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## Publications and Conference Presentations

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### Publications

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- S.-W. Bahk, C. Dorrer, and J. Bromage, “Chromatic Diversity: A New Approach for Characterizing Spatiotemporal Coupling of Ultrashort Pulses,” *Opt. Express* **26**, 8767 (2018).
- I. A. Begishev, J. Bromage, S. T. Yang, P. S. Datte, S. Patankar, and J. D. Zuegel, “Record Fifth-Harmonic-Generation Efficiency Producing 211 nm, Joule-Level Pulses Using Cesium Lithium Borate,” *Opt. Lett.* **43**, 2462 (2018).
- A. Bose, R. Betti, D. Mangino, K. M. Woo, D. Patel, A. R. Christopherson, V. Gopaldaswamy, O. M. Mannion, S. P. Regan, V. N. Goncharov, D. H. Edgell, C. J. Forrest, J. A. Frenje, M. Gatu Johnson, V. Yu. Glebov, I. V. Igumenshchev, J. P. Knauer, F. J. Marshall, P. B. Radha, R. Shah, C. Stoeckl, W. Theobald, T. C. Sangster, D. Shvarts, and E. M. Campbell, “Analysis of Trends in Experimental Observables: Reconstruction of the Implosion Dynamics and Implications for Fusion Yield Extrapolation for Direct-Drive Cryogenic Targets on OMEGA,” *Phys. Plasmas* **25**, 062701 (2018).
- D. Cao, T. R. Boehly, M. C. Gregor, D. N. Polsin, A. K. Davis, P. B. Radha, S. P. Regan, and V. N. Goncharov, “Theoretical Quantification of Shock-Timing Sensitivities for Direct-Drive Inertial Confinement Fusion Implosions on OMEGA,” *Phys. Plasmas* **25**, 052705 (2018).
- L. Ceurvorst, A. Savin, N. Ratan, M. F. Kasim, J. Sadler, P. A. Norreys, H. Habara, K. A. Tanaka, S. Zhang, M. S. Wei, S. Ivancic, D. H. Froula, and W. Theobald, “Channel Optimization of High-Intensity Laser Beams in Millimeter-Scale Plasmas,” *Phys. Rev. E* **97**, 043208 (2018).
- J. R. Davies, R. E. Bahr, D. H. Barnak, R. Betti, M. J. Bonino, E. M. Campbell, E. C. Hansen, D. R. Harding, J. L. Peebles, A. B. Sefkow, W. Seka, P.-Y. Chang, M. Geissel, and A. J. Harvey-Thompson, “Laser Entrance Window Transmission and Reflection Measurements for Preheating in Magnetized Liner Inertial Fusion,” *Phys. Plasmas* **25**, 062704 (2018).
- J. A. Fooks, L. C. Carlson, P. Fitzsimmons, E. Giraldez, D. N. Kaczala, M. Wei, N. Alexander, M. P. Farrell, J. Betcher, A. Harvey-Thompson, and T. Nagayama, “Evolution of Magnetized Liner Inertial Fusion (MagLIF) Targets,” *Fusion Sci. Technol.* **73**, 423 (2018).
- C. J. Forrest, J. P. Knauer, W. U. Schroeder, V. Yu. Glebov, P. B. Radha, S. P. Regan, T. C. Sangster, M. Sickles, C. Stoeckl, and J. Szczepanski, “Nuclear Science Experiments with a Bright Neutron Source from Fusion Reactions on the Omega Laser System,” *Nuclear Instrum. Methods Phys. Res. A* **888**, 169 (2018).
- D. E. Frantanduono, M. Millot, R. G. Kraus, D. K. Spaulding, G. W. Collins, P. M. Celliers, and J. H. Eggert, “Thermodynamic Properties of MgSiO<sub>3</sub> at Super-Earth Mantle Conditions,” *Phys. Rev. B* **97**, 214105 (2018).
- D. H. Froula, D. Turnbull, A. S. Davies, T. J. Kessler, D. Haberberger, J. P. Palastro, S.-W. Bahk, I. A. Begishev, R. Boni, S. Bucht, J. Katz, and J. L. Shaw, “Spatiotemporal Control of Laser Intensity,” *Nature Photon.* **12**, 262 (2018).
- M. Gatu Johnson, D. T. Casey, M. Hohenberger, A. B. Zylstra, A. Bacher, C. R. Brune, R. M. Bionta, R. S. Craxton, C. L. Ellison, M. Farrell, J. A. Frenje, W. Garbett, E. M. Garcia, G. P. Grim, E. Hartouni, R. Hatarik, H. W. Herrmann, M. Hohensee, D. M. Holunga, M. Hoppe, M. Jackson, N. Kabadi, S. F. Khan, J. D. Kilkenny, T. R. Kohut, B. Lahmann, H. P. Le, C. K. Li, L. Masse, P. W. McKenty, D. P. McNabb, A. Nikroo, T. G. Parham, C. E. Parker, R. D. Petrasso, J. Pino, B. Remington, N. G. Rice, H. G. Rinderknecht, M. J. Rosenberg, J. Sanchez, D. B. Sayre, M. E. Schoff, C. M. Shulberg, F. H. Séguin, H. Sio, Z. B. Walters, and H. D. Whitley, “Optimization of a High-Yield, Low-Areal-Density Fusion Product Source at the National Ignition Facility with Applications in Nucleosynthesis Experiments,” *Phys. Plasmas* **25**, 056303 (2018).
- E. C. Hansen, D. H. Barnak, R. Betti, E. M. Campbell, P.-Y. Chang, J. R. Davies, V. Yu. Glebov, J. P. Knauer, J. Peebles,

S. P. Regan, and A. B. Sefkow, “Measuring Implosion Velocities in Experiments and Simulations of Laser-Driven Cylindrical Implosions on the OMEGA Laser,” *Plasma Phys. Control Fusion* **60**, 054014 (2018).

