

Publications and Conference Presentations

Publications

- I. A. Begishev, S.-W. Bahk, C. Dorrer, C. Feng, M. J. Guardalben, C. Jeon, R. G. Roides, M. Spilatro, B. Webb, D. Weiner, J. D. Zuegel, and J. Bromage, “A Highly Efficient, 10-J Output Signal Amplifier for Ultra-Intense All-OPCPA Systems,” *Proc. SPIE* **11666**, 1166607 (2021).
- I. A. Begishev, G. Brent, S. Carey, R. Chapman, I. A. Kulagin, M. H. Romanofsky, M. J. Shoup III, J. D. Zuegel, and J. Bromage, “High-Efficiency, Fifth-Harmonic Generation of a Joule-Level Neodymium Laser in a Large-Aperture Ammonium Dihydrogen Phosphate Crystal,” *Opt. Express* **29**, 1879 (2021).
- A. F. A. Bott, P. Tzeferacos, L. Chen, C. A. J. Palmer, A. Rigby, A. R. Bell, R. Bingham, A. Birkel, C. Graziani, D. H. Froula, J. Katz, M. Koenig, M. W. Kunz, C. K. Li, J. Meinecke, F. Miniati, R. Petrasso, H.-S. Park, B. A. Remington, B. Reville, J. S. Ross, D. Ryu, D. Ryutov, F. H. Séguin, T. G. White, A. A. Schekochihin, D. Q. Lamb, and G. Gregori, “Time-Resolved Fast Turbulent Dynamo in a Laser Plasma,” *Proc. Natl. Acad. Sci.* **118**, e2015729118 (2021).
- F. Coppari, R. F. Smith, J. Wang, M. Millot, D. Kim, J. R. Rygg, S. Hamel, J. H. Eggert, and T. S. Duffy, “Implications of Iron Oxide Phase Transition on the Interiors of Rocky Exoplanets,” *Nat. Geosci.* **14**, 121 (2021).
- L. E. Crandall, J. R. Rygg, D. K. Spaulding, M. F. Huff, M. C. Marshall, D. N. Polsin, R. Jeanloz, T. R. Boehly, M. Zaghoo, B. J. Henderson, S. Brygoo, P. M. Celliers, J. H. Eggert, D. E. Fratanduono, A. Lazicki, M. Millot, and G. W. Collins, “Equation-of-State, Sound Speed, and Reshock of Shock-Compressed Fluid Carbon Dioxide,” *Phys. Plasmas* **28**, 022708 (2021).
- J. R. Davies, H. Wen, J.-Y. Ji, and E. D. Held, “Transport Coefficients for Magnetic-Field Evolution in Inviscid Magnetohydrodynamics,” *Phys. Plasmas* **28**, 012305 (2021).
- C. Dorrer, “Optical Parametric Amplification of Spectrally Incoherent Pulses,” *J. Opt. Soc. Am. B* **38**, 792 (2021).
- C. Dorrer, I. A. Begishev, S.-W. Bahk, and J. Bromage, “Characterization of Partially Deuterated KDP Crystals Using Two-Wavelength Phase-Matching Angles,” *Opt. Mater. Express* **11**, 774 (2021).
- W. A. Farmer, M. D. Rosen, G. F. Swadling, C. Bruulsema, C. D. Harris, W. Rozmus, M. B. Schneider, M. W. Sherlock, D. H. Edgell, J. Katz, and J. S. Ross, “Investigation of Heat Transport Using Directly Driven Gold Spheres,” *Phys. Plasmas* **28**, 032707 (2021).
- R. K. Follett, J. G. Shaw, J. F. Myatt, H. Wen, D. H. Froula, and J. P. Palastro, “Thresholds of Absolute Two-Plasmon-Decay and Stimulated Raman Scattering Instabilities Driven by Multiple Broadband Lasers,” *Phys. Plasmas* **28**, 032103 (2021).
- F. García-Rubio, R. Betti, J. Sanz, and H. Aluie, “Magnetic-Field Generation and Its Effect on Ablative Rayleigh–Taylor Instability in Diffusive Ablation Fronts,” *Phys. Plasmas* **28**, 012103 (2021).
- M. Gatu Johnson, B. Aguirre, J. Armstrong, J. A. Fooks, C. Forrest, J. A. Frenje, V. Yu. Glebov, M. Hoppe, J. Katz, J. P. Knauer, W. Martin, C. E. Parker, H. G. Reynolds, M. E. Schoff, F. H. Séguin, C. Sorce, B. Sperry, C. Stoeckl, and R. D. Petrasso, “Using Millimeter-Sized Carbon–Deuterium Foils for High-Precision Deuterium–Tritium Neutron Spectrum Measurements in Direct-Drive Inertial Confinement Fusion at the OMEGA Laser Facility,” *Rev. Sci. Instrum.* **92**, 023503 (2021).
- V. Yu. Glebov, C. Stoeckl, C. J. Forrest, J. P. Knauer, O. M. Mannion, M. H. Romanofsky, T. C. Sangster, and S. P. Regan, “A Novel Photomultiplier Tube Neutron Time-of-Flight Detector,” *Rev. Sci. Instrum.* **92**, 013509 (2021).
- A. M. Hansen, K. L. Nguyen, D. Turnbull, B. J. Albright, R. K. Follett, R. Huff, J. Katz, D. Mastrosimone, A. L. Milder, L. Yin, J. P. Palastro, and D. H. Froula, “Cross-Beam Energy Transfer Saturation by Ion Heating,” *Phys. Rev. Lett.* **126**, 075002 (2021).

