in Direct-Drive Cryogenic DT Implosions Using Soft X-Ray Narrowband Backlighting."
- D. Stutman, M. P. Valdivia, M. Finkenthal, S. P. Regan, C. Stoeckl, and B. Stoeckl, "Testing Talbot-Lau X-Ray Moiré Fringe Deflectometry with a Laser Backlighter."
- W. Theobald, R. Nora, W. Seka, M. Lafon, K. S. Anderson, M. Hohenberger, F. J. Marshall, D. T. Michel, A. A. Solodov, C. Stoeckl, D. Edgell, B. Yaakobi, A. Casner, C. Reverdin, X. Ribeyre, O. Shvydky, A. Vallet, J. Peebles, F. N. Beg, M. S. Wei, and R. Betti, "Spherical Strong-Shock Generation for Shock-Ignition Inertial Fusion" (invited).

H. Wen, A. V. Maximov, R. Yan, J. Li, C. Ren, and J. F. Myatt, "Particle-in-Cell Modeling of Laser-Plasma Interactions in Three Dimensions."

K. M. Woo, A. Bose, R. Betti, J. A. Delettrez, K. S. Anderson, and R. Epstein, "A Three-Dimensional Hydrocode to Study the Deceleration Phase and Hot-Spot Formation in Inertial Confinement Fusion Implosions."

R. Yan, R. Betti, and J. Sanz, "Bubble Acceleration in Three-Dimensional Ablative Rayleigh-Taylor Instability."

J. Zhang, J. F. Myatt, R. W. Short, A. V. Maximov, H. X. Vu, D. A. Russell, and D. F. DuBois, "Calculation of Half-Harmonic Emission Generated by the Two-Plasmon-Decay Instability."

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J. P. Knauer, "OMEGA MIFEDS Magnetic-Field Generator," JOWOG-37, Los Alamos, NM, 3-7 November 2014.

W. R. Donaldson, B. Beeman, E. K. Miller, and R. G. Roides, "A 15-GHz Electro-Optic Measurement System for Noisy Environments," Avionics Fiber-Optics and Photonics Conference, Atlanta, GA, 11-13 November 2014.

The following presentations were made at the Fusion Power Associates 35th Annual Meeting, Washington DC, 16 December 2014.

R. L. McCrory, "Perspectives on Inertial Fusion."

T. C. Sangster, V. N. Goncharov, P. B. Radha, M. Hohenberger, R. Betti, T. R. Boehly, T. J. B. Collins, R. S. Craxton, D. H. Edgell, R. Epstein, C. J. Forrest, D. H. Froula, V. Yu. Glebov,

D. R. Harding, S. X. Hu, I. V. Igumenshchev, T. J. Kessler, J. P. Knauer, J. A. Marozas, F. J. Marshall, R. L. McCrory, P. W. McKenty, D. D. Meyerhofer, D. T. Michel, J. F. Myatt, S. P. Regan, W. Seka, W. T. Shmayda, A. Shvydky, C. Stoeckl, J. A. Frenje, M. Gatu Johnson, R. D. Petrasso, H. G. Rinderknecht, M. Rosenberg, D. T. Casey, S. LePape, A. J. Mackinnon, R. J. Wallace, A. Nikroo, M. Farrell, S. P. Obenshain, M. Karasik, A. Schmitt, and J. Weaver, "OMEGA Recent Results and Plans."

T. Z. Kosc, J. H. Kelly, E. M. Hill, C. Dorrer, W. Donaldson, and L. J. Waxer, "The Multiple-Pulse Driver Line on the OMEGA Laser," Photonics West-LASE, San Francisco, CA, 7-12 February 2015.

A. K. Davis, D. T. Michel, I. V. Igumenshchev, R. S. Craxton, R. Epstein, V. N. Goncharov, M. Hohenberger, S. X. Hu, M. Lafon, D. D. Meyerhofer, P. B. Radha, T. C. Sangster, and D. H. Froula, "Polar Direct-Drive Mass-Ablation-Rate Measurements on OMEGA and the NIF," NIF and Jupiter Laser Facility User Group Meeting, Livermore, CA, 8-11 February 2015.

Y. Akbas, L. Q. Zhang, Y. Alimi, A. M. Song, I. Iñiguez-de-la-Torre, J. Mateos, T. González, G. Wicks, and R. Sobolewski, "Optically-Active Semiconducting Asymmetric Nano-Channel Diodes," 5th OASIS Int'l Conf. & Exhibition on Optics and Electro-Optics, Tel Aviv, Israel, 3-4 March 2015.

The following presentations were made at ILOW 2015, Bordeaux, France, 7-9 April 2015:

D. Canning, B. E. Kruschwitz, M. Barczys, J. Kwiatkowski, K. Gibney, and D. Weiner, "UV Stray-Light Management on OMEGA EP."