D. R. Harding, J. Ulreich, M. D. Wittman, R. Chapman, C. Taylor, R. Taylor, N. P. Redden, J. C. Lambropoulos, R. Q. Gram, M. J. Bonino, and D. W. Turner, “Requirements and Capabilities for Fielding Cryogenic DT-Containing Fill-Tube Targets for Direct-Drive Experiments on OMEGA,” *Fusion Sci. Technol.* **73**, 324 (2018).

S. X. Hu, L. A. Collins, T. R. Boehly, Y. H. Ding, P. B. Radha, V. N. Goncharov, V. V. Karasiev, G. W. Collins, S. P. Regan, and E. M. Campbell, “A Review on *Ab-Initio* Studies of Static, Transport, and Optical Properties of Polystyrene Under Extreme Conditions for Inertial Confinement Fusion Applications,” *Phys. Plasmas* **25**, 056306 (2018).

S. Le Pape, L. F. Berzak Hopkins, L. Divol, A. Pak, E. L. Dewald, S. Bhandarkar, L. R. Benedetti, T. Bunn, J. Biener, J. Crippen, D. Casey, D. Edgell, D. N. Fittinghoff, M. Gatu-Johnson, C. Goyon, S. Haan, R. Hatarik, M. Havre, D. D-M. Ho, N. Izumi, J. Jaquez, S. F. Khan, G. A. Kyrala, T. Ma, A. J. Mackinnon, A. G. MacPhee, B. J. MacGowan, N. B. Meezan, J. Milovich, M. Millot, P. Michel, S. R. Nagel, A. Nikroo, P. Patel, J. Ralph, J. S. Ross, N. G. Rice, D. Strozzi, M. Stadermann, P. Volegov, C. Yeamans, C. Weber, C. Wild, D. Callahan, and O. A. Hurricane, “Fusion Energy Output Greater than the Kinetic Energy of an Imploding Shell at the National Ignition Facility,” *Phys. Rev. Lett.* **120**, 245003 (2018).

J. A. Marozas, M. Hohenberger, M. J. Rosenberg, D. Turnbull, T. J. B. Collins, P. B. Radha, P. W. McKenty, J. D. Zuegel, F. J. Marshall, S. P. Regan, T. C. Sangster, W. Seka, E. M. Campbell, V. N. Goncharov, M. W. Bowers, J.-M. G. Di Nicola, G. Erbert, B. J. MacGowan, L. J. Pelz, J. Moody, and S. T. Yang, “Wavelength-Detuning Cross-Beam Energy Transfer Mitigation Scheme for Direct Drive: Modeling and Evidence from National Ignition Facility Implosions,” *Phys. Plasmas* **25**, 056314 (2018) (invited).

S. A. Muller, D. N. Kaczala, H. M. Abu-Shawareb, E. L. Alfonso, L. C. Carlson, M. Mauldin, P. Fitzsimmons, D. Lamb, P. Tzeferacos, L. Chen, G. Gregori, A. Rigby, A. Bott, T. G. White, D. Froula, and J. Katz, “Evolution of the Design and Fabrication of Astrophysics Targets for Turbulent Dynamo (TDYNO) Experiments on OMEGA,” *Fusion Sci. Technol.* **73**, 434 (2018).

J. B. Oliver, S. MacNally, C. Smith, B. N. Hoffman, J. Spaulding, J. Foster, S. Papernov, and T. J. Kessler, “Fabrication of a Glancing-Angle-Deposited Distributed Polarization Rotator for Ultraviolet Applications,” *Proc. SPIE* **10691**, 106911C (2018).

S. Papernov, M. D. Brunsmann, J. B. Oliver, B. N. Hoffman, A. A. Kozlov, S. G. Demos, A. Shvydky, F. H. M. Cavalcante, L. Yang, C. S. Menoni, B. Roshanzadeh, S. T. P. Boyd, L. A. Emmert, and W. Rudolph, “Optical Properties of Oxygen Vacancies in HfO<sub>2</sub> Thin Films Studied by Absorption and Luminescence Spectroscopy,” *Opt. Express* **26**, 17,608 (2018).

M. D. Sharpe, C. Fagan, W. T. Shmayda, and W. U. Schröder, “Partitioning of Tritium Between Surface and Bulk of 316 Stainless Steel at Room Temperature,” *Fusion Eng. Des.* **130**, 76 (2018).

R. F. Smith, D. E. Fratanduono, D. G. Braun, T. S. Duffy, J. K. Wicks, P. M. Celliers, S. J. Ali, A. Fernandez-Pañella, R. G. Kraus, D. C. Swift, G. W. Collins, and J. H. Eggert, “Equation of State of Iron Under Core Conditions of Large Rocky Exoplanets,” *Nat. Astron.* **2**, 452 (2018).