- B. J. Henderson, M. C. Marshall, T. R. Boehly, R. Paul, C. A. McCoy, S. X. Hu, D. N. Polsin, L. E. Crandall, M. F. Huff, D. A. Chin, J. J. Ruby, X. Gong, D. E. Fratanduono, J. H. Eggert, J. R. Rygg, and G. W. Collins, "Shock-Compressed Silicon: Hugoniot and Sound Speed to 2100 GPa," *Phys. Rev. B* **103**, 094115 (2021).
- A. E. Hussein, A. V. Arefiev, T. Batson, H. Chen, R. S. Craxton, A. S. Davies, D. H. Froula, Z. Gong, D. Haberberger, Y. Ma, P. M. Nilson, W. Theobald, T. Wang, K. Weichman, G. J. Williams, and L. Willingale, "Towards the Optimisation of Direct Laser Acceleration," *New J. Phys.* **23**, 023031 (2021).
- S. Jiang, A. Link, D. Canning, J. A. Fooks, P. A. Kempler, S. Kerr, J. Kim, M. Krieger, N. S. Lewis, R. Wallace, G. J. Williams, S. Yalamanchili, and H. Chen, "Enhancing Positron Production Using Front Surface Target Structures," *Appl. Phys. Lett.* **118**, 094101 (2021).
- N. V. Kabadi, P. J. Adrian, A. Bose, D. T. Casey, J. A. Frenje, M. Gatu Johnson, B. Lahmann, O. M. Mannion, R. D. Petrasso, H. G. Rinderknecht, F. H. Séguin, H. W. Sio, G. D. Sutcliffe, and A. B. Zylstra, "A Second Order Yield-Temperature Relation for Accurate Inference of Burn-Averaged Quantities in Multi-Species Plasmas," *Phys. Plasmas* **28**, 022701 (2021).
- N. Kabadi, A. Sorce, C. Stoeckl, H. W. Sio, P. Adrian, M. Bedzyk, J. Frenje, J. Katz, J. Knauer, J. Percy, D. Weiner, B. A. Aguirre, R. Betti, A. Birkel, D. Cao, M. Gatu Johnson, D. Patel, R. D. Petrasso, and S. P. Regan, "A Multi-Channel X-Ray Temporal Diagnostic for Measurement of Time-Resolved Electron Temperature in Cryogenic Deuterium-Tritium Implosions at OMEGA," *Rev. Sci. Instrum.* **92**, 023507 (2021).
- K. R. P. Kafka, B. N. Hoffman, H. Huang, and S. G. Demos, "Mechanisms of Picosecond Laser-Induced Damage from Interaction with Model Contamination Particles on a High Reflector," *Opt. Eng.* **60**, 031009 (2021).
- K. R. P. Kafka, B. N. Hoffman, A. A. Kozlov, and S. G. Demos, "Dynamics of Electronic Excitations Involved in Laser-Induced Damage in HfO₂ and SiO₂ Films," *Opt. Lett.* **46**, 1684 (2021).
- V. V. Karasiev and S. X. Hu, "Unraveling the Intrinsic Atomic Physics Behind X-Ray Absorption Line Shifts in Warm Dense Silicon Plasmas," *Phys. Rev. E* **103**, 033202 (2021).