E. M. Hill, J. H. Kelly, T. Z. Kosc, C. Dorrer, C. Stoeckl, and W. R. Donaldson, "Operational Challenges and Advances in the Generation and Co-Timing of High-Precision, Low-Jitter Pulse Shapes."

T. Z. Kosc, J. H. Kelly, E. M. Hill, and L. J. Waxer, "Design and Operation of the Multiple-Pulse Driver Line on the OMEGA Laser."

S. F. B. Morse, R. L. McCrory, S. J. Loucks, T. C. Sangster, S. Skupsky, D. D. Meyerhofer, J. D. Zuegel, J. H. Kelly, B. E. Kruschwitz, T. Z. Kosc, M. Barczys, L. J. Waxer, M. J. Guardalben, W. T. Shmayda, R. T. Janezic, J. C. Puth, S. Stagnitto, D. Canning, E. M. Hill, C. Sorce, C. Stoeckl, M. J. Shoup III, W. R. Donaldson, C. Dorrer, M. D. Wittman, R. Earley, J. Bromage, S. P. Regan, B. S. Rice, J. Ulrich, D. R. Harding, and D. H. Froula, "Omega: Capability Improvements and National Ignition Facility Enhancements for Polar Direct Drive."

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

The following presentations were made at the Undergraduate Research Exposition, Rochester, NY, 10 April 2015:

P. Angland, D. Haberberger, S. Ivancic, and D. H. Froula, "An Iterative Program to Find Plasma Density Profiles from Angular-Filter-Refractometry Images."

J. Hassett, R. Boni, and D. H. Froula, "Diffracted Efficiencies for Optical Wavelength Gratings with Arbitrary Groove Shapes are Predicted and Compared to Measurements."

J. D. Zuegel, S.-W. Bahk, J. Bromage, M. J. Guardalben, B. E. Kruschwitz, J. B. Oliver, C. Robillard, M. J. Shoup III, C. Stoeckl, and L. J. Waxer, "Technology Development and Prospects for Multi-10-PW OPCPA Pumped by OMEGA EP," Research Using Extreme Light, Prague, Czech Republic, 13–16 April 2015.

The following presentations were made at the 2015 University Technology Showcase, Rochester, NY, 16 April 2015:

W. R. Donaldson, "High-Dynamic-Range, Single-Shot, 10-GHz Signal Processing."

K. Tinkham, T. Jacobs, M. Mayton, Z. Hobbs, and K. L. Marshall, "Cerium Oxide Polishing Slurry Reclamation Project: Characterization Techniques and Results."

The following presentations were made at the Seventh Omega Laser Facility Users Group Workshop, Rochester, NY, 22–24 April 2015:

P. Angland, D. Haberberger, S. Ivancic, and D. H. Froula, "An Iterative Program to Find Plasma Density Profiles from Angular-Filter-Refractometry Images."

E. M. Garcia and R. S. Craxton, "Optimization of Uniformity for Current Polar-Direct-Drive Implosion Experiments at the National Ignition Facility."

J. Hassett, R. Boni, and D. H. Froula, "Diffracted Efficiencies for Optical Wavelength Gratings with Arbitrary Groove Shapes are Predicted and Compared to Measurements."

J. Katz, C. Stoeckl, J. Magoon, R. Taylor, D. Guy, M. Couch, F. Ehrne, D. J. Lonobile, D. Weiner, E. C. Cost, C. Rees, M. H. Romanofsky, J. Szczepanski, C. Abbott, T. Lewis, and M. Maslyn, "Commissioning the P11 Neutron Temporal Diagnostic for High-Neutron-Yield Implosions."

R. W. Kidder, A. Zeller, T. Meyer, P. Stoeckl, R. Pasols, and R. Hoderried, "External User Access Through the LLE PI Portal."

J. Kwiatkowski, M. Barczys, M. Bedzyk, A. Kalb, B. E. Kruschwitz, C. McMahon, T. Nguyen, A. L. Rigatti, and M. Sacchitella, "OMEGA EP Short-Pulse-Transmission Study Status Report."

D. Mastrosimone, A. Agliata, T. Buczek, D. J. Lonobile, M. J. Shoup III, and C. Sorce, "Enhanced Gas-Filled Capabilities for Ten-Inch-Manipulator-Based Target Positioners."

S. F. B. Morse, "Omega Facility OLUG 2015 Update: Progress on Recommendations and Items of General Interest."

S. P. Regan, T. C. Sangster, V. N. Goncharov, R. Epstein, P. B. Radha, R. Betti, T. R. Boehly, R. Earley, C. J. Forrest, D. H. Froula, V. Yu. Glebov, E. M. Hill, S. X. Hu, I. V.

