
Publications and Conference Presentations

Publications

- R. Betti, A. R. Christopherson, A. Bose, and K. M. Woo, "Alpha Heating and Burning Plasmas in Inertial Confinement Fusion," *J. Phys.: Conf. Ser.* **717**, 012007 (2016).
- R. Betti and O. A. Hurricane, "Inertial-Confinement Fusion with Lasers," *Nat. Phys.* **12**, 435 (2016).
- 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," *J. Phys.: Conf. Ser.* **717**, 012012 (2016).
- D. H. Crandall, "The Quest for Laboratory Inertial Fusion Burn in the United States," *J. Phys.: Conf. Ser.* **717**, 012001 (2016).
- R. Cristiano, L. Parlato, U. Nasti, M. Ejrnaes, H. Myoren, T. Taino, R. Sobolewski, and G. P. Pepe, "Superconductor/Ferromagnet Nanowires for Optical Photon Detection," *IEEE Trans. Appl. Supercond.* **26**, 2200104 (2016).
- A. K. Davis, D. Cao, D. T. Michel, M. Hohenberger, D. H. Edgell, R. Epstein, V. N. Goncharov, S. X. Hu, I. V. Igumenshchev, J. A. Marozas, A. V. Maximov, J. F. Myatt, P. B. Radha, S. P. Regan, T. C. Sangster, and D. H. Froula, "Isolating and Quantifying Cross-Beam Energy Transfer in Direct-Drive Implosions on OMEGA and the National Ignition Facility," *Phys. Plasmas* **23**, 056306 (2016) (invited).
- B. Delorme, M. Olazabal-Loumé, A. Casner, Ph. Nicolaï, D. T. Michel, G. Riazuelo, N. Borisenko, J. Breil, S. Fujioka, M. Grech, A. Orekhov, W. Seka, A. Sunahara, D. H. Froula, V. Goncharov, and V. T. Tikhonchuk, "Experimental Demonstration of Laser Imprint Reduction Using Underdense Foams," *Phys. Plasmas* **23**, 042701 (2016).
- W. R. Donaldson, J. Katz, R. Huff, E. M. Hill, J. H. Kelly, J. Kwiatkowski, R. B. Brannon, and R. Boni, "A Picosecond Beam-Timing System for the OMEGA Laser," *Rev. Sci. Instrum.* **87**, 053511 (2016).
- C. Dorrer, A. Consentino, and D. Irwin, "Direct Optical Measurement of the On-Shot Incoherent Focal Spot and Intensity Contrast on the OMEGA EP Laser," *Appl. Phys. B* **122**, 156 (2016).
- R. K. Follett, J. A. Delettrez, D. H. Edgell, V. N. Goncharov, R. J. Henchen, J. Katz, D. T. Michel, J. F. Myatt, J. Shaw, A. A. Solodov, C. Stoeckl, B. Yaakobi, and D. H. Froula, "Two-Plasmon Decay Mitigation in Direct-Drive Inertial-Confinement-Fusion Experiments Using Multilayer Targets," *Phys. Rev. Lett.* **116**, 155002 (2016).
- V. N. Goncharov, S. P. Regan, T. C. Sangster, R. Betti, T. R. Boehly, E. M. Campbell, 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, F. J. Marshall, R. L. McCrory, D. T. Michel, J. F. Myatt, P. B. Radha, W. Seka, A. Shvydky, C. Stoeckl, W. Theobald, B. Yaakobi, and M. Gatu-Johnson, "Demonstrating Ignition Hydrodynamic Equivalence in Direct-Drive Cryogenic Implosions on OMEGA," *J. Phys.: Conf. Ser.* **717**, 012008 (2016).
- S. X. Hu, L. A. Collins, V. N. Goncharov, J. D. Kress, T. R. Boehly, R. Epstein, R. L. McCrory, and S. Skupsky, "First-Principles Studies on the Equation of State, Thermal Conductivity, and Opacity of Deuterium-Tritium (DT) and Polystyrene (CH) for Inertial Confinement Fusion Applications," *J. Phys.: Conf. Ser.* **717**, 012064 (2016).
- S. X. Hu, L. A. Collins, V. N. Goncharov, J. D. Kress, R. L. McCrory, and S. Skupsky, "First-Principles Investigations on Ionization and Thermal Conductivity of Polystyrene for Inertial Confinement Fusion Applications," *Phys. Plasmas* **23**, 042704 (2016).
- I. V. Igumenshchev, V. N. Goncharov, F. J. Marshall, J. P. Knauer, E. M. Campbell, C. J. Forrest, D. H. Froula, V. Yu. Glebov, R. L. McCrory, S. P. Regan, T. C. Sangster, S. Skupsky, and C. Stoeckl, "Three-Dimensional Modeling of Direct-Drive Cryogenic Implosions on OMEGA," *Phys. Plasmas* **23**, 052702 (2016).