- M. Karasik, J. Oh, S. P. Obenshain, A. J. Schmitt, Y. Aglitskiy, and C. Stoeckl, "Order-of-Magnitude Laser Imprint Reduction Using Pre-Expanded High-Z Coatings on Targets Driven by a Third Harmonic Nd:Glass Laser," *Phys. Plasmas* **28**, 032710 (2021).
- J. Katz, D. Turnbull, B. E. Kruschwitz, A. L. Rigatti, R. Rinefierd, and D. H. Froula, "A Transmitted-Beam Diagnostic for the Wavelength-Tunable UV Drive Beam on OMEGA," *Rev. Sci. Instrum.* **92**, 033526 (2021).
- Y. Kim, H. W. Herrmann, N. M. Hoffman, M. J. Schmitt, G. Kagan, A. M. McEvoy, A. B. Zylstra, J. M. Smidt, S. Gales, A. Leatherland, M. Rubery, M. Gatu Johnson, J. A. Frenje, V. Yu. Glebov, and C. Forrest, "First Observation of Increased DT Yield over Prediction due to Addition of Hydrogen," *Phys. Plasmas* **28**, 012707 (2021).
- P. M. King, K. Miller, N. Lemos, J. L. Shaw, B. F. Kraus, M. Thibodeau, B. M. Hegelich, J. Hinojosa, P. Michel, C. Joshi, K. A. Marsh, W. Mori, A. Pak, A. G. R. Thomas, and F. Albert, "Predominant Contribution of Direct Laser Acceleration to High-Energy Electron Spectra in a Low-Density Self-Modulated Laser Wakefield Accelerator," *Phys. Rev. Accel. Beams* **24**, 011302 (2021).
- P. Koester, F. Baffigi, G. Cristoforetti, L. Labate, L. A. Gizzi, S. Baton, M. Koenig, A. Colaïtis, D. Batani, A. Casner, D. Raffestin, A. Tentori, J. Trela, C. Rousseaux, G. Boutoux, S. Brygoo, L. Jacquet, C. Reverdin, E. Le Bel, L. LeDeroff, W. Theobald, and K. Shigemori, "Bremsstrahlung Cannon Design for Shock Ignition Relevant Regime," *Rev. Sci. Instrum.* **92**, 013501 (2021).
- A. A. Kozlov, S. G. Demos, D. Canning, B. N. Hoffman, B. E. Kruschwitz, A. L. Rigatti, and N. Savidis, and L. J. Waxer, "Long-Term Monitoring the Damage Performance of Multilayer Dielectric Grating Samples Residing Inside the Compressor Chamber of the OMEGA EP Laser," *Opt. Eng.* **60**, 031008 (2021).
- L. Lampaignère, A. Ollé, M. Chorel, N. Roquin, A. A. Kozlov, B. N. Hoffman, J. B. Oliver, S. G. Demos, L. Gallais, R. A. Negres, and A. Melninkaitis, "Round-Robin Measurements of the Laser-Induced Damage Threshold with Sub-Picosecond Pulses on Optical Single Layers," *Opt. Eng.* **60**, 031005 (2021).
- A. Lazicki, D. McGonegle, J. R. Rygg, D. G. Braun, D. C. Swift, M. G. Gorman, R. F. Smith, P. G. Heighway, A. Higginbotham, M. J. Suggit, D. E. Fratanduono, F. Coppari, C. E. Wehrenberg, R. G. Kraus, D. Erskine, J. V. Bernier, J. M. McNaney, R. E. Rudd, G. W. Collins, J. H. Eggert, and J. S. Wark, "Metastabil-