Igumenshchev, R. T. Janezic, J. H. Kelly, T. J. Kessler, T. Z. Kosc, J. Kwiatkowski, J. A. Marozas, F. J. Marshall, R. L. McCrory, P. W. McKenty, D. D. Meyerhofer, D. T. Michel, J. F. Myatt, J. C. Puth, N. P. Redden, J. Reid, W. Seka, W. T. Shmayda, A. Shvydky, C. Stoeckl, M. D. Wittman, J. A. Frenje, M. Gatu Johnson, and R. D. Petrasso, “OMEGA Layered DT Cryogenic Implosions” (invited).

R. Zhang, C. Kingsley, and R. T. Janezic, “Statistical Investigation of Cryogenic Target Defects.”

N. D. Viza and D. R. Harding, “Using Lab-on-Chip Technology to Mass Produce Inertial Fusion Energy Targets,” 5th Energy for the 21st Century Symposium, Rochester, NY, 1 May 2015.

The following presentations were made at CLEO 2015, San Jose, CA, 10–15 May 2015:

S.-W. Bahk, C. Dorrer, R. G. Roides, and J. Bromage, “A Spectrally Resolved Lateral-Shearing Interferometer to Measure Relative Group Delay Using a Periodic Entrance Slit in a Spectrometer.”

C. Dorrer, W. A. Bittle, R. Cuffney, M. Spilatro, E. M. Hill, J. H. Kelly, T. Z. Kosc, and J. D. Zuegel, “A Time-Multiplexed Pulse-Shaping System for Generating Multiple High-Bandwidth, Low-Jitter Optical Waveforms.”

C. Dorrer, L. Waxer, A. Kalb, E. M. Hill, and J. Bromage, “Single-Shot Characterization of Optical Pulses Below the Resolution Limit by Phase-Diversified Photodetection.”

P. Fiala, C. Dorrer, and K. L. Marshall, “Twisted-Nematic Liquid Crystal Polarization Rotators for Broadband Laser Applications.”

L. E. McIntire, M. Divoky, W. H. Knox, S.-W. Bahk, and J. D. Zuegel, “High-Contrast, Closed-Loop Control of Laser-Beam Profiles.”

M. Sharpe, W. T. Shmayda, and W. U. Schröder, “Modeling Tritium Migration into the Adsorbed Water Layers on Metal

Surfaces,” Symposium on Fusion Engineering, Austin, TX, 31 May–4 June 2015.

S.-W. Bahk, R. G. Roides, J. Bromage, and J. D. Zuegel, “Laser-Beam Shaping and Imaging Using Adaptive Quasi-Phase Conjugation,” Computational Optical Sensing and Imaging, Arlington, VA, 7–11 June 2015.

The following presentations were made at the 19th Biennial APS Conference on Shock Compression of Condensed Matter, Tampa, FL, 14–19 June 2015:

T. R. Boehly, M. C. Gregor, C. A. McCoy, D. N. Polsin, and D. E. Fratanduono, “High-Energy-Density Studies at the Omega Laser Facility.”

D. N. Polsin, C. A. McCoy, M. C. Gregor, T. R. Boehly, T. C. Sangster, D. E. Fratanduono, and P. M. Celliers, “Probing the Release of Shocked Material.”

The following presentations were made at the 45th Anomalous Absorption Conference, Ventura, CA, 14–19 June 2015:

R. Betti, K. S. Anderson, A. Bose, M. Lafon, R. Nora, and W. Theobald, “Electron Shock Ignition of Thermonuclear Fuel.”

A. Bose, R. Betti, K. M. Woo, A. R. Christopherson, and D. Shvarts, “Effects of Long- and Intermediate-Wavelength Asymmetries on Hot-Spot Energetics.”

A. K. Davis, D. Cao, D. T. Michel, R. Epstein, V. N. Goncharov, S. X. Hu, I. V. Igumenshchev, M. Lafon, J. Marozas, D. D. Meyerhofer, P. B. Radha, T. C. Sangster, and D. H. Froula, “Quantifying the Growth of Cross-Beam Energy Transfer in Polar-Direct-Drive Implosions.”

D. H. Edgell, R. K. Follett, V. N. Goncharov, I. V. Igumenshchev, J. Katz, J. F. Myatt, W. Seka, and D. H. Froula, “Diagnosing Cross-Beam Energy Transfer Using Beamlets of Unabsorbed Light from Direct-Drive Implosions.”

R. K. Follett, J. G. Shaw, D. H. Edgell, R. J. Henchen, S. X. Hu, J. Katz, D. T. Michel, J. F. Myatt, A. A. Solodov,

C. Stoeckl, B. Yaakobi, and D. H. Froula, “Zakharov Modeling of Thomson-Scattering Measurements of Multibeam Two-Plasmon Decay.”