C. R. Stillman, P. M. Nilson, A. B. Sefkow, S. T. Ivancic, C. Mileham, I. A. Begishev, and D. H. Froula, “Energy Transfer Dynamics in Strongly Inhomogeneous Hot-Dense-Matter Systems,” *Phys. Rev. E* **97**, 063208 (2018).

M. Stoeckl, and A. A. Solodov, “Readout Models for BaFBr<sub>0.85</sub>I<sub>0.15</sub>:Eu Image Plates,” *Rev. Sci. Instrum.* **89**, 063101 (2018).

J. Trela, W. Theobald, K. S. Anderson, D. Batani, R. Betti, A. Casner, J. A. Delettrez, J. A. Frenje, V. Yu. Glebov, X. Ribeyre, A. A. Solodov, M. Stoeckl, and C. Stoeckl, “The Control of Hot-Electron Preheat in Shock-Ignition Implosions,” *Phys. Plasmas* **25**, 052707 (2018).

D. Turnbull, A. Colaïtis, R. K. Follett, J. P. Palastro, D. H. Froula, P. Michel, C. Goyon, T. Chapman, L. Divol, G. E. Kemp, D. Mariscal, S. Patankar, B. B. Pollock, J. S. Ross, J. D. Moody, E. R. Tubman, and N. C. Woolsey, “Cross-Beam Energy Transfer: Polarization Effects and Evidence of Saturation,” *Plasma Phys. Control. Fusion* **60**, 054017 (2018).

D. Turnbull, P. Franke, J. Katz, J. P. Palastro, I. A. Begishev, R. Boni, J. Bromage, A. L. Milder, J. L. Shaw, and D. H. Froula, “Ionization Waves of Arbitrary Velocity,” *Phys. Rev. Lett.* **120**, 225001 (2018).

P. Tzeferacos, A. Rigby, A. F. A. Bott, A. R. Bell, R. Bingham, A. Casner, F. Cattaneo, E. M. Churazov, J. Emig, F. Fiuza, C. B. Forest, J. Foster, C. Graziani, J. Katz, M. Koenig, C.-K. Li, J. Meinecke, R. Petrasso, H.-S. Park, B. A. Remington, J. S. Ross, D. Ryu, D. Ryutov, T. G. White, B. Reville, F. Miniati, A. A. Schekochihin, D. Q. Lamb, D. H. Froula, and G. Gregori, “Laboratory Evidence of Dynamo Amplification of Magnetic Fields in a Turbulent Plasma,” *Nat. Commun.* **9**, 591 (2018).

F. Weilacher, P. B. Radha, and C. Forrest, “Three-Dimensional Modeling of the Neutron Spectrum to Infer Plasma Conditions in Cryogenic Inertial Confinement Fusion Implosions,” *Phys. Plasmas* **25**, 042704 (2018).

M. D. Wittman, M. J. Bonino, D. H. Edgell, C. Fella, D. R. Harding, and J. Sanchez, “Effect of Tritium-Induced Damage on Plastic Targets from High-Density DT Permeation,” *Fusion Sci. Technol.* **73**, 315 (2018).

K. M. Woo, R. Betti, D. Shvarts, A. Bose, D. Patel, R. Yan, P.-Y. Chang, O. M. Mannion, R. Epstein, J. A. Delettrez, M. Charissis, K. S. Anderson, P. B. Radha, A. Shvydky, I. V. Igumenshchev, V. Gopalaswamy, A. R. Christopherson, J. Sanz, and H. Aluie, “Effects of Residual Kinetic Energy on Yield Degradation and Ion Temperature Asymmetries in Inertial Confinement Fusion Implosions,” *Phys. Plasmas* **25**, 052704 (2018).

M. Zaghoo, “Dynamic Conductivity and Partial Ionization in Dense Fluid Hydrogen,” *Phys. Rev. E* **97**, 043205 (2018).

D. Zhao and H. Aluie, “Inviscid Criterion for Decomposing Scales,” *Phys. Rev. Fluids* **3**, 054603 (2018).

A. B. Zylstra, N. M. Hoffman, H. W. Herrmann, M. J. Schmitt, Y. H. Kim, K. Meaney, A. Leatherland, S. Gales, C. Forrest, V. Yu. Glebov, M. Schoff, M. Hoppe, and N. Ravelo, “Diffusion-Dominated Mixing in Moderate Convergence Implosions,” *Phys. Rev. E* **97**, 061201(R) (2018).

### Forthcoming Publications

F. Albert, N. Lemos, J. L. Shaw, P. M. King, B. B. Pollock, C. Goyon, W. Schumaker, A. M. Saunders, K. A. Marsh, A. Pak, J. E. Ralph, J. L. Martins, L. D. Amorim, R. W. Falcone, S. H. Glenzer, J. D. Moody, and C. Joshi, “Betatron X-Ray Radiation in the Self-Modulated Laser Wakefield Acceleration Regime: Prospects for a Novel Probe at Large Scale Laser Facilities,” to be published in *Nuclear Fusion*.

P. M. Celliers, M. Millot, S. Brygoo, R. S. McWilliams, D. E. Fratanduono, J. R. Rygg, A. F. Goncharov, P. Loubeyre, J. H. Eggert, J. L. Peterson, N. B. Meezan, S. Le Pape, G. W. Collins, R. Jeanloz, and R. J. Hemley, “Insulator-Metal Transition in Dense Fluid Deuterium,” to be published in *Science*.