- ity of Diamond Ramp-Compressed to 2 Terapascals,” *Nature* **589**, 532 (2021).
- O. M. Mannion, K. M. Woo, A. J. Crilly, C. J. Forrest, J. A. Frenje, M. Gatu Johnson, V. Yu. Glebov, J. P. Knauer, Z. L. Mohamed, M. H. Romanofsky, C. Stoeckl, W. Theobald, and S. P. Regan, “Reconstructing 3D Asymmetries in Laser-Direct-Drive Implosions on OMEGA,” *Rev. Sci. Instrum.* **92**, 033529 (2021).
- F. J. Marshall, S. T. Ivancic, C. Mileham, P. M. Nilson, J. J. Ruby, C. Stoeckl, B. S. Scheiner, and M. J. Schmitt, “High-Resolution X-Ray Radiography with Fresnel Zone Plates on the University of Rochester’s OMEGA Laser Systems,” *Rev. Sci. Instrum.* **92**, 033701 (2021) (invited).
- B. Militzer, F. González-Cataldo, S. Zhang, K. P. Driver, and F. Soubiran, “First-Principles Equation of State Database for Warm Dense Matter Computation,” *Phys. Rev. E* **103**, 013203 (2021).
- J. P. Palastro, B. Malaca, J. Vieira, D. Ramsey, T. T. Simpson, P. Franke, J. L. Shaw, and D. H. Froula, “Laser-Plasma Acceleration Beyond Wave Breaking,” *Phys. Plasmas* **28**, 013109 (2021).
- M. J. Rosenberg, J. E. Hernandez, N. Butler, T. Filkins, R. E. Bahr, R. K. Jungquist, M. Bedzyk, G. Swadling, J. S. Ross, P. Michel, N. Lemos, J. Eichmiller, R. Sommers, P. Nyholm, R. Boni, J. A. Marozas, R. S. Craxton, P. W. McKenty, A. Sharma, P. B. Radha, D. H. Froula, P. Date, M. Gorman, J. D. Moody, J. M. Heinmiller, J. Fornes, P. Hillyard, and S. P. Regan, “The Scattered Light Time-History Diagnostic Suite at the National Ignition Facility,” *Rev. Sci. Instrum.* **92**, 033511 (2021).
- J. J. Ruby, J. A. Gaffney, J. R. Rygg, Y. Ping, and G. W. Collins, “High-Energy-Density-Physics Measurements in Implosions Using Bayesian Inference,” *Phys. Plasmas* **28**, 032703 (2021).
- R. C. Shah, S. X. Hu, I. V. Igumenshchev, J. Baltazar, D. Cao, C. J. Forrest, V. N. Goncharov, V. Gopalaswamy, D. Patel, F. Philippe, W. Theobald, and S. P. Regan, “Observations of Anomalous X-Ray Emission at Early Stages of Hot-Spot Formation in Deuterium-Tritium Cryogenic Implosions,” *Phys. Rev. E* **103**, 023201 (2021).
- J. von der Linden, J. Ramos-Méndez, B. Faddegon, D. Massin, G. Fiksel, J. P. Holder, L. Willingale, J. Peebles, M. R. Edwards, and H. Chen, “Dispersion Calibration for the National Ignition Facility Electron-Positron-Proton Spectrometers for Intense Laser Matter Interactions,” *Rev. Sci. Instrum.* **92**, 033516 (2021).
- J. U. Wallace, K. L. Marshall, D. J. Batesky, T. Z. Kosc, B. N. Hoffman, S. Papernov, L. Garrett, J. Shojaie, and S. G. Demos, “Highly Saturated Glassy Liquid Crystal Films Having Nano- and Microscale Thicknesses for High-Power Laser Applications,” *ACS Appl. Nano Mater.* **4**, 13 (2021).
- H. D. Whitley, G. E. Kemp, C. B. Yeamans, Z. B. Walters, B. E. Blue, W. J. Garbett, M. B. Schneider, R. S. Craxton, E. M. Garcia, P. W. McKenty, M. Gatu Johnson, K. Caspersen, J. I. Castor, M. Däne, C. L. Ellison, J. A. Gaffney, F. R. Graziani, J. E. Klepeis, N. B. Kostinski, A. L. Kritcher, B. Lahmann, A. E. Lazkicki, H. P. Le, R. A. London, B. Maddox, M. C. Marshall, M. E. Martin, B. Militzer, A. Nikroo, J. Nilsen, T. Ogitsu, J. E. Pask, J. E. Pino, M. S. Rubery, R. Shepherd, P. A. Sterne, D. C. Swift, L. Yang, and S. Zhang, “Comparison of Ablators for the Polar Direct Drive Exploding Pusher Platform,” *High Energy Density Phys.* **38**, 100928 (2021).
- C. B. Yeamans, G. E. Kemp, Z. B. Walters, H. D. Whitley, P. W. McKenty, E. M. Garcia, Y. Yang, R. S. Craxton, and B. E. Blue, “High Yield Polar Direct Drive Fusion Neutron Sources at the National Ignition Facility,” *Nucl. Fusion* **61**, 046031 (2021).
- J. Zhang, W. R. Donaldson, and G. P. Agrawal, “Temporal Reflection and Refraction of Optical Pulses Inside a Dispersive Medium: An Analytic Approach,” *J. Opt. Soc. Am. B* **38**, 997 (2021).