D. H. Froula, J. A. Delettrez, G. Fiksel, V. N. Goncharov, S. X. Hu, H. Huang, I. V. Igumenshchev, T. J. Kessler, D. D. Meyerhofer, D. T. Michel, S. P. Regan, T. C. Sangster, A. Shvydky, and J. D. Zuegel, “A Pathway to Ignition-Hydrodynamic-Equivalent Implosions in OMEGA Direct Drive Through the Reduction of Cross-Beam Energy Transfer.”

M. C. Gregor, T. R. Boehly, C. A. McCoy, D. N. Polsin, D. D. Meyerhofer, D. E. Fratanduono, P. M. Celliers, and G. W. Collins, “The Release Behavior of Diamond Shocked to 15 Mbar.”

R. J. Hennen, S. X. Hu, R. K. Follett, J. Katz, D. H. Froula, and W. Rozmus, “Heat-Flux Measurements from Thomson-Scattering Spectra.”

S. X. Hu, L. A. Collins, V. N. Goncharov, and S. Skupsky, “Extended Equation of State of Polystyrene (CH) Based on First-Principles Calculations.”

S. Ivancic, D. Haberberger, C. Stoeckl, K. S. Anderson, C. Ren, W. Theobald, J. Fienup, D. H. Froula, D. D. Meyerhofer, T. Iwakaki, H. Habara, and K. A. Tanaka, “Optical Probing of Laser-Produced Plasma Experiments on the OMEGA EP Laser System” (invited).

J. Li, C. Ren, and R. Yan, “Two-Plasmon–Decay Instabilities in a Plasma with Ion-Density Fluctuations.”

A. V. Maximov, J. F. Myatt, R. W. Short, I. V. Igumenshchev, and W. Seka, “The Effects of Beam Incoherence and Colors on Cross-Beam Energy Transfer.”

D. T. Michel, T. C. Sangster, V. N. Goncharov, A. K. Davis, R. Epstein, V. Yu. Glebov, S. X. Hu, I. V. Igumenshchev, D. D. Meyerhofer, S. P. Regan, W. Seka, A. Shvydky, C. Stoeckl, and D. H. Froula, “Measurements of the Conduction-Zone Length and Mass Ablation Rate in Cryogenic Direct-Drive Implosions on OMEGA.”

J. F. Myatt, J. G. Shaw, V. N. Goncharov, J. Zhang, A. V. Maximov, R. W. Short, W. Seka, D. H. Edgell, D. H. Froula, D. F. DuBois, D. A. Russell, and H. Vu, “A Numerical Model for Hot-Electron Generation in Direct-Drive Implosions.”

M. J. Rosenberg, A. A. Solodov, W. Seka, R. Epstein, J. F. Myatt, S. P. Regan, M. Hohenberger, T. J. B. Collins, J. E. Ralph, D. P. Turnbull, J. D. Moody, and M. A. Barrios, “Planar Two-Plasmon–Decay Experiments at Polar-Direct-Drive Ignition-Relevant Scale Lengths at the National Ignition Facility.”

W. Seka, S. P. Regan, P. B. Radha, J. A. Marozas, M. J. Rosenberg, M. Hohenberger, V. N. Goncharov, J. F. Myatt, D. H. Edgell, D. T. Michel, D. H. Froula, J. E. Ralph, J. D. Moody, and D. P. Turnbull, “The Current *LILAC* Model for Cross-Beam Energy Transfer (CBET) has been Extended to *DRACO* and Non-Symmetrical Illumination.”

R. W. Short, A. V. Maximov, J. F. Myatt, W. Seka, and J. Zhang, “Absolute Two-Plasmon Decay and Stimulated Raman Scattering in Direct-Drive Irradiation Geometries.”

A. A. Solodov, B. Yaakobi, J. F. Myatt, C. Stoeckl, and D. H. Froula, “Hot-Electron Temperature Measurements with Laser Irradiation at  $10^{14}$  to  $10^{15}$  W/cm<sup>2</sup>.”

R. Yan, R. Betti, J. Sanz, B. Liu, and A. Frank, “Three-Dimensional Single-Mode Nonlinear Ablative Rayleigh–Taylor Instability.”

The following presentations were made at the 21st Target Fabrication Meeting, Las Vegas, NV, 21–25 June 2015:

M. J. Bonino, D. R. Harding, D. W. Turner, H. Goodrich, A. Caveglia, M. Dorward, and M. Anthamatten, “The Mechanical Properties of the Adhesives Used for Cryogenic Targets.”

B. Chock, T. B. Jones, and D. R. Harding, “Effect of a Surfactant on the Electric-Field Assembly of Oil/Water Emulsions for Making Foam Targets.”

D. R. Harding, R. Q. Gram, K. Arian-Raines, J. Du, T. P. Bernat, and N. Petta, “Calorimetry Measurement of Supercooling in Liquid D<sub>2</sub>, Suppression of Supercooling, and the Controlled Growth of a D<sub>2</sub> Crystal.”