A. R. Christopherson, R. Betti, J. Howard, K. M. Woo, A. Bose, E. M. Campbell and V. Gopalaswamy, “Theory of Alpha Heating in Inertial Fusion: Alpha-Heating Metrics and the Onset of the Burning-Plasma Regime,” to be published in *Physics of Plasmas*.

A. Colaitis, J.-E. Ducret, M. Le Pennec, X. Ribeyre, and S. Turck-Chièze, “Towards a Novel Stellar Opacity Measurement Scheme Using Stability Properties of Double Ablation Front Structures,” to be published in *Physics of Plasmas*.

T. J. B. Collins, and J. A. Marozas, “Mitigation of Cross-Beam Energy Transfer in Ignition-Scale Polar-Direct-Drive Target

Designs for the National Ignition Facility,” to be published in *Physics of Plasmas*.

C. Dorrer and R. J. Brown, “A Stable, Low-Repetition-Rate Time-Lens Picosecond Seed Source,” to be published in *IEEE Photonics Technology Letters*.

C. Dorrer, A. Kalb, P. Fiala, S.-W. Bahk, A. Sharma, and K. Gibney, “Investigation of an Apodized Imaged Hartmann Wavefront Sensor,” to be published in *Applied Optics*.

D. H. Edgell, J. Katz, D. P. Turnbull, and D. H. Froula, “Unabsorbed Light Beamlets for Diagnosing Cross-Beam Energy Transfer,” to be published in *Review of Scientific Instruments*.

C. L. Ellison, H. D. Whitley, C. R. D. Brown, S. R. Copeland, W. J. Garbett, H. P. Le, M. B. Schneider, Z. B. Walters, H. Chen, J. I. Castor, R. S. Craxton, M. Gatu Johnson, E. M. Garcia, F. R. Graziani, G. E. Kemp, C. M. Krauland, P. W. McKenty, B. Lahmann, J. E. Pino, M. S. Rubery, H. A. Scott, R. Shepherd, and H. Sio, “Development and Modeling of a Polar-Direct-Drive Exploding Pusher Platform at the National Ignition Facility,” to be published in *Physics of Plasmas*.

M. Gatu Johnson, C. J. Forrest, D. B. Sayre, A. Bacher, J.-L. Bourgade, C. R. Brune, J. A. Caggiano, D. T. Casey, J. A.

Frenje, V. Yu. Glebov, G. M. Hale, R. Hatarik, H. W. Herrmann, R. Janezic, Y. H. Kim, J. P. Knauer, O. Landoas, D. P. McNabb, M. W. Paris, R. D. Petrasso, J. E. Pino, S. Quaglioni, B. Rosse, J. Sanchez, T. C. Sangster, H. Sio, W. Shmayda, C. Stoeckl, I. Thompson, and A. B. Zylstra, "Experimental Evidence of a Variant Neutron Spectrum from the  $T(t,2n)\alpha$  Reaction at Center-of-Mass Energies in the Range of 16–50 keV," to be published in *Physical Review Letters*.

S. M. Gracewski, S. Boylan, J. C. Lambropoulos, J. B. Oliver, T. J. Kessler, and S. G. Demos, "Simulation of Internal Stress Waves Generated by Laser-Induced Damage in Multilayer Dielectric Gratings," to be published in *Optics Express*.

W. Grimble, F. J. Marshall, and E. Lambrides, "Measurement of Cryogenic Target Position and Implosion Core Offsets on OMEGA," to be published in *Physics of Plasmas*.

A. M. Hansen, D. Haberberger, J. Katz, D. Mastro Simone, R. K. Follett, and D. H. Froula, "Supersonic Gas-Jet Characterization with Interferometry and Thomson Scattering on the OMEGA Laser System," to be published in *Review of Scientific Instruments*.

A. Howard, D. Haberberger, R. Boni, R. Brown, and D. H. Froula, "Implementation of a Wollaston Interferometry Diagnostic on OMEGA EP," to be published in *Review of Scientific Instruments*.

S. X. Hu, V. N. Goncharov, P. B. Radha, S. P. Regan, and E. M. Campbell, "Microphysics Studies for Direct-Drive Inertial Confinement Fusion," to be published in *Nuclear Fusion*.

S. X. Hu, W. Theobald, P. B. Radha, J. L. Peebles, S. P. Regan, A. Nikroo, M. J. Bonino, D. R. Harding, V. N. Goncharov, N. Petta, T. C. Sangster, and E. M. Campbell, "Mitigating Laser-Imprint Effects in Direct-Drive Inertial Confinement Fusion Implosions with an Above-Critical-Density Foam Layer," to be published in *Physics of Plasmas*.

C. Z. R. Huang, R. W. Wood, and S. G. Demos, "Adaptation of Microscopy with Ultraviolet Surface Excitation for Enhancing STEM and Undergraduate Education," to be published in the *Journal of Biomedical Optics*.

E. V. Ludeña, E. X. Salazar, M. H. Cornejo, D. E. Arroyo, and V. V. Karasiev, "The Liu–Parr Power Series Expansion of the

Pauli Kinetic Energy Functional with the Incorporation of the Shell-Inducing Traits: Atoms," to be published in the *International Journal of Quantum Chemistry*.

K. Luo, V. V. Karasiev, and S. B. Trickey, "A Simple Generalized Gradient Approximation for the Noninteracting Kinetic Energy Density Functional," to be published in *Physical Review B*.