Forthcoming Publications

D. H. Edgell, A. M. Hansen, J. Katz, D. Turnbull, and D. H. Froula, “Unabsorbed Light Beamlets for Diagnosing Coronal Density Profiles and Absorption Nonuniformity in Direct-Drive Implosions on OMEGA,” to be published in *Review of Scientific Instruments*.

T. M. Johnson, A. Birkel, H. E. Ramirez, G. D. Sutcliffe, P. J. Adrian, V. Yu. Glebov, H. Sio, M. Gatu Johnson, J. A. Frenje, R. D. Petrasso, and C. K. Li, “Yield Degradation due to Laser Drive Asymmetry in D³He Backlit Proton Radiography Experiments on OMEGA,” to be published in *Review of Scientific Instruments*.

O. L. Landen, J. D. Lindl, S. W. Haan, D. T. Casey, P. M. Celliers, D. N. Fittinghoff, N. Gharibyan, V. N. Goncharov, G. P. Grim, E. P. Hartouni, O. A. Hurricane, B. J. MacGowan, S. A. MacLaren, K. D. Meaney, M. Millot, J. L. Milovich, P. K. Patel, H. S. Robey, P. T. Springer, P. L. Volegov, and M. J. Edwards, “Fuel Convergence Sensitivity in Indirect-Drive Implosions,” to be published in *Physics of Plasmas*.

O. M. Mannion, I. V. Igumenshchev, K. S. Anderson, R. Betti, E. M. Campbell, D. Cao, C. J. Forrest, M. Gatu Johnson, V. Yu. Glebov, V. N. Goncharov, V. Gopalaswamy, S. T. Ivancic, D. W. Jacobs-Perkins, A. Kalb, J. P. Knauer, J. Kwiatkowski, A. Lees, F. J. Marshall, M. Michalko, Z. L. Mohamed, D. Patel, H. G.

Rinderknecht, R. C. Shah, C. Stoeckl, W. Theobald, K. M. Woo, and S. P. Regan, “Mitigation of Mode-One Asymmetry in Laser-Direct-Drive Inertial Confinement Fusion Implosions,” to be published in *Physics of Plasmas* (invited).

D. B. Schaeffer, W. Fox, M. J. Rosenberg, H.-S. Park, and D. Kalantar, “Measurements of Electron Temperature in High-Energy-Density Plasmas Using Gated X-Ray Pinhole Imaging,” to be published in *Review of Scientific Instruments*.

J. L. Shaw, M. A. Romo-Gonzalez, N. Lemos, P. M. King, G. Bruhaug, K. G. Miller, C. Dorrer, B. Kruschwitz, L. Waxer, G. J. Williams, M. V. Ambat, M. M. McKie, M. D. Sinclair, W. B. Mori, C. Joshi, H. Chen, J. P. Palastro, F. Albert, and D. H. Froula, “Microcoulomb (0.7±0.4/0.2-μC) Laser-Plasma Accelerator on OMEGA EP,” to be published in *Scientific Reports*.

R. Sobolewski, “Optical Detectors and Sensors,” to be published in the *Handbook of Superconducting Materials*.

H. Wen, R. K. Follett, A. V. Maximov, D. H. Froula, F. S. Tsung, and J. P. Palastro, “Kinetic Inflation of Convective Raman Scattering Driven by a Broadband Frequency-Modulated Laser Pulse,” to be published in *Physics of Plasmas*.

Conference Presentations

J. L. Shaw, M. V. Ambat, S.-W. Bahk, I. A. Begishev, R. Boni, J. Bromage, G. Bruhaug, S. Bucht, E. M. Campbell, A. Davies, C. Dorrer, P. Franke, R. K. Follett, V. N. Goncharov, D. Haberberger, A. Howard, G. W. Jenkins, J. Katz, T. J. Kessler, B. Kruschwitz, M. M. McKie, L. Nguyen, J. B. Oliver, J. P. Palastro, D. Ramsey, M. A. Romo-Gonzalez, T. T. Simpson, D. Turnbull, L. J. Waxer, H. Wen, D. H. Froula, P. M. King, N. Lemos, G. J. Williams, H. Chen, F. Albert, M. D. Sinclair, C. Joshi, F. A. Hegmann, D. Purschke, S. Stoller, N. Vafaei-Najafabadi, B. Malaca, J. L. Martins, J. Vieira, S. Jolly, F. Quéré, A. Di Piazza, G. Gregori, Z. Li, T. M. Antonsen Jr., A. Arefiev, K. Weichman, and R. Bingham, “New Developments in Laser Wakefield Acceleration at the Laboratory for Laser Energetics,” presented at the Oxford Hilary Series Seminar, virtual, 25 January 2021.