D. R. Harding, M. D. Wittman, N. P. Redden, C. Fella, and D. C. Whitaker, “How Interfacial Surface Energy Affects the Growth of the DT Ice Layer and the Fuel Content in Fill-Tube Targets.”

N. P. Redden, D. R. Harding, and M. D. Wittman, “Controlling the D<sub>2</sub> and H<sub>2</sub>/D<sub>2</sub> Fuel Content in Cryogenic Direct-Drive National Ignition Facility Targets.”

T. C. Sangster, V. N. Goncharov, P. B. Radha, M. Hohenberger, S. P. Regan, T. J. B. Collins, R. S. Craxton, J. A. Delettrez, D. H. Edgell, R. Epstein, P. Fitzimmons, C. J. Forrest, J. A. Frenje, D. H. Froula, M. Gatu Johnson, V. Yu. Glebov, D. R. Harding, S. X. Hu, I. V. Igumenshchev, R. T. Janezic, M. Karasik, J. H. Kelly, T. J. Kessler, J. P. Knauer, T. Z. Kosc, C. Kurz, S. LePape, A. J. Mackinnon, J. A. Marozas, F. J. Marshall, R. L. McCrory, P. W. McKenty, D. T. Michel, J. F. Myatt, A. Nikroo, S. P. Obenschain, R. D. Petrasso, H. G. Rinderknecht, M. J. Rosenberg, A. J. Schmitt, W. Seka, W. T. Shmayda, A. Shvydky, C. Stoeckl, S. Skupsky, J. Weaver, and A. Zylstra, "Progress with Direct-Drive Inertial Confinement Fusion."

D. W. Turner, M. J. Bonino, S. G. Noyes, and D. R. Harding, "Assembly of Direct-Drive Fill-Tube Targets."

N. D. Viza, M. J. Moynihan, and D. R. Harding, "The Effect of a Surfactant on the Operation of T-Junctions for Mass-Producing Foam Targets."

J. B. Oliver, T. J. Kessler, C. Smith, B. Taylor, V. Gruschow, J. Hettrick, B. Charles, J. Spaulding, T. Noll, A. L. Rigatti, S. Papernov, K. A. Sharma, G. Mitchell, and J. Foster, "Development of a Glancing-Angle-Deposited Distributed Polarization Rotator," Novel Optical Materials and Applications, Boston, MA, 26 June–1 July 2015.

The following presentations were made at the 19th International Conference on Electron Dynamics, Optoelectronics, and Nanostructures, Salamanca, Spain, 29 June–2 July 2015:

Y. Akbas, A. Stern, L. Q. Zhang, Y. Alimi, A. M. Song, I. Iñiguez-de-la-Torre, J. Mateos, T. González, G. W. Wicks, and R. Sobolewski, "Ultra-high Responsivity of Optically Active Semiconducting Asymmetric Nanochannel Diodes."

J. Serafini, Y. Akbas, L. Crandall, R. Bellman, C. K. Williams, and R. Sobolewski, "Time-Resolved, Nonequilibrium Carrier Dynamics in Si-on-Glass Thin-Film Absorbers for Photovoltaic Cells."

R. Shrestha, A. Koroliov, and R. Sobolewski, "Terahertz Spectroscopy on Graphene-Polymer Nanocomposites," Xerox

Engineering Research Fellows Program, Rochester, NY, 30 July 2015.

E. D. Burnham-Fay, D. W. Jacobs-Perkins, and J. D. Ellis, "Interferometric Strain Measurements with a Fiber-Optic Probe," SPIE Optical Engineering and Applications, San Diego, CA, 9–13 August 2015.

J. Katz, W. R. Donaldson, R. Huff, E. Hill, J. H. Kelly, J. Kwiatkowski, and R. B. Brannon, " $3\omega$  Beam-Timing Diagnostic for the OMEGA Laser System," Target Diagnostics Physics and Engineering for Inertial Confinement Fusion IV, San Diego, CA, 9–13 August 2015.

K. L. Marshall, E. R. Sekera, and K. Xiao, "Computational Chemistry Modeling and Design of Photoswitchable Alignment Materials for Optically Addressable Liquid Crystal Devices," Organic Photonics and Electronics, San Diego, CA, 9–13 August 2015 (invited).

P. Fiala, C. Dorrer, and K. L. Marshall, "Twisted-Nematic Liquid Crystal Polarization Rotators for Broadband Laser Applications," Ultrafast Optics 2015, Beijing, China, 16–21 August 2015.

R. Betti, W. Theobald, R. Nora, W. Seka, M. Lafon, K. S. Anderson, M. Hohenberger, F. J. Marshall, D. T. Michel, A. Shvydky, A. A. Solodov, C. Stoeckl, D. H. Edgell, B. Yaakobi, A. Casner, C. Reverdin, X. Ribeyre, A. Vallet, J. Peebles, F. N. Beg, and M. S. Wei, "Laser-Driven Gigabar Shocks for Applications to Inertial Fusion and Basic Sciences," The 5th International Conference on High Energy Density Physics, San Diego, CA, 23–27 August 2015.