O. M. Mannion, V. Yu. Glebov, C. J. Forrest, V. N. Goncharov, J. P. Knauer, S. P. Regan, T. C. Sangster, C. Stoeckl, and M. Gatu Johnson, "Calibration of a Neutron Time-of-Flight Detector with a Rapid Instrument Response Function for Measurements of Bulk Fluid Motion on OMEGA," to be published in *Review of Scientific Instruments*.

J. Matteucci, W. Fox, A. Bhattacharjee, D. B. Schaeffer, C. Moissard, K. Germaschewski, G. Fiksel, and S. X. Hu, "Biermann-Battery–Mediated Magnetic Reconnection in 3-D Colliding Plasmas," to be published in *Physical Review Letters*.

A. Rigby, J. Katz, A. F. A. Bott, T. G. White, P. Tzeferacos, D. Q. Lamb, D. H. Froula, and G. Gregori, "Implementation of a Faraday Rotation Diagnostic at the OMEGA Laser Facility," to be published in *High Power Laser Science and Engineering*.

R. Sobolewski, "Optical Sensors," to be published in the *Handbook of Superconducting Materials*.

C. Stoeckl, T. Filkins, R. Jungquist, C. Mileham, N. R. Pereira, S. P. Regan, M. J. Shoup III, and W. Theobald, "Characterization of Shaped Bragg Crystal Assemblies for Narrowband X-Ray Imaging," to be published in *Review of Scientific Instruments*.

R. Xin and J. D. Zuegel, "Chirped-Pulse–Amplification Seed Source Through Direct Phase Modulation," to be published in *Optics Express*.

R. P. Young, C. C. Kuranz, R. P. Drake, D. H. Froula, J. S. Ross, and S. Klein, "Observation of Collisionless-to-Collisional Transition in Colliding Plasma Jets with Optical Thomson Scattering," to be published in *Physics of Plasmas*.

M. Zaghoo and G. W. Collins, "Size and Strength of Self-Excited Dynamos in Jupiter-Like Extrasolar Planets," to be published in *Astrophysical Journal*.

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**Conference Presentations**


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J. Bromage, S.-W. Bahk, I. A. Begishev, C. Dorrer, M. J. Guardalben, B. N. Hoffman, J. B. Oliver, R. G. Roides, E. M. Schiesser, M. J. Shoup III, M. Spilatro, B. Webb, D. Weiner, and J. D. Zuegel, “Technology Development for Ultra-Intense All-OPCPA Systems,” presented at the 3rd International Symposium on High Power Laser Science and Engineering, Suzhou, China, 9–12 April 2018.

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M. Singh, J. Cady, Y. Akbas, G. Chen, R. Sobolewski, and O. Mukhanov, “Superconducting Single-Photon Detectors as Smart Sensors,” presented at CEIS 2018, Rochester, NY, 12 April 2018.

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The following presentations were made at the March for Science, Rochester, NY, 14 April 2018:

N. Bose, “Compensation for Self-Focusing on OMEGA EP by Use of Frequency Conversion of Light.”

R. S. Craxton, “University of Rochester, Laboratory for Laser Energetics.”

Y. Yang and R. S. Craxton, “Improving the Uniformity of *Revolver* Designs for the National Ignition Facility.”

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The following presentations were made at the 22nd Topical Conference on High Temperature Plasma Diagnostics, San Diego, CA, 16–19 April 2018:

D. H. Edgell, J. Katz, D. Turnbull, and D. H. Froula, “Unabsorbed Light Beamlets for Diagnosing Cross-Beam Energy Transfer.”

V. Yu. Glebov, M. J. Eckart, C. J. Forrest, G. P. Grim, E. P. Hartouni, R. Hatarik, J. P. Knauer, A. S. Moore, S. P. Regan, T. C. Sangster, D. J. Schlossberg, and C. Stoeckl, “Testing a Cherenkov Neutron Time-of-Flight Detector on OMEGA.”

A. Hansen, D. Haberberger, J. Katz, R. K. Follett, and D. H. Froula, “Supersonic Gas-Jet Characterization with Interferometry and Thomson Scattering on the OMEGA Laser System.”

A. Howard, D. Haberberger, R. Boni, R. Brown, and D. H. Froula, “Implementation of a Wollaston Interferometry Diagnostic on OMEGA EP.”

J. Katz, R. Boni, A. Davies, and D. H. Froula, “A High-Throughput, Pulse-Front-Tilt-Compensated Streaked Spectrometer for Picosecond Optical Thomson Scattering.”

O. M. Mannon, C. J. Forrest, V. Yu. Glebov, V. N. Goncharov, J. P. Knauer, S. P. Regan, T. C. Sangster, C. Stoeckl, and M. Gatu Johnson, “Measurements of Bulk-Fluid Motion In Direct-Drive Implosions.”

A. L. Milder and D. H. Froula, “Measuring Electron Distribution Functions Using Collective Thomson Scattering.”

P. M. Nilson, F. Ehrne, C. Taylor, C. Mileham, D. Mastrosimone, R. K. Jungquist, R. Boni, J. Hassett, C. R. Stillman, S. T. Ivancic, D. J. Lonobile, R. W. Kidder, M. J. Shoup III, A. A. Solodov, A. B. Sefkow, C. Stoeckl, W. Theobald, D. H. Froula, K. W. Hill, L. Gao, M. Bitter, P. Efthimion, and D. D. Meyerhofer, “High-Resolving-Power, Streaked X-Ray Spectroscopy on the OMEGA EP Laser System.”