J. L. Peebles, J. R. Davies, D. H. Barnak, M. J. Bonino, T. Cracium, R. Betti, and P.-Y. Chang, “Probing Strong Electric and Magnetic Fields using Axial Proton Radiography of Laser-Driven Coils,” presented at Charged Particle Radiography in High-Energy-Density Laboratory Plasmas, virtual, 25–28 January 2021.

J. P. Palastro, D. H. Froula, M. Ambat, R. Boni, E. M. Campbell, R. K. Follett, P. Franke, V. N. Goncharov, J. B. Oliver, D. Ramsey, J. L. Shaw, T. T. Simpson, D. Turnbull, H. Wen, S. Jolly, F. Quéré, C. Benedetti, E. Esarey, C. Geddes, C. Schroeder, R. Bingham, S. Stoller, N. Vafaei-Najafabadi, G. Gregori, B. Malaca, A. Helm, J. Vieira, A. DiPiazza, A. Howard, K. Weichman, A. Arefiev, T. M. Antonsen Jr., and Z. Li, “Laser-Plasma Interactions Driven by Spatiotemporally Structured Light Pulses,” presented at the SOCAL Plasma Seminar, virtual, 9 February 2021.

S. Zhang, S. X. Hu, D. Haberberger, A. Shvydky, V. N. Goncharov, and D. E. Fratanduono, “Species Separation and Hydrogen Streaming: The Physics of CH Shock Release Revealed by Molecular Dynamics Simulations,” presented at the NIF and JLF User Group Meeting 2021, virtual, 9–10 February 2021.

O. M. Mannion, K. S. Anderson, R. Betti, E. M. Campbell, D. Cao, C. J. Forrest, V. Yu. Glebov, V. N. Goncharov, V. Gopalaswamy, I. V. Igumenshchev, S. T. Ivancic, D. W. Jacobs-Perkins, J. P. Knauer, A. Lees, F. J. Marshall, Z. L. Mohamed, D. Patel, S. P. Regan, H. G. Rinderknecht, R. C. Shah, C. Stoeckl, W. Theobald, K. M. Woo, B. D. Appelbe, A. J. Crilly, J. Chittenden, W. Taitano, P. Adrian, J. A. Frenje, N. Kabadi, and M. Gatu Johnson, “Neutron Spectroscopy in Laser-Direct-Drive Inertial Confinement Fusion Implosions,” presented at the Imperial College Seminar, virtual, 10 February 2021.

D. H. Froula, S. Jolly, F. Quéré, C. Benedetti, E. Esarey, C. Geddes, C. Schroeder, R. Bingham, S. Stoller, N. Vafaei-Najafabadi, G. Gregori, B. Malaca, A. Helm, J. Viera, A. Di Piazza, A. Howard, A. Arefiev, T. M. Antonsen Jr., and Z. Li, “Spatiotemporal Pulse Shaping for Plasma Base Applications,” presented at the Imperial College Seminar, virtual, 17 February 2021.

R. B. Spielman, K. M. Woo, P. Tzeferacos, A. Reyes, C. R. Stillman, I. A. Begishev, C. Mileham, and J. Bromage, “Experiments and Modeling of SPL Absorption and Ablation with Picosecond Pulses,” presented at the Pulsed-Laser Workshop, virtual, 18 February 2021.

J. D. Zuegel, “Ultra-Short Pulse Laser (USPL) Science and Technology at LLE,” presented at the High Energy Laser Joint Technology Office Ultrashort Pulse Laser Workshop, virtual, 18 February 2021.

D. H. Froula, S. Jolly, F. Quéré, C. Benedetti, E. Esarey, C. Geddes, C. Schroeder, R. Bingham, S. Stoller, N. Vafaei-Najafabadi, G. Gregori, B. Malaca, A. Helm, J. Vieira,

A. Di Piazza, A. Howard, A. Arafiev, T. M. Antonsen Jr., and Z. Li, “Spatiotemporal Pulse Shaping for Plasma Base Applications,” presented at the University of California-Irvine Seminar, virtual, 25 February 2021.

The following presentations were made at Photonics West 2021, virtual, 6–11 March 2021:

I. A. Begishev, S.-W. Bahk, C. Dorrer, C. Feng, M. J. Guardalben, C. Jeon, R. G. Roides, M. Spilatro, B. Webb, D. Weiner, J. D. Zuegel, and J. Bromage, “A Highly Efficient, 10-J Output Signal Amplifier for Ultra-Intense All-OPCPA Systems.”