J. D. Kilkenny, J. A. Caggiano, R. Hatarik, J. P. Knauer, D. B. Sayre, B. K. Spears, S. V. Weber, C. B. Yeaman, C. J. Cerjan, L. Divol, M. J. Eckart, V. Yu. Glebov, H. W. Herrmann, S. Le Pape, D. H. Munro, G. P. Grim, O. S. Jones, L. Berzak-Hopkins, M. Gatu-Johnson, A. J. Mackinnon, N. B. Meezan, D. T. Casey, J. A. Frenje, J. M. Mcnane, R. Petrasso, H. Rinderknecht, W. Stoeffl, and A. B. Zylstra, "Understanding the Stagnation and Burn of Implosions on NIF," *J. Phys.: Conf. Ser.* **688**, 012048 (2016).

Y. Kim, H. W. Herrmann, N. M. Hoffman, M. J. Schmitt, P. A. Bradley, S. Gales, C. J. Horsfield, M. Rubery, A. Leatherland, M. Gatu Johnson, J. A. Frenje, and V. Yu. Glebov, "Direct-Drive DT Implosions with Knudsen Number Variations," *J. Phys.: Conf. Ser.* **717**, 012030 (2016).

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," *J. Phys.: Conf. Ser.* **717**, 012104 (2016).

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 Advances for High-Energy Laser Systems," *J. Phys.: Conf. Ser.* **717**, 012107 (2016).

C. A. McCoy, M. C. Gregor, D. N. Polsin, D. E. Fratanduono, P. M. Celliers, T. R. Boehly, and D. D. Meyerhofer, "Shock-Wave Equation-of-State Measurements in Fused Silica Up to 1600 GPa," *J. Appl. Phys.* **119**, 215901 (2016).

J. F. Myatt, J. Shaw, V. N. Goncharov, J. Zhang, A. V. Maximov, R. W. Short, R. K. Follett, W. Seka, D. H. Edgell, and D. H. Froula, "Laser-Plasma Interaction in Direct-Drive Inertial Confinement Fusion," *J. Phys.: Conf. Ser.* **717**, 012040 (2016).

J. B. Oliver, C. Smith, J. Spaulding, A. L. Rigatti, B. Charles, S. Papernov, B. Taylor, J. Foster, C. W. Carr, R. Luthi, B. Hollingsworth, and D. Cross, "Glancing-Angle-Deposited Magnesium Oxide Films for High-Fluence Applications," *Opt. Mater. Express* **6**, 2291 (2016).

B. W. Plansinis, W. R. Donaldson, and G. P. Agrawal, "Temporal Waveguides for Optical Pulses," *J. Opt. Soc. Am. B* **33**, 1112 (2016).

P. B. Radha, V. N. Goncharov, M. Hohenberger, T. C. Sangster, R. Betti, R. S. Craxton, D. H. Edgell, R. Epstein, D. H. Froula, J. A. Marozas, F. J. Marshall, R. L. McCrory, P. W. McKenty,

D. D. Meyerhofer, D. T. Michel, S. X. Hu, W. Seka, A. Shvydky, S. Skupsky, J. A. Frenje, M. Gatu-Johnson, R. D. Petrasso, T. Ma, S. Le Pape, and A. J. Mackinnon, "Direct-Drive Implosion Physics: Results from OMEGA and the National Ignition Facility," *J. Phys.: Conf. Ser.* **688**, 012006 (2016).

P. B. Radha, M. Hohenberger, D. H. Edgell, J. A. Marozas, F. J. Marshall, D. T. Michel, M. J. Rosenberg, W. Seka, A. Shvydky, T. R. Boehly, T. J. B. Collins, E. M. Campbell, R. S. Craxton, J. A. Delettrez, S. N. Dixit, J. A. Frenje, D. H. Froula, V. N. Goncharov, S. X. Hu, J. P. Knauer, R. L. McCrory, P. W. McKenty, D. D. Meyerhofer, J. Moody, J. F. Myatt, R. D. Petrasso, S. P. Regan, T. C. Sangster, H. Sio, S. Skupsky, and A. Zylstra, "Direct Drive: Simulations and Results from the National Ignition Facility," *Phys. Plasmas* **23**, 056305 (2016) (invited).

P. B. Radha, M. Hohenberger, F. J. Marshall, D. T. Michel, J. Bates, T. R. Boehly, T. J. B. Collins, R. S. Craxton, J. A. Delettrez, S. N. Dixit, D. H. Edgell, J. A. Frenje, D. H. Froula, V. N. Goncharov, S. X. Hu, M. Karasik, J. P. Knauer, S. LePape, J. A. Marozas, R. L. McCrory, P. W. McKenty, D. D. Meyerhofer, J. F. Myatt, S. Obenschein, R. D. Petrasso, S. P. Regan, M. J. Rosenberg, T. C. Sangster, W. Seka, A. Shvydky, H. Sio, S. Skupsky, and A. Zylstra, "Polar-Direct-Drive Experiments at the National Ignition Facility," *J. Phys.: Conf. Ser.* **717**, 012009 (2016).

M. Rutkauskas, C. Farrell, C. Dorrer, K. L. Marshall, T. Crawford, T. R. Lundquist, P. Vedagarbha, K. Erington, D. Bodoh, and D. T. Reid, "Two-Photon Laser-Assisted Device Alteration in CMOS Integrated Circuits Using Linearly, Circularly and Radially Polarized Light," *Microelectronics Reliability* **60**, 62 (2016).