D. T. Michel, R. E. Bahr, N. Chrein, R. S. Craxton, A. K. Davis, J. A. Delettrez, D. H. Edgell, R. Epstein, R. K. Follett, C. J. Forrest, V. Yu. Glebov, V. N. Goncharov, R. J. Henchen, M. Hohenberger, S. X. Hu, I. V. Igumenshchev, P. A. Jaanimagi, J. A. Marozas, A. V. Maximov, R. L. McCrory, P. W. McKenty,



D. D. Meyerhofer, C. Mullarkey, J. F. Myatt, P. B. Radha, S. P. Regan, T. C. Sangster, W. Seka, R. W. Short, A. Shvydky, A. A. Solodov, C. Sorce, C. Stoeckl, N. Whiting, D. H. Froula, J. A. Frenje, M. Gatu Johnson, R. D. Petrasso, J. A. Mackinnon, S. Le Pape, and T. Ma, “Nuclear Fusion in the Direct-Drive Configuration at the Laboratory for Laser Energetics: Strategies to Demonstrate Ignition,” CEA Seminar, Bruyeres le Chatel, France, 1 September 2015.

W. T. Shmayda, M. D. Wittman, R. Earley, J. L. Reid, and N. P. Redden, “The Laboratory for Laser Energetics’ Hydrogen Isotope Separation System,” 12th International Symposium on Fusion Nuclear Technology, Jeju Island, S. Korea, 14–18 September 2015.

The following presentations were made at IFSA 2015, Seattle, WA, 20–25 September 2015:

R. Betti, A. R. Christopherson, A. Bose, K. M. Woo, J. Howard, K. S. Anderson, E. M. Campbell, J. A. Delettrez, V. N. Goncharov, F. J. Marshall, R. L. McCrory, S. P. Regan, T. C. Sangster, C. Stoeckl, W. Theobald, M. J. Edwards, R. Nora, B. K. Spears, J. Sanz, O. A. Hurricane, P. K. Patel, J. D. Lindl, and D. Shvarts, “Alpha Heating and Burning Plasmas in Inertial Confinement Fusion.”

J. Bromage, S.-W. Bahk, I. A. Begishev, C. Dorrer, R. G. Roides, C. Mileham, J. B. Oliver, D. Weiner, D. Haberberger, C. Stoeckl, P. M. Nilson, D. H. Froula, and J. D. Zuegel, “MTW-OPAL: A Technology Development Platform for Ultra-Intense OPCPA Lasers and Applications.”

A. R. Christopherson, J. Howard, R. Betti, W. Theobald, E. M. Campbell, J. A. Delettrez, C. Stoeckl, D. H. Edgell, W. Seka, and D. H. Froula, “Probing Hot-Electron Preheat and Hot-Spot Asymmetries in Inertial Confinement Fusion Implosions.”

T. J. B. Collins, J. A. Marozas, S. Skupsky, D. Cao, P. W. McKenty, J. A. Delettrez, and G. Moses, “Design Options for Polar-Direct-Drive Targets—From Alpha Heating to Ignition.”

D. H. Crandall, E. M. Campbell, T. C. Sangster, M. J. Edwards, R. P. J. Town, D. B. Sinars, S. H. Batha, S. P. Obenschain, R. D. Petrasso, C. A. Back, J. D. Kilkenny, and N. Petta, “The Quest for Laboratory Inertial Fusion Burn in the U.S.”

J. K. Crane, S. T. Yang, M. W. Bowers, T. Budge, J. Chou, S. N. Dixit, G. Erbert, J.-M. G. DiNicola, R. P. Hackel, J. E. Heebner, M. Johnston, M. Rushford, M. Shaw, L. Smith, P. J. Wegner, B. E. Kruschwitz, C. Dorrer, D. Canning, A. Consentino, E. M. Hill, J. H. Kelly, J. Kwiatkowski, and J. D. Zuegel, “Preliminary Measurements of Performance of National Ignition Facility Beamlines for Future Experiments to Support Polar Direct Drive.”

D. H. Froula, I. V. Igumenshchev, T. J. Kessler, G. Fiksel, V. N. Goncharov, J. A. Delettrez, S. X. Hu, H. Huang, D. D. Meyerhofer, D. T. Michel, S. P. Regan, T. C. Sangster, A. Shvydky, and J. D. Zuegel, “Cross Beam Energy Transfer Mitigation to Achieve 80-Gbar Direct-Drive Implosions on OMEGA.”