T. Z. Kosc, T. J. Kessler, H. Huang, and S. G. Demos, “Minimizing Risk of Laser Damage due to Transverse Stimulated Raman Scattering in Large-Aperture KDP/DKDP Plates.”

O. M. Mannion, K. S. Anderson, R. Betti, E. M. Campbell, D. Cao, C. J. Forrest, V. Yu. Glebov, V. N. Goncharov, V. Gopalaswamy, I. V. Igumenshchev, S. T. Ivancic, D. W. Jacobs-Perkins, J. P. Knauer, A. Lees, F. J. Marshall, Z. L. Mohamed, D. Patel, S. P. Regan, H. G. Rinderknecht, R. C. Shah, C. Stoeckl, W. Theobald, K. M. Woo, B. D. Appelbe, A. J. Crilly, J. Chittenden, W. Taitano, P. Adrian, J. A. Frenje, N. Kabadi, and M. Gatu Johnson, “Neutron Spectroscopy in Laser-Direct-Drive Inertial Confinement Fusion Implosions,” presented at the UR Mechanical Engineering Seminar, virtual, 12 March 2021.

The following presentations were made at the APS March Meeting, virtual, 15–19 March 2021:

S. X. Hu, P. M. Nilson, V. V. Karasiev, R. Paul, M. Ghosh, J. Hinz, S. Zhang, D. Mihaylov, V. Recoules, N. Brouwer, M. Torrent, I. E. Golovkin, and T. Walton, “Understanding Matter at Superdense and Warm Conditions.”

D. I. Mihaylov, V. V. Karasiev, and S. X. Hu, “Progress in Development of Thermal Hybrid Exchange-Correlation Density Functionals for Improving the Description of Warm Dense Matter.”

R. Paul, S. X. Hu, V. V. Karasiev, R. Dias, “Phase Diagram of Ternary Carbon-Sulfur-Hydrogen System up to 300 GPa.”

D. N. Polsin, X. Gong, M. F. Huff, L. E. Crandall, B. J. Henderson, R. Paul, S. Burns, G. W. Collins, J. R. Rygg, A. Lazicki, F. Coppari, R. Smith, M. Millot, J. H. Eggert, M. I. McMahon, X. Wang, K. Hilleke, and E. Zurek, “High-Pressure Structural and Electronic Properties of Ramp-Compressed Sodium.”

S. Zhang, R. Paul, S. X. Hu, M. A. Morales, and F. D. Malone, “Benchmarking a Multi-Megabar Phase Diagram of MgO.”

D. H. Froula, J. P. Palastro, R. Boni, M. Ambat, P. Franke, J. Oliver, D. Ramsey, J. L. Shaw, T. T. Simpson, D. Turnbull, S. Jolly, F. Quéré, C. Benedetti, E. Esarey, C. Geddes, C. Schroeder, R. Bingham, S. Stoller, N. Vafaei-Najafabadi, G. Gregori, B. Malaca, A. Helm, J. Vieira, A. DiPiazza, A. Howard, A. Arefiev, T. M. Antonsen Jr., and Z. Li, “Spatiotemporal Pulse Shaping for Plasma-Based Applications,” presented at the Industrial Associates Bi-Annual Meeting, virtual, 17–19 March 2021.

E. M. Campbell, “Nuclear Energy, Today and Tomorrow,” presented at Oklahoma University, virtual, 19 March 2021.

The following presentations were made at the 16th Direct-Drive and Fast-Ignition Workshop, virtual, 22–24 March 2021:

V. N. Goncharov, I. V. Igumenshchev, T. J. B. Collins, P. B. Radha, S. X. Hu, S. P. Regan, D. H. Froula, D. Harding, W. Theobald, M. J. Rosenberg, A. Shvydky, S. F. B. Morse, J. D. Zuegel, C. Dorrer, T. C. Sangster, and E. M. Campbell, “Expanding Ignition Parameter Space with the Dynamic Shell Formation Concept.”

S. X. Hu, V. V. Karasiev, P. M. Nilson, S. Zhang, M. Zaghoo, D. Mihaylov, J. Hinz, R. Paul, M. Ghosh, J. R. Rygg, V. N. Goncharov, G. W. Collins, E. M. Campbell, L. A. Collins, A. J. White, J. D. Kress, J. P. Colgan, O. Certik, V. Recoules, N. Brouwer, M. Torrent, I. E. Golovkin, M. Gu, T. Walton, and S. B. Hansen, “Overview of High-Energy-Density–Physics Research for the Direct-Drive Inertial Confinement Fusion Program at the Laboratory for Laser Energetics.”