A. A. Solodov, M. J. Rosenberg, J. F. Myatt, R. Epstein, S. P. Regan, W. Seka, J. Shaw, M. Hohenberger, J. W. Bates, J. D. Moody, J. E. Ralph, D. P. Turnbull, and M. A. Barrios, "Hydrodynamic Simulations of Long-Scale-Length Plasmas for Two-Plasmon-Decay Planar-Target Experiments on the NIF," *J. Phys.: Conf. Ser.* **717**, 012053 (2016).

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, T. C. Sangster, and D. Weiner, "Neutron Temporal Diagnostic for High-Yield Deuterium-Tritium Cryogenic Implosions on OMEGA," *Rev. Sci. Instrum.* **87**, 053501 (2016).

Forthcoming Publications

A. Bose, K. M. Woo, R. Betti, E. M. Campbell, D. Mangino, A. R. Christopherson, R. L. McCrory, R. Nora, S. P. Regan, V. N. Goncharov, T. C. Sangster, C. J. Forrest, J. Frenje, M. Gatu Johnson, V. Yu. Glebov, J. P. Knauer, F. J. Marshall, C. Stoeckl, and W. Theobald, "Core Conditions for Alpha Heating Attained in Direct-Drive Inertial Confinement Fusion," to be published in *Physical Review E*.

B. P. 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," to be published in *Fusion Science and Technology*.

W. R. Donaldson, J. Katz, T. Z. Kosc, J. H. Kelly, E. M. Hill, and R. E. Bahr, "Enhancements to the Timing of the OMEGA Laser System to Improve Illumination Uniformity," to be published in *Nanoscience & Engineering (Proc. SPIE)*.

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

R. K. Follett, J. A. Delettrez, D. H. Edgell, R. J. Henchen, J. Katz, J. F. Myatt, and D. H. Froula, "Plasma Characterization Using Ultraviolet Thomson Scattering from Ion-Acoustic and Electron Plasma Waves" to be published in *Review of Scientific Instruments* (invited).

D. R. Harding, D. C. Whitaker, and C. Fella, "Growth of a Solid DT Crystal from the Liquid Inside Inertial Confinement Fusion Targets," to be published in *Fusion Science and Technology*.

O. A. Hurricane, D. A. Callahan, D. T. Casey, E. L. Dewald, T. R. Dittrich, T. Döppner, S. Haan, D. E. Hinkel, L. F. Berzak Hopkins, O. Jones, A. L. Kritcher, S. Le Pape, T. Ma, A. G.

MacPhee, J. L. Milovich, J. Moody, A. Pak, H.-S. Park, P. K. Patel, J. E. Ralph, H. F. Robey, J. S. Ross, J. D. Salmonson, B. K. Spears, P. T. Springer, R. Tommasini, F. Albert, L. R. Benedetti, R. Bionta, E. Bond, D. K. Bradley, J. Caggiano, P. M. Celliers, C. Cerjan, J. A. Church, R. Dylla-Spears, D. Edgell, M. J. Edwards, D. Fittinghoff, M. A. Barrios Garcia, A. Hamza, R. Hatarik, H. Herrmann, M. Hohenberger, D. Hoover, J. L. Kline, G. Kyrala, B. Koziolowski, G. Grim J. E. Field, J. Frenje, N. Izumi, M. Gatu Johnson, S. F. Khan, J. Knauer, T. Kohut, O. Landen, F. Merrill, P. Michel, A. Moore, S. R. Nagel, A. Nikroo, T. Parham, R. R. Rygg, D. Sayre, M. Schneider, D. Shaughnessy, D. Strozzi, R. P. J. Town, D. Turnbull, P. Volegov, A. Wan, K. Widmann, C. Wilde, and C. Yeaman, "Inertially Confined Fusion Plasmas Dominated by Alpha-Particle Self-Heating," to be published in *Nature Physics*.

A. S. Moore, J. Benstead, M. F. Ahmed, J. Morton, T. M. Guymmer, R. Soufil, T. Pardini, R. L. Hibbard, C. G. Bailey, P. M. Bell, S. Hau-Riege, M. Bedzyk, M. J. Shoup III, S. P. Regan, T. Agliata, R. Jungquist, D. W. Schmidt, L. B. Kot, W. J. Garbett, M. S. Rubery, J. W. Skidmore, E. Gullikson, and F. Salmassi, "Two-Color Spatial and Temporal Temperature Measurements Using a Streaked Soft X-Ray Imager," to be published in *Review of Scientific Instruments*.

S. Papernov, A. A. Kozlov, J. B. Oliver, C. Smith, L. Jensen, S. Günster, H. Mädebach, and D. Ristau, "Role of $\text{HfO}_2/\text{SiO}_2$ Thin-Film Interfaces in Near-Ultraviolet Absorption and Pulsed Laser Damage," to be published in *Optical Engineering*.