V. N. Goncharov, S. P. Regan, T. C. Sangster, R. Betti, T. R. Boehly, M. J. Bonino, E. M. Campbell, T. J. B. Collins, R. S. Craxton, A. K. Davis, J. A. Delettrez, D. H. Edgell, R. Epstein, C. J. Forrest, D. H. Froula, V. Yu. Glebov, D. R. Harding, S. X. Hu, I. V. Igumenshchev, R. T. Janezic, J. H. Kelly, T. J. Kessler, T. Z. Kosc, S. J. Loucks, J. A. Marozas, F. J. Marshall, R. L. McCrory, P. W. McKenty, D. T. Michel, J. F. Myatt, P. B. Radha, W. Seka, W. T. Shmayda, A. Shvydky, S. Skupsky, C. Stoeckl, W. Theobald, F. Weilacher, B. Yaakobi, D. D. Meyerhofer, J. A. Frenje, M. Gatu Johnson, R. D. Petrasso, S. P. Obenschain, and M. Karasik, “Demonstrating Ignition Hydrodynamic Equivalence in Direct-Drive Cryogenic Implosions on OMEGA.”

D. R. Harding, N. P. Redden, and M. D. Wittman, “Cryogenic Target Research for Ignition Experiments at the National Ignition Facility.”

M. Hohenberger, A. Shvydky, P. B. Radha, M. J. Rosenberg, V. N. Goncharov, S. Le Pape, F. J. Marshall, D. T. Michel, J. P. Knauer, S. P. Regan, T. C. Sangster, S. R. Nagel, A. Nikroo, V. A. Smalyuk, and R. J. Wallace, “Hydrodynamic Instability Growth in Polar-Direct-Drive Implosions at the National Ignition Facility.”

S. X. Hu, V. N. Goncharov, T. R. Boehly, R. Epstein, R. L. McCrory, S. Skupsky, L. A. Collins, J. D. Kress, and B. Militzer, “First-Principles Studies on the Equation of State and Thermal Conductivity of Polystyrene (CH) Under Extreme Conditions.”

T. J. Kessler and H. Huang, “Focal-Spot Zooming Using Radial Diffusion and Dispersion.”

T. Z. Kosc, J. H. Kelly, E. M. Hill, and L. J. Waxer, “The Multiple-Pulse Driver Line on the OMEGA Laser.”

J. A. Marozas, T. J. B. Collins, J. D. Zuegel, P. W. McKenty, D. Cao, S. Fochs, and P. B. Radha, “Continuous Distributed Phase Plate Design Advances for High-Energy Laser Systems.”

F. J. Marshall, V. N. Goncharov, V. Yu. Glebov, S. P. Regan, T. C. Sangster, and C. Stoeckl, “Framed X-Ray Imaging of Cryogenic Target Implosion Cores on OMEGA.”

D. D. Meyerhofer, E. M. Campbell, D. R. Harding, R. L. McCrory, S. F. B. Morse, S. P. Regan, T. C. Sangster, and J. M. Soures, “Precision High-Energy-Density Science at the Omega Laser Facility” (invited).

D. T. Michel, T. C. Sangster, V. N. Goncharov, A. K. Davis, I. V. Igumenshchev, R. Epstein, V. Yu. Glebov, S. X. Hu, D. D. Meyerhofer, S. P. Regan, W. Seka, A. Shvydky, C. Stoeckl, and D. H. Froula, “Measurements of the Conduction-Zone Length and Mass Ablation Rate in Cryogenic Direct-Drive Implosions on OMEGA.”

J. F. Myatt, J. G. Shaw, V. N. Goncharov, J. Zhang, A. V. Maximov, R. W. Short, R. K. Follett, W. Seka, D. H. Edgell, D. H. Froula, D. F. DuBois, D. A. Russell, and H. X. Vu, “Laser-Plasma Instabilities in Direct-Drive-Ignition Plasmas.”

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, “Streaked X-Ray Imaging of Ultrafast Ionization Fronts Inside a Metal.”

P. B. Radha, M. Hohenberger, T. R. Boehly, T. J. B. Collins, R. S. Craxton, J. A. Delettrez, D. H. Edgell, D. H. Froula, V. N. Goncharov, S. X. Hu, J. P. Knauer, J. A. Marozas, F. J. Marshall, R. L. McCrory, P. W. McKenty, D. D. Meyerhofer, D. T. Michel, J. F. Myatt, S. P. Regan, M. J. Rosenberg, T. C. Sangster, W. Seka, A. Shvydky, S. Skupsky, J. A. Frenje, R. D. Petrasso, H. Sio, A. B. Zylstra, S. N. Dixit, S. Le Pape, A. J. Mackinnon, J. W. Bates, M. Karasik, and S. P. Obenschein, “Polar-Direct-Drive Experiments at the National Ignition Facility.”