K. L. Nguyen, A. M. Hansen, D. Turnbull, R. K. Follett, D. H. Froula, J. P. Palastro, L. Yin, and B. J. Albright, “Cross-Beam Energy Transfer Saturation by Ion Trapping-Induced Detuning.”

J. L. Peebles, S. X. Hu, W. Theobald, V. N. Goncharov, D. R. Harding, M. J. Bonino, P. M. Celliers, S. J. Ali, G. Duchateau, E. M. Campbell, T. R. Boehly, and S. P. Regan, “Experimental Measurements of Laser Imprint and Target-Based Mitigation Techniques on OMEGA and OMEGA EP.”

P. B. Radha, D. Cao, R. S. Craxton, D. H. Edgell, J. P. Knauer, J. A. Marozas, F. J. Marshall, M. J. Rosenberg, W. Seka, A. Shvydky, A. A. Solodov, C. Stoeckl, W. Theobald, C. A. Thomas, D. Turnbull, K. S. Anderson, R. Betti, E. M. Campbell, D. H. Froula, V. N. Goncharov, S. X. Hu, S. P. Regan, M. Hohenberger, and J. D. Moody, “Laser-Coupling Studies on OMEGA and the National Ignition Facility.”

A. Shvydky, D. Haberberger, J. P. Knauer, S. X. Hu, S. T. Ivancic, J. Carroll-Nellenback, D. Cao, I. V. Igumenshchev, V. V. Karasiev, P. B. Radha, A. V. Maximov, S. P. Regan, T. C. Sangster, R. Boni, P. M. Nilson, V. N. Goncharov, D. H. Froula, M. D. Rosen, and V. A. Smalyuk, “Shock-Release Experiments on OMEGA EP.”

A. A. Solodov, M. J. Rosenberg, M. Stoeckl, A. R. Christopherson, R. Betti, P. B. Radha, C. Stoeckl, R. Epstein, R. K. Follett, W. Seka, S. P. Regan, J. P. Palastro, D. H. Froula, V. N. Goncharov, J. F. Myatt, M. Hohenberger, B. Bachmann, and P. Michel, “Hot-Electron Preheat and Mitigation in Polar-Direct-Drive Experiments at the National Ignition Facility.”

W. Theobald, S. P. Regan, J. Baltazar, K. A. Bauer, R. Betti, D. Bredesen, E. M. Campbell, D. Cao, K. Churnetski, D. H. Edgell, R. Epstein, C. J. Forrest, V. Yu. Glebov, V. N. Goncharov, V. Gopalaswamy, S. X. Hu, I. V. Igumenshchev, T. Joshi, S. T. Ivancic, D. W. Jacobs-Perkins, R. T. Janezic, T. J. Kessler, J. P. Knauer, J. Kwiatkowski, A. Lees, O. M. Mannion, F. J. Marshall, M. Michalko, Z. Mohamed, P. M. Nilson, D. Patel, J. L. Peebles, P. B. Radha, H. G. Rinderknecht, M. J. Rosenberg, S. Sampat, T. C. Sangster, R. C. Shah, A. Shvydky, A. A. Solodov, C. Sorce, C. Stoeckl, C. A. Thomas, L. J. Waxer, K. M. Woo, J. D. Zuegel, A. C. Carpenter, J. A. Frenje, M. Gatu Johnson, J. D. Hares, and J. D. Kilkenny, “Subscale Cryogenic Implosions and Diagnostic Development for Laser-Direct-Drive Research on OMEGA.”

D. H. Froula, S. Jolly, F. Quéré, C. Benedetti, E. Esarey, C. Geddes, C. Schroeder, R. Bingham, S. Stoller, N. Vafaei-Najafabadi, G. Gregori, B. Malaca, A. Helm, J. Vieira, A. DiPiazza, A. Howard, A. Arefiev, T. M. Antonsen Jr., and Z. Li, “Controlling Laser Beams for Grand Challenge Applications,” presented at UR ECE Seminar, virtual, 24 March 2021.

S. T. Ivancic, “Test Project.”

S. T. Ivancic, “TRXI Install.”

H. McClow, O. M. Mannion, and Z. Mohamed, “Neutron Time-of-Flight Diagnostics.”

The following presentations were made at the High Energy Density Plasma Diagnostics Course, virtual, 30 March–3 June 2021:

K. Churnetski, M. Michalko, and S. T. Ivancic, “The Single Line-of-Sight Time-Resolved X-Ray Imager.”

S. T. Ivancic, “Omega Overview.”