S. P. Regan, V. N. Goncharov, I. V. Igumenshchev, T. C. Sangster, R. Betti, A. Bose, T. R. Boehly, M. J. Bonino, E. M. Campbell, D. Cao, T. J. B. Collins, R. S. Craxton, A. K. Davis, 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, D. Jacobs-Perkins, R. Janezic, M. Karasik, R. L. Keck, J. H. Kelly, T. J. Kessler, J. P. Knauer, T. Z. Kosc, S. J. Loucks, J. A. Marozas, F. J. Marshall, R. L. McCrory, P. W. McKenty, D. D. Meyerhofer, D. T. Michel, J. F. Myatt, S. P. Obenshain, R. D. Petrasso, P. B. Radha, B. Rice, M. J. Rosenberg, A. J. Schmitt, M. J. Schmitt, W. Seka, W. T. Shmayda, M. J. Shoup III, A. Shvydky, S. Skupsky, A. A. Solodov, C. Stoeckl, W. Theobald, J. Ulreich, M. D. Wittman, K. M.

Woo, B. Yaakobi, and J. D. Zuegel, "Demonstration of Fuel Hot-Spot Pressure in Excess of 50 Gbar for Direct-Drive, Layered Deuterium-Tritium Implosions on OMEGA," to be published in *Physical Review Letters*.

M. Sharpe, W. T. Shmayda, and W. U. Schröder, "Tritium Migration to the Surfaces of Stainless-Steel 316, Aluminum 6061, and Oxygen-Free, High-Conductivity Copper," to be published in *Fusion Science and Technology*.

W. T. Shmayda, M. D. Wittman, R. F. Earley, J. L. Reid, and N. P. Redden, "The Laboratory for Laser Energetics' Hydrogen Isotope Separation System," to be published in *Fusion Engineering and Design* (invited).

N. D. Viza, M. H. Romanofsky, M. J. Moynihan, and D. R. Harding, "The Effect of a Surfactant on the Operation of T-Junctions for Mass-Producing Foam Targets," to be published in *Fusion Science and Technology*.

Conference Presentations

M. J. Rosenberg, V. Yu. Glebov, C. Stoeckl, W. Seka, F. J. Marshall, J. A. Delettretz, P. W. McKenty, M. Hohenberger, R. Betti, V. N. Goncharov, P. B. Radha, J. P. Knauer, T. C. Sangster, 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. Hoffman, G. Kagan, H. W. Herrmann, R. E. Olson, P. A. Amendt, S. Le Pape, 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, and A. Nikroo, "Ion Kinetic Effects in Exploding-Pusher Implosions on OMEGA and the National Ignition Facility," ICF Kinetic Physics Workshop, Livermore, CA, 5–7 April 2016.

The following presentations were made at the 11th International Conference on Tritium Science and Technology, Charleston, SC, 17–22 April 2016:

C. Fagan, M. Sharpe, W. T. Shmayda, and W. U. Schröder, "The Impact of Hydrophobicity of Stainless-Steel Surfaces on Tritium Inventories."

M. Sharpe, C. Fagan, W. T. Shmayda, and W. U. Schröder, "Influence of Surface Modifications on the Adsorption and Absorption of Tritium into 316 Stainless Steel."

W. T. Shmayda, M. D. Wittman, J. L. Reid, and R. F. Earley, "Tritium Activities at the University of Rochester's Laboratory for Laser Energetics."

M. D. Wittman, W. T. Shmayda, J. L. Reid, N. Redden, R. F. Earley, J. Magoon, K. Heung, S. Xiao, T. Sessions, and S. Redd,

"Isotope Separation System at the University of Rochester's Laboratory for Laser Energetics."

The following presentations were made at the 12th Direct Drive and Fast Ignition Workshop, Talence, France, 25–27 April 2016:

R. Betti, A. Bose, K. M. Woo, E. M. Campbell, A. R. Christopherson, R. L. McCrory, and R. Nora, "Fusion-Yield Extrapolation to Higher Laser Energies for Direct-Drive Inertial Fusion Including the Effect of Alpha Heating."

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. Delettretz, 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. Kosci, 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. Obenshain, and M. Karasik, "Status of Direct-Drive Research in the U.S."

I. V. Igumenshchev, V. N. Goncharov, F. J. Marshall, J. P. Knauer, E. M. Campbell, C. J. Forrest, D. H. Froula, V. Yu. Glebov, R. L. McCrory, T. C. Sangster, S. Skupsky, and C. Stoeckl, "Three-Dimensional Modeling of Direct-Drive Cryogenic Implosions on OMEGA."

P. B. Radha, "Direct Drive at the National Ignition Facility."

S. P. Regan, V. N. Goncharov, T. C. Sangster, R. Betti, T. R. Boehly, M. J. Bonino, E. M. Campbell, D. Cao, 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, M. Hohenberger, S. X. Hu, I. V. Igumenshchev, R. T. Janezic, J. H. Kelly, T. J. Kessler, J. P. Knauer, T. Z. Kosc, J. A. Marozas, F. J. Marshall, R. L. McCrory, P. W. McKenty, D. T. Michel, J. F. Myatt, P. B. Radha, M. J. Rosenberg, W. Seka, W. T. Shmayda, A. Shvydky, S. Skupsky, A. A. Solodov, C. Stoeckl, W. Theobald, M. D. Wittman, B. Yaakobi, J. D. Zuegel, J. A. Frenje, M. Gatu Johnson, R. D. Petrasso, S. P. Obenschain, M. Karasik, A. J. Schmitt, D. D. Meyerhofer, and M. J. Schmitt, “Demonstration of 50-Gbar Hot-Spot Pressure and Reduction of Cross-Beam Energy Transfer for Direct-Drive, Layered Deuterium–Tritium Implosions on OMEGA.”