S. P. Regan, V. N. Goncharov, T. C. Sangster, R. Epstein, P. B. Radha, R. Betti, T. R. Boehly, R. Earley, C. J. Forrest, D. H. Froula, V. Yu. Glebov, D. R. Harding, E. M. Hill, S. X. Hu, I. V. Igumenshchev, R. T. Janezic, J. H. Kelly, T. J. Kessler, J. P. Knauer, T. Z. Kosci, J. Kwiatkowski, J. A. Marozas, F. J. Marshall, R. L. McCrory, P. W. McKenty, D. D. Meyerhofer, D. T. Michel, J. F. Myatt, J. C. Puth, N. P. Redden, J. Reid,

W. Seka, W. T. Shmayda, A. Shvydky, C. Stoeckl, M. D. Wittman, J. A. Frenje, M. Gatu Johnson, and R. D. Petrasso, “Mitigation of Cross-Beam Energy Transfer in Layered DT Cryogenic Direct-Drive Implosions.”

M. J. Rosenberg, H. G. Rinderknecht, F. H. Séguin, A. B. Zylstra, J. A. Frenje, H. Sio, M. Gatu Johnson, C. K. Li, R. D. Petrasso, N. M. Hoffmann, G. Kagan, H. W. Herrmann, R. E. Olson, P. A. Amendt, S. LePape, T. Ma, A. J. Mackinnon, J. R. Rygg, S. C. Wilks, L. Berzak Hopkins, D. T. Casey, O. L. Landen, J. D. Lindl, J. Pino, H. F. Robey, S. Atzeni, O. Larroche, V. Yu. Glebov, C. Stoeckl, W. Seka, F. J. Marshall, J. A. Delettrez, P. W. McKenty, M. Hohenberger, R. Betti, V. N. Goncharov, P. B. Radha, J. P. Knauer, T. C. Sangster, and A. Nikroo, “Studies of Ion Kinetic Effects Using Exploding-Pusher Implosions on OMEGA and the National Ignition Facility.”

A. A. Solodov, M. J. Rosenberg, J. F. Myatt, R. Epstein, S. P. Regan, W. Seka, J. G. Shaw, M. Hohenberger, J. D. Moody, J. E. Ralph, and D. P. Turnbull, “Two-Plasmon-Decay at Polar-Direct-Drive Ignition-Relevant Plasma Conditions at the National Ignition Facility.”

C. Stoeckl, R. Boni, F. Ehrne, C. J. Forrest, V. Yu. Glebov, J. Katz, D. J. Lonobile, J. Magoon, S. P. Regan, M. J. Shoup III, A. Sorce, C. Sorce, and T. C. Sangster, “A Neutron Temporal Diagnostic for High-Yield DT Cryogenic Implosions on OMEGA.”

W. Theobald, R. Betti, R. Nora, W. Seka, M. Lafon, K. S. Anderson, M. Hohenberger, F. J. Marshall, D. T. Michel, A. Shvydky, A. A. Solodov, C. Stoeckl, D. H. Edgell, B. Yaakobi, A. Casner, C. Reverdin, X. Ribeyre, A. Vallet, J. Peebles, F. N. Beg, M. S. Wei, and R. Yan, “Gigabar Shocks and Hot-Electron Production in Various Ablator Materials for Shock Ignition Fusion.”

J. D. Zuegel, P. J. Wegner, M. W. Bowers, T. G. Brown, T. J. B. Collins, C. W. Carr, J. K. Crane, J.-M. G. Di Nicola, S. N. Dixit, C. Dorrer, G. Erbert, R. P. Hackel, J. E. Heebner, E. M. Hill, M. Hohenberger, T. J. Kessler, J. Kwiatkowski, B. E. Kruschwitz, B. J. MacGowan, J. A. Marozas, K. L. Marshall, K. P. McCandless, P. W. McKenty, J. A. Menapace, J. B. Oliver, A. L. Rigatti, R. A. Sacks, T. C. Sangster, K. Sharma, D. Saulnier, A. Shvydky, L. R. Siegel, C. J. Stolz, D. Weiner, C. Widmayer, and S. T. Yang, “Laser Science and Technology Progress Toward Polar Direct Drive at the National Ignition Facility.”

S. Papernov, A. A. Kozlov, J. B. Oliver, C. Smith, L. Jensen, D. Ristau, S. Günster, and H. Mädebach, “The Role of Film Interfaces in Near-Ultraviolet Absorption and Pulsed-Laser Damage in Ion-Beam-Sputtered Coatings Based on HfO<sub>2</sub>/SiO<sub>2</sub> Thin-Film Pairs,” Laser Damage Symposium, Boulder, CO, 27–30 September 2015.

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The following presentations were made at the Undergraduate Research Fair, Rochester, NY 30 September 2015:

R. Shrestha, A. Koroliov, and R. Sobolewski, “Terahertz Spectroscopy on Graphene-Polymer Nanocomposites.”

A. Stern, Y. Akbas, G. Wicks, and R. Sobolewski, “Optically-Active Semiconducting Asymmetric Nano-Channel Diodes.”