R. C. Shah, D. Cao, R. Epstein, S. P. Regan, W. Theobald, B. Kraus, L. Gao, K. Hill, B. Stratton, P. Efthimion, and B. Bachmann, “Multichannel X-Ray Hot-Spot Imager Operating in the 5- to 3-KeV Range on OMEGA.”

C. Stoeckl, T. Filkins, R. K. Jungquist, C. Mileham, S. P. Regan, M. J. Shoup III, and W. Theobald, “Characterization of Shaped Bragg Crystal Assemblies for Narrowband X-Ray Imaging.”

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

The following presentations were made at the Meeting on Magnetic Fields in Laser Plasmas, Rochester, NY, 23–24 April 2018:

D. H. Barnak, R. Betti, P.-Y. Chang, J. R. Davies, V. Yu. Glebov, E. C. Hansen, J. P. Knauer, J. Peebles, S. P. Regan, R. Epstein, A. B. Sefkow, E. M. Campbell, K. J. Peterson, D. B. Sinars, and S. A. Slutz, “Laser-Driven Magnetized Liner Inertial Fusion on OMEGA.”

J. Peebles, J. R. Davies, D. H. Barnak, G. Brent, D. Mastro Simone, D. W. Jacobs-Perkins, G. Fiksel, M. J. Shoup III, T. Lewis, G. Gates, P. A. Gourdain, R. Shapovalov, R. Moshier, T. Burgett, and R. Betti, “Current Capabilities of the MIFEDS System.”

J. Peebles, J. R. Davies, D. H. Barnak, A. B. Sefkow, P. A. Gourdain, R. Betti, and A. Arefiev, “Laser Driven Coils on OMEGA EP.”

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S. G. Demos, A. A. Kozlov, K. Kafka, J. B. Oliver, S. Papernov, B. Hoffman, T. J. Kessler, S. M. Gracewski, and J. C. Lambropoulos, “Mechanisms of Laser Damage in Optical Components for Petawatt-Class Laser Systems,” presented at Pacific Rim Laser Damage 2018, Yokohama, Japan, 24–27 April 2018.

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The following presentations were made at the Omega Laser Facility Users Group Workshop, Rochester, NY, 25–27 April 2018:

A. Bose, R. Betti, D. Mangino, K. M. Woo, D. Patel, A. R. Christopherson, V. Gopalaswamy, O. M. Mannion, S. P. Regan, V. N. Goncharov, C. J. Forrest, J. A. Frenje, M. Gatu Johnson, V. Yu. Glebov, J. P. Knauer, F. J. Marshall, R. Nora, P. B. Radha, R. C. Shah, C. Stoeckl, W. Theobald, T. C. Sangster, D. Shvarts, and E. M. Campbell, “Analysis of Trends in Experimental Observables for Direct-Drive Cryogenic Implosions on OMEGA, Reconstruction of the Implosion Core and Extrapolation to National Ignition Facility Energy.”

N. R. Bose, “Compensation for Self-Focusing on OMEGA EP by Use of Frequency Conversion.”

R. Brown, C. Dorrer, and E. M. Hill, “High-Stability Sub-10-ps Fourth-Harmonic Probe Seed Source.”

A. Consentino, C. Dorrer, R. Cuffney, I. A. Begishev, E. M. Hill, B. E. Kruschwitz, and A. Szydlowski, “A New Spectrally Tunable Narrowband Front-End Source for Cross-Beam Energy Transfer Mitigation Experiments.”

M. C. Cornelius, T. W. Walker, and G. A. Brent, “Characterization and Detection of the Deterioration of Electrical Connectors in a Flash-Lamp System.”

B. E. Kruschwitz, M. Barczys, A. Consentino, C. Dorrer, M. J. Guardalben, E. M. Hill, J. Kwiatkowski, D. Nelson, J. C. Puth, D. Turnbull, and L. J. Waxer, “Development of a Tunable UV Capability for Cross-Beam Energy Transfer Mitigation Studies in the OMEGA Target Chamber.”

D. Mastro Simone, G. Weselak, R. Mosier, C. Sorce, D. Haberberger, D. H. Froula, J. Katz, and A. Hansen, “Fielding a Gas Jet on OMEGA and OMEGA EP.”

S. F. B. Morse, “Omega Facility OLUG 2018 Update: Progress on Recommendations and Items of General Interest.”

G. Pien, W. J. Armstrong, and M. Krieger, “Use of CAD for Real-Time Target-Position Guidance and Geometry Validation.”

S. Sampat, J. H. Kelly, T. Z. Kosc, A. L. Rigatti, J. Kwiatkowski, W. R. Donaldson, M. H. Romanofsky, L. J. Waxer, R. Dean, and R. Moshier, “Power Balance on a Multibeam Laser.”

L. J. Waxer, M. Heimbueger, J. H. Kelly, S. F. B. Morse, D. Nelson, D. Weiner, and G. Weselak, “On-Shot Focal-Spot Characterization in the OMEGA Target Chamber.”