W. Theobald, R. Betti, W. Seka, A. Bose, K. S. Anderson, M. Hohenberger, F. J. Marshall, D. T. Michel, A. Shvydky, A. A. Solodov, C. Stoeckl, D. H. Edgell, B. Yaakobi, R. Nora, A. Casner, M. Lafon, C. Reverdin, X. Ribeyre, E. Llor-aisa, A. Vallet, J. Peebles, F. N. Beg, and M. S. Wei, “Gigabar Shocks for Direct-Drive Shock-Ignition Fusion.”

The following presentations were made at the Omega Laser Facility Users Group Workshop, Rochester, NY, 27–29 April 2016:

W. J. Armstrong, J. C. Puth, and R. Rombaut, “Target Diagnostic Timing Manager.”

J. R. Davies, D. H. Barnak, R. Betti, E. M. Campbell, P.-Y. Chang, G. Fiksel, J. P. Knauer, S. P. Regan, A. Harvey-Thompson, K. J. Peterson, A. B. Sefkow, D. B. Sinars, and S. A. Slutz, “An Overview of Laser-Driven Magnetized Liner Inertial Fusion on OMEGA.”

M. J. Guardalben, M. Spilatro, L. J. Waxer, and M. Barcysz, “OMEGA EP UV Prediction Model for Enhanced Operational Performance.”

E. M. Hill, G. Balonek, R. Cuffney, J. H. Kelly, and T. Z. Kosc, “OMEGA SSD Arbitrary Waveform Generation Installation and Activation.”

E. M. Hill and J. C. Puth, “Omega Laser Facility and Diagnostic Timing Management.”

S. Ivancic, D. Haberberger, P. Angland, M. Barcysz, M. Bedzyk, R. Boni, R. Brown, R. S. Craxton, A. Davies, F. Ehrne, R. K. Jungquist, J. C. Puth, R. G. Roides, W. Seka, M. J. Shoup III, C. Stoeckl, W. Theobald, D. Weiner, and D. H. Froula, “Optical Diagnostic Suite (Schlieren, Interferometry, and Angular Filter Refractometry) on OMEGA EP Using a 10-ps, 263-nm Probe Beam.”

R. Jungquist, “Short-Pulse Stray Light Management.”

R. W. Kidder, A. Zeller, M. Charissis, P. Stoeckl, J. J. Rung, and R. Holderried, “The Principal Investigator Portal Provides a Gateway to Shot Information for External Users.”

R. W. Kidder, A. Zeller, T. Meyer, P. Stoeckl, R. Pasols, and R. Holderried, “External User Access Through the LLE Principal Investigator Portal.”

J. Kwiatkowski, M. Barcysz, M. Bedzyk, A. Kalb, B. E. Kruschwitz, C. McMahan, T. Nguyen, A. L. Rigatti, and M. Sacchitella, “OMEGA EP Short-Pulse Ratiometer.”

J. Kwiatkowski, E. M. Hill, B. Ehrich, M. Heimbueger, F. J. Marshall, and B. E. Kruschwitz, “OMEGA EP Pointing, Focusing, and Timing.”

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

D. Mastro Simone, 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.”

D. Mastro Simone, G. Fiksel, J. Magoon, A. Agliata, P.-Y. Chang, and D. H. Barnak, “Fielding MIFEDS on OMEGA.”

S. F. B. Morse, “Omega Facility OLUG 2016 Update: Progress on Recommendations and Items of General Interest.”

P. M. Nilson, F. Ehrne, C. Mileham, D. Mastro Simone, R. K. Jungquist, C. Taylor, R. Boni, J. Hassett, D. J. Lonobile, R. W. Kidder, M. J. Shoup III, A. A. Solodov, C. Stoeckl, and D. H. Froula, “High-Resolving Power, Ultrafast Streaked X-Ray Spectroscopy on OMEGA EP.”

T. C. Sangster, K. S. Anderson, R. Betti, T. R. Boehly, B. Boni, M. J. Bonino, E. M. Campbell, D. Canning, D. Cao, T. J. B.

Collins, R. S. Craxton, A. K. Davis, J. A. Delettrez, W. R. Donaldson, D. H. Edgell, R. Epstein, C. J. Forrest, D. H. Froula, V. Yu. Glebov, D. R. Harding, M. Hohenberger, S. X. Hu, H. Huang, I. V. Igumenshchev, R. T. Janezic, D. W. Jacobs-Perkins, J. Katz, R. L. Keck, J. H. Kelly, T. J. Kessler, B. E. Krushwitz, J. P. Knauer, T. Z. Kosc, S. J. Loucks, J. A. Marozas, F. J. Marshall, A. V. Maximov, R. L. McCrory, P. W. McKenty, D. T. Michel, S. F. B. Morse, J. F. Myatt, P. M. Nilson, J. C. Puth, P. B. Radha, B. S. Rice, M. J. Rosenberg, W. Seka, W. T. Shmayda, R. W. Short, A. Shvydky, M. J. Shoup III, S. Skupsky, A. A. Solodov, C. Sorce, S. Stagnito, C. Stoeckl, W. Theobald, J. Ulreich, M. D. Wittman, B. Yaakobi, J. D. Zuegel, J. A. Frenje, M. Gatu Johnson, R. D. Petrasso, H. Sio, B. Lahmann, M. A. Barrios, P. Bell, D. K. Bradley, D. A. Callahan, A. Carpenter, D. T. Casey, J. Celeste, M. Dayton, S. N. Dixit, C. Goyon, O. A. Hurricane, S. Le Pape, L. Masse, P. Michel, J. D. Moody, S. R. Nagel, A. Nikroo, R. Nora, L. Pickworth, J. E. Ralph, H. G. Rinderknecht, R. P. J. Town, D. P. Turnbull, R. J. Wallace, P. J. Wegner, M. Farrell, A. Greenwood, T. Hilsabeck, J. D. Kilkenny, N. Rice, M. Schoff, N. Petta, J. Hund, S. P. Obenschain, J. W. Bates, M. Karasik, A. J. Schmitt, J. Weaver, M. J. Schmitt, G. Rochau, J. Porter, M. Sanchez, L. Claus, G. Robertson, O. Looker, J. Hares, and T. Dymoke-Bradshaw, “Direct Drive 2020.”

I. Seth and J. P. Knauer, “Analysis of Chemical Vapor Deposition Diamonds for Neutron Detection on OMEGA.”

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

X. K. Zhou and S. X. Hu, “Radiation Reaction of Electrons at Laser Intensities up to 10^{25} W/cm².”

N. D. Viza, M. Wang, M. H. Romanofsky, and D. R. Harding, “Using Lab-on-Chip Technology to Mass Produce Inertial Fusion Energy Targets,” Exploring Alternative Energy: CO₂ as a Resource, Rochester, NY, 29 April 2016.

The following presentations were made at the 46th Annual Anomalous Absorption Conference, Old Saybrook, CT, 1–6 May 2016:

D. H. Barnak, R. Betti, E. M. Campbell, P.-Y. Chang, J. R. Davies, G. Fiksel, J. P. Knauer, S. P. Regan, A. Harvey-Thompson,

K. J. Peterson, A. B. Sefkow, D. B. Sinars, and S. A. Slutz, “Scaling Laser-Driven Magnetized Liner Inertial Fusion to the National Ignition Facility.”

E. Borwick, S. X. Hu, J. Li, R. Yan, and C. Ren, “Full-Pulse Particle-in-Cell Simulations of Hot-Electron Generation in OMEGA Experiments.”

S. Bucht, D. Haberberger, J. Bromage, and D. H. Froula, “Transforming the Idler for Use in Laser-Plasma Interaction Experiments.”

E. M. Campbell, “The National Ignition Facility: An Unexpected Journey, Lessons to be Learned to Secure Projects of Scale, and Perspectives on the Future of Inertial Confinement Fusion Research.”

A. Davies, J. Katz, S. Bucht, D. Haberberger, J. Bromage, J. D. Zuegel, D. H. Froula, J. Sadler, P. A. Norreys, R. Bingham, R. Trines, and L. O. Silva, “Thomson Scattering from Non-linear Electron Plasma Waves.”

J. R. Davies, D. H. Barnak, R. Betti, P.-Y. Chang, K. J. Peterson, A. B. Sefkow, D. B. Sinars, and S. A. Slutz, “An Overview of Laser-Driven Magnetized Linear Inertial Fusion on OMEGA.”

A. K. Davis, D. T. Michel, S. X. Hu, R. Epstein, J. P. Knauer, and D. H. Froula, “Conduction-Zone Measurements Using X-Ray Self-Emission Images.”

D. H. Edgell, R. K. Follett, J. Katz, J. F. Myatt, W. Seka, and D. H. Froula, “Polarization Dependence of Cross-Beam Energy Transfer in Unabsorbed Light Beamlets.”

D. H. Froula, R. K. Follett, R. J. Henchen, V. N. Goncharov, A. A. Solodov, J. A. Delettrez, D. H. Edgell, B. Yaakobi, C. Stoeckl, and J. F. Myatt, “The Effect of Cross-Beam Energy Transfer on Two-Plasmon Decay in Direct-Drive Implosions.”

D. Haberberger, D. H. Froula, A. Pak, A. Link, P. K. Patel, F. Fiuza, S. Ya. Tochitsky, and C. Joshi, “Shock-Wave Acceleration of Ions on OMEGA EP.”

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

J. Li, R. Yan, and C. Ren, “Density Modulation-Induced Absolute Laser-Plasma Instabilities: Simulations and Theory.”

D. T. Michel, S. X. Hu, A. K. Davis, V. Yu. Glebov, V. N. Goncharov, I. V. Igumenshchev, P. B. Radha, C. Stoeckl, and D. H. Froula, "Measurements of the Effect of Adiabatic on the Shell Thickness of Direct-Drive Implosions on OMEGA."

J. F. Myatt, J. G. Shaw, R. K. Follett, D. H. Edgell, V. N. Goncharov, A. V. Maximov, R. W. Short, W. Seka, and D. H. Froula, "A Wave-Based Model for Cross-Beam Energy Transfer in Inhomogeneous Plasmas."