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The following presentations were made at the 3rd International Conference on Matter and Radiation at Extremes, Qingdao, China, 6–11 May 2018:

E. M. Campbell, “Laser–Plasma Interaction Physics and Direct Drive: Challenges and Path Forward.”

J. A. Marozas, M. J. Rosenberg, D. Turnbull, T. J. B. Collins, D. Cao, P. W. McKenty, P. B. Radha, T. C. Sangster, S. P. Regan, V. N. Goncharov, E. M. Campbell, M. W. Bowers, J.-M. G. DiNicola, G. Erbert, M. Hohenberger, B. J. MacGowan, J. D. Moody, L. J. Pelz, and S. T. Yang, “Wavelength Detuning  $\Delta\lambda_0$

Cross-Beam Energy Transfer Mitigation for Polar Direct Drive on Shen Guang (SG)-III.”

S. P. Regan, V. N. Goncharov, T. C. Sangster, E. M. Campbell, R. Betti, T. R. Boehly, M. J. Bonino, A. Bose, D. Cao, R. Chapman, 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, D. W. Jacobs-Perkins, R. T. Janezic, 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. T. Michel, J. F. Myatt, P. B. Radha, M. J. Rosenberg, W. Seka, R. W. Short, W. T. Shmayda, M. J. Shoup III, A. Shvydky, A. A. Solodov, C. Sorce, C. Stoeckl, C. Taylor, R. Taylor, W. Theobald, D. Turnbull, J. Ulreich, M. D. Wittman, K. M. Woo, J. D. Zuegel, M. A. Barrios, T. Chapman, C. Gibson, C. Goyon, M. Hohenberger, P. Michel, J. D. Moody, J. E. Ralph, J. W. Bates, M. Karasik, S. P. Obenschain, A. J. Schmitt, T. Bernat, J. Hund, N. Petta, M. Farrell, A. Greenwood, H. Huang, M. Schoff, W. Sweet, J. A. Frenje, M. Gatu Johnson, R. D. Petrasso, and M. J. Schmitt, “The U.S. National Direct-Drive Inertial Confinement Fusion Program.”

The following presentations were made at the 12th Department of Energy Laser Safety Officer Workshop, Rochester, NY, 8–10 May 2018:

J. Bromage, “Laser Science and Technology at LLE.”

G. W. Collins, “LLE: A Unique University-Based Research Center of Scale Supporting National Security and Extreme Science.”

K. R. P. Kafka, “Introduction to Optics.”

J. C. Puth, “Laser Safety at the Omega Laser Facilities.”

The following presentations were made at CLEO 2018, San Jose, CA, 13–18 May 2018:

S.-W. Bahk, B. E. Kruschwitz, A. L. Rigatti, J. B. Oliver, and J. Bromage, “Variable Astigmatism Corrector for High-Power Lasers.”

C. Dorrer, and S.-W. Bahk, “Characterization of Spatiotemporal Coupling with a Hyperspectral Hartmann Wavefront Sensor.”

C. Dorrer and R. J. Brown, “High-Stability Time-Lens-Based Picosecond Seed Source.”

C. Dorrer, A. Consentino, R. Cuffney, I. A. Begishev, E. M. Hill, and J. Bromage, “Spectrally Tunable, Temporally Shaped Parametric Front End to Seed High-Energy Laser Systems.”

C. Dorrer and J. Qiao, “Improved Spatially Dithered Beam Shapers Using Direct Binary Search.”

B. Webb, M. J. Guardalben, C. Dorrer, S. Bucht, and J. Bromage, “Pulse-Compressor Grating Alignment Tolerances for Varied Geometries and Bandwidths.”

J. B. Oliver, S. MacNally, C. Smith, B. N. Hoffman, J. Spaulding, J. Foster, S. Papernov, and T. J. Kessler, “Fabrication of a Glancing-Angle-Deposited Distributed Polarization Rotator for Ultraviolet Applications,” presented at SPIE Advances in Optical Thin Films, Frankfurt, Germany, 14–17 May 2018.

The following presentations were made at the Tritium Focus Group Meeting, Oak Ridge, TN, 15–17 May 2018:

D. Bassler, W. T. Shmayda, and W. U. Schröder, “The Effect of Surface Chemistry of ALD Films on Tritium Retention in Stainless Steel.”

C. Fagan, M. Sharpe, W. T. Shmayda, and W. U. Schröder, “Tritium Retention in Hexavalent Chromate-Conversion-Coated Aluminum Alloy.”

A. Schwemmlin, W. U. Schröder, and W. T. Shmayda, “Using the T-LIANS Platform to Explore Nuclear Reactions.”

M. Sharpe, C. Fagan, and W. T. Shmayda, “Distribution of Tritium in the Near Surface of Stainless-Steel 316.”

W. T. Shmayda and N. Redden, “Assaying Hydrogen Isotopes with Gas Chromatography.”

E. M. Campbell, "LLE: A Unique University-Based Research Center of Scale Supporting National Security and Extreme Science," presented at DOE OFES, Washington, DC, 30 May 2018.

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C. J. Forrest, V. Yu. Glebov, J. P. Knauer, P. B. Radha, J. R. Rygg, W. U. Schröder, C. Stoeckl, J. A. Frenje, M. Gatu Johnson, F. H. Séguin, R. D. Petrasso, H. Sio, D. T. Casey, C. Cerjan, D. Dearborn, M. J. Edwards, G. Grim, R. Hatarik, S. P. Hatchett, O. S. Jones, O. L. Landen, A. J. Mackinnon, D. McNabb, S. Quaglioni, D. Sayre, S. Sepke, P. Springer, I. Thomson, R. E. Tipton, C. Brune, A. Vionov, J. D. Kilkenny, B. Appelbe, A. Crilly, G. Hale, H. W. Herrmann, Y. H. Kim, M. Paris, and A. B. Zylstra, "Nuclear Science Experiments at the University of Rochester's Omega Laser Facility," presented at Triangle University National Laboratory, Durham, NC, 31 May 2018.