C. Ren, J. Li, W.-D. Liu, and R. Yan, "Simulation of Stimulated Brillouin Scattering and Stimulated Raman Scattering in Shock Ignition."

M. J. Rosenberg, A. A. Solodov, W. Seka, R. Epstein, J. F. Myatt, S. P. Regan, M. Hohenberger, T. J. B. Collins, P. A. Michel, D. P. Turnbull, C. Goyon, J. D. Moody, J. E. Ralph, M. A. Barrios, and J. W. Bates, "Planar Laser-Plasma Interaction Experiments at Direct-Drive Ignition-Relevant Scale Lengths at the National Ignition Facility."

W. Seka, J. F. Myatt, V. N. Goncharov, R. Betti, S. P. Regan, A. V. Maximov, J. A. Delettrez, R. E. Bahr, A. A. Solodov, M. J. Rosenberg, A. Bose, and R. W. Short, "The Influence of Smoothing by Spectral Dispersion on Cross-Beam Energy Transfer."

R. W. Short, W. Seka, and J. F. Myatt, "Kinetic Analysis of Convective Stimulated Raman Scattering and Its Potential as a Temperature Diagnostic."

A. A. Solodov, M. J. Rosenberg, J. F. Myatt, R. Epstein, S. P. Regan, W. Seka, J. G. Shaw, M. Hohenberger, J. W. Bates, P. A. Michel, J. D. Moody, J. E. Ralph, D. P. Turnbull, and M. A. Barrios, "Modeling of Laser-Plasma Interaction Experiments at Direct-Drive Ignition-Relevant Plasma Conditions at the National Ignition Facility."

I. Seth and J. P. Knauer, "Analysis of Chemical-Vapor-Deposition Diamonds for Neutron Detection on OMEGA," Intel International Science and Engineering Fair, Phoenix, AZ, 8–13 May 2016.

G. Chen, A. Koroliov, R. Sherstha, and R. Sobolewski, "Terahertz Spectroscopy of Graphene-Polymer Nanocomposites,"

Frontiers in Materials Science for the 21st Century, Rochester, NY, 16 May 2016.

The following presentations were made at the 21st Topical Conference on High-Temperature Plasma Diagnostics, Madison, WI, 5–9 June 2016:

P. X. Belancourt, W. Theobald, P. A. Keiter, T. J. B. Collins, M. J. Bonino, P. Kozlowski, S. P. Regan, and R. P. Drake, "Demonstration of Imaging X-Ray Thomson Scattering on OMEGA EP."

A. K. Davis, D. T. Michel, R. S. Craxton, R. Epstein, M. Hohenberger, T. Mo, and D. H. Froula, "X-Ray Self-Emission Imaging Used to Diagnose 3-D Nonuniformities in Direct-Drive ICF Implosions."

R. K. Follett, J. A. Delettrez, R. J. Henchen, J. Katz, D. H. Edgell, J. F. Myatt, and D. H. Froula, "Plasma Characterization Using Ultraviolet Thomson Scattering from Ion-Acoustic and Electron Plasma Waves" (invited).

C. J. Forrest, V. Yu. Glebov, V. N. Goncharov, J. P. Knauer, P. B. Radha, S. P. Regan, M. H. Romanofsky, T. C. Sangster, M. J. Shoup III, and C. Stoeckl, "High-Dynamic-Range Neutron Time-of-Flight Detector Used to Infer the $D(t,n)^4\text{He}$ and $D(d,n)^3\text{He}$ Reaction Yield and Ion Temperature on OMEGA."

V. Yu. Glebov, R. Flight, C. J. Forrest, J. P. Knauer, S. P. Regan, M. H. Romanofsky, T. C. Sangster, and C. Stoeckl, "A New Microchannel-Plate Neutron Time-of-Flight Detector."

S. T. Ivancic, D. Nelson, P. M. Nilson, C. R. Stillman, C. Mileham, I. A. Begishev, and D. H. Froula, "Design of an Extreme Ultraviolet Spectrometer Suite for Characterization of Rapidly Heated Solid Matter."

J. Katz, R. Boni, A. Maltsev, C. Muir, M. H. Romanofsky, and D. H. Froula, "A Pulse-Front-Tilt-Compensated Streaked Optical Spectrometer with High Throughput and Picosecond Time Resolution."

J. P. Knauer, C. J. Forrest, V. Yu. Glebov, T. C. Sangster, and C. Stoeckl, "Three-Axis Neutron Time-of-Flight Measurement."

P. M. Nilson, F. Ehrne, C. Mileham, D. Mastrosimone, R. K. Jungquist, C. Taylor, C. R. Stillman, S. T. Ivancic, R. Boni,

J. Hassett, D. J. Lonobile, R. W. Kidder, M. J. Shoup III, A. A. Solodov, C. Stoeckl, D. H. Froula, K. W. Hill, L. Gao, M. Bitter, P. Efthimion, and D. D. Meyerhofer, “High-Resolving-Power, Ultrafast Streaked X-Ray Spectroscopy on OMEGA EP” (invited).

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

C. R. Stillman, P. M. Nilson, S. Ivancic, C. Mileham, I. A. Begishev, R. K. Junquist, and D. H. Froula, “A Streaked X-Ray Spectroscopy Platform for Rapidly Heated, Near-Solid Density Plasmas.”

C. Stoeckl, W. Theobald, S. P. Regan, and M. H. Romanofsky, “Calibration of a Time-Resolved Hard X-Ray Detector Using Radioactive Sources.”

W. Theobald, C. Sorce, M. Bedzyk, F. J. Marshall, C. Stoeckl, S. P. Regan, T. Hilsabeck, J. D. Kilkenny, D. Morris, M. Chung, J. Hares, T. Dymoke-Bradshaw, P. Bell, J. Celeste, A. Carpenter, M. Dayton, D. K. Bradley, M. C. Jackson, L. Pickworth, S. Nagel, G. Rochau, J. Porter, M. Sanchez, L. Claus, G. Robertson, and Q. Looker, “Conceptual Design of a Single-Line-of-Sight Time-Resolved X-Ray Imager on OMEGA.”

The following presentations were made at CLEO 2016, San Jose, CA, 5–10 June 2016:

I. A. Begishev, J. Bromage, P. S. Datte, S. T. Yang, and J. D. Zuegel, “Record Fifth-Harmonic-Generation Efficiency Producing 211-nm Pulses Using Cesium Lithium Borate.”

S. G. Demos, R. Levenson, F. Fereidouni, and Z. Harmany, “Slide-Free (But Not Necessarily Stain-Free) Microscopy via Ultraviolet Excitation.”

C. Dorrer, W. A. Bittle, R. Cuffney, E. M. Hill, T. Z. Kosc, J. H. Kelly, and J. D. Zuegel, “High-Contrast, Time-Multiplexed Pulse-Shaping Systems.”

C. Dorrer, Y. Li, and P. Fiala, “Focal-Spot Optimization by Polarization Modulation.”

C. Dorrer, L. J. Waxer, A. Kalb, E. M. Hill, and J. Bromage, “Single-Shot, High-Resolution Fiber-Based Phase-Diversity Photodetection of Optical Pulses.”

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, and J. Sanz, “Status and Prospects for Burning Plasmas via Laser Fusion,” 43rd IEEE International Conference on Plasma Science, Banff, Alberta, Canada, 19–23 June 2016 (invited).

The following presentations were made at the 15th Meeting of the Tritium Users Group, Southampton, UK, 21–22 June 2016:

W. T. Shmayda, “Tritium Interaction with Stainless Steel.”

W. T. Shmayda, M. D. Wittman, J. L. Reid, and R. F. Earley, “Tritium Activities at the University of Rochester’s Laboratory for Laser Energetics.”

C. R. Stillman, P. M. Nilson, S. T. Ivancic, C. Mileham, I. A. Begishev, R. K. Junquist, and D. H. Froula, “A Streaked X-Ray Spectroscopy Platform for Rapidly Heated, Near-Solid Density Plasmas,” 2016 DOE NNSA Stewardship Science Graduate Fellowship Program, Las Vegas, NV, 27–30 June 2016.

C. J. Forrest, V. Yu. Glebov, J. P. Knauer, P. B. Radha, S. P. Regan, T. C. Sangster, C. Stoeckl, W. U. Schroeder, J. A. Frenje, M. Gatu Johnson, M. W. Paris, G. Hale, and A. B. Zylstra, “Neutron-Induced Break-up Reaction Using Deuterium Fusion Neutrons at the Omega Laser Facility,” 2016 R-Matrix Workshop on Methods and Applications, Santa Fe, NM, 27 June–1 July 2016.

The following presentations were made at the CEA-NNSA Workshop, Rochester, NY, 29–30 June 2016:

I. A. Begishev, J. Bromage, J. D. Zuegel, P. S. Datte, and S. T. Yang, “Record Fifth-Harmonic-Generation Efficiency Producing 211-nm Pulses Using Cesium Lithium Borate.”

V. Yu. Glebov, R. Flight, C. J. Forrest, J. P. Knauer, S. P. Regan, M. H. Romanofsky, T. C. Sangster, and C. Stoeckl, “A New Microchannel-Plate Neutron Time-of-Flight Detector.”

P. M. Nilson, F. Ehrne, C. Mileham, D. Mastrosimone, R. K. Jungquist, C. Taylor, R. Boni, J. Hassett, C. R. Stillman, S. T.

Ivancic, D. J. Lonobile, R. W. Kidder, M. J. Shoup III, A. A. Solodov, C. Stoeckl, D. H. Froula, K. M. Hill, L. Gao, M. Bitter, P. Efthimion, and D. D. Meyerhofer, “High-Resolving-Power, Ultrafast Streaked X-Ray Spectroscopy on OMEGA EP.”

W. Theobald, C. Sorce, M. Bedzyk, F. J. Marshall, C. Stoeckl, S. P. Regan, T. Hilsabeck, J. D.ilkenny, D. Morris, M. Chung, J. Hares, A. Dymoke-Bradshaw, P. Bell, J. Celeste, A. Carpenter, M. Dayton, D. K. Bradley, M. C. Jackson, L. Pickworth, S. Nagel, G. Rochau, J. Porter, M. Sanchez, L. Claus, G. Robertson, and Q. Looker, “Conceptual Design of a Single-Line-of-Sight Resolved X-Ray Imager on OMEGA.”