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R. Betti, J. P. Knauer, V. Gopalaswamy, D. Patel, K. M. Woo, A. Bose, N. Luciani, K. S. Anderson, T. J. B. Collins, V. Yu. Glebov, V. N. Goncharov, A. V. Maximov, F. J. Marshall, P. W. McKenty, P. B. Radha, S. P. Regan, T. C. Sangster, C. Stoeckl, and E. M. Campbell, "Progress in Direct-Drive Inertial Fusion," presented at the 19th International Congress on Plasma Physics, Vancouver, Canada, 4–8 June 2018.

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D. H. Froula, M. Glinsky, P. Michel, J. F. Myatt, J. Weaver, and L. Yin, "Update on the National LPI Workshop," presented at the NNSA Update, Washington, DC, 12 June 2018.

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E. M. Campbell, "LLE Program in 2019," presented at the ICF Executives Meeting, Washington, DC, 12–13 June 2018.

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E. M. Campbell, "Overview of Inertial Fusion Energy Concepts Being Developed in the Private Sector," presented at the First IAEA Workshop on Fusion Enterprises, Santa Fe, NM, 13–15 June 2018.

C. R. Stillman, P. M. Nilson, S. T. Ivancic, A. B. Sefkow, C. Mileham, D. J. Nelson, I. A. Begishev, D. H. Froula, I. E. Golovkin, R. A. London, and M. E. Martin, "Ultrafast X-Ray Spectroscopy of Hot-Dense-Matter Systems," presented at the Stewardship Science Fellowship, San Francisco, CA, 18–21 June 2018.

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S. P. Regan, "Laser-Direct-Drive Inertial Confinement Fusion Research on OMEGA," presented at Extreme Light Infrastructure Nuclear Physics, Bucharest, Romania, 22 June 2018.

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D. H. Froula, J. S. Ross, B. Pollock, R. K. Follett, R. J. Henchen, A. Davies, A. M. Hansen, A. L. Milder, J. P. Palastro, J. Katz, and R. Boni, "Optical Thomson Scattering in High-Energy-Density Plasmas," presented at the 45th International Conference on Plasma Science, Denver, CO, 24–28 June 2018.

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S. P. Regan, V. N. Goncharov, T. C. Sangster, E. M. Campbell, R. Betti, K. S. Anderson, J. W. Bates, K. Bauer, T. P. Bernat, S. D. Bhandarkar, T. R. Boehly, M. J. Bonino, A. Bose, D. Cao, T. Chapman, G. W. Collins, T. J. B. Collins, R. S. Craxton, J. A. Delettrez, D. H. Edgell, R. Epstein, M. Farrell, C. J. Forrest, J. A. Frenje, D. H. Froula, M. Gatu Johnson, C. Gibson, V. Gopalaswamy, V. Yu. Glebov, A. Greenwood, D. R. Harding, M. Hohenberger, S. X. Hu, H. Huang, J. Hund, I. V. Igumenshchev, D. W. Jacobs-Perkins, R. T. Janezic, M. Karasik, J. H. Kelly, T. J. Kessler, J. P. Knauer, T. Z. Kosc, J. A. Marozas, F. J. Marshall, P. W. McKenty, D. T. Michel, P. Michel, J. D. Moody, J. F. Myatt, A. Nikroo, S. P. Obenschain, J. P. Palastro, J. L. Peebles, R. D. Petrasso, N. Petta, P. B. Radha, J. E. Ralph, M. J. Rosenberg, S. Sampat, A. J. Schmitt, M. J. Schmitt, M. Schoff, W. Seka, R. Shah, R. W. Short, W. T. Shmayda, M. J. Shoup III, A. Shvydky, A. A. Solodov, C. Sorce, C. Stoeckl, W. Sweet, C. Taylor, R. Taylor, W. Theobald, D. Turnbull, J. Ulreich, M. D. Wittman, K. M. Woo, and J. D. Zuegel, "Laser-Direct-Drive Inertial Confinement Fusion Research on OMEGA," presented at Nuclear Photonics 2018, Brasov, Romania, 24–29 June 2018.

K. R. P. Kafka, "Optical Materials Research for 100-PW-Class Laser Systems," presented at Advanced Materials for Powerful Lasers, Rochester, NY, 25–26 June 2018.

E. M. Campbell, "Inertial Confinement Fusion (ICF) Overview; Status, Plans, and Future Prospects," presented at Laser Precision Microfabrication 2018, Edinburgh, UK, 25–28 June 2018.

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S.-W. Bahk, and C. Dorrer, "Multispectral Wavefront Sensing for Characterizing Spatiotemporal Coupling in Ultrashort Pulses," presented at Computational Optical Sensing and Imaging, Orlando, FL, 25–28 June 2018.

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C. Dorrer, B. E. Kruschwitz, S.-W. Bahk, J. Bromage, J. H. Kelly, and V. Bagnoud, "Adaptive Optics and Wavefront Metrology for High-Intensity Laser Systems," presented at Adaptive Optics: Methods, Analysis, and Applications, Orlando, FL, 25–28 June 2018.