# Publications and Conference Presentations

## Publications


A. Agarwal, S. Banerjee, D. F. Grosz, A. P. Küng, D. N. Maywar, and T. H. Wood, "Ultralong-Haul Transmission of 40-Gb/s RZ-DPSK in a 10/40 G Hybrid System Over 2500 km of NZ-DSF," IEEE Photonics Technol. Lett. **15**, 1779 (2003).

E. L. Alfonso, R. Q. Gram, and D. R. Harding, "Modeling Temperature and Pressure Gradients During Cooling of Thin-Walled Cryogenic Targets," Fusion Sci. Technol. **45**, 218 (2004).

K. Anderson and R. Betti, "Laser-Induced Adiabat Shaping by Relaxation in Inertial Fusion Implosions," Phys. Plasmas **11**, 5 (2004).

K. Anderson and R. Betti, "Theory of Laser-Induced Adiabat Shaping in Inertial Fusion Implosions: The Decaying Shock," Phys. Plasmas **10**, 4448 (2003).

V. Bagnoud, I. A. Begishev, M. J. Guardalben, J. Keegan, J. Puth, L. J. Waxer, and J. D. Zuegel, "Optical Parametric Chirped-Pulse Amplifier as the Front End for the OMEGA EP Laser Chain," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 670–673.

V. Bagnoud and J. D. Zuegel, "Independent Phase and Amplitude Control of a Laser Beam by Use of a Single-Phase-Only Spatial Light Modulator," Opt. Lett. **29**, 295 (2004).

I. A. Begishev, V. Bagnoud, M. J. Guardalben, J. Puth, L. J. Waxer, and J. D. Zuegel, "Parasitic Second-Harmonic Generation in Optical Parametric Chirped-Pulse Amplification," in *OSA Trends in Optics and Photonics (TOPS) Vol. 94, Advanced Solid-State Photonics*, edited by G. J. Quarles (Optical Society of America, Washington, DC, 2004), pp. 32–34.

T. R. Boehly, D. G. Hicks, P. M. Celliers, T. J. B. Collins, R. Earley, J. H. Eggert, D. Jacobs-Perkins, S. J. Moon, E. Vianello, D. D. Meyerhofer, and G. W. Collins, "Properties of Fluid Deuterium Under Double-Shock Compression to Several Mbar," Phys. Plasmas **11**, L49 (2004).

B. Buerke and D. D. Meyerhofer, "Measurement of Hydrogenic Tunneling Rates in a High-Intensity Laser Focus," Phys. Rev. A **69**, 051402 (2004).

A. C. A. Chen, S. W. Culligan, Y. Geng, S. H. Chen, K. P. Klubek, K. M. Vaeth, and C. W. Tang, "Organic Polarized Light-Emitting Diodes via Förster Energy Transfer Using Monodisperse Conjugated Oligomers," Adv. Mater. **16**, 783 (2004).

C. R. Christensen, D. C. Wilson, C. W. Barnes, G. P. Grim, G. L. Morgan, M. D. Wilke, F. J. Marshall, V. Yu. Glebov, and C. Stoeckl, "The Influence of Asymmetry on Mix in Direct-Drive Inertial Confinement Fusion Experiments," Phys. Plasmas **11**, 2771 (2004).

T. J. B. Collins, J. P. Knauer, R. Betti, T. R. Boehly, J. A. Delettrez, V. N. Goncharov, D. D. Meyerhofer, P. W. McKenty, S. Skupsky, and R. P. J. Town, "Reduction of the Ablative Rayleigh–Taylor Growth Rate with Gaussian Picket Pulses," Phys. Plasmas **11**, 1569 (2004).

T. J. B. Collins, S. Skupsky, V. N. Goncharov, R. Betti, P. W. McKenty, P. B. Radha, R. Epstein, A. Poludnenko, A. Frank, and S. Mitran, "High-Gain, Direct-Drive Foam Target Designs for the National Ignition Facility," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 92–95.

J. E. DeGroote, H. J. Romanofsky, I. A. Kozhinova, J. M. Schoen, and S. D. Jacobs, "Polishing PMMA and Other Optical Polymers with Magnetorheological Finishing," in *Optical Manufacturing and Testing V*, edited by H. P. Stahl (SPIE, Bellingham, WA, 2003), Vol. 5180, pp. 123–134.

L. Disdier, R. A. Lerche, J. L. Bourgade, and V. Yu. Glebov, "Capillary Detector with Deuterated Scintillator for Inertial Confinement Fusion Neutron Images," Rev. Sci. Instrum. **75**, 2134 (2004).

C. Dorrer and D. N. Maywar, "RF Spectrum Analysis of Optical Signals Using Nonlinear Optics," J. Lightwave Technol. **22**, 266 (2004).

J. A. Frenje, C. K. Li, F. H. Séguin, J. Deciantis, S. Kurebayashi, J. R. Rygg, R. D. Petrasso, J. A. Delettrez, V. Yu. Glebov, C. Stoeckl, F. J. Marshall, D. D. Meyerhofer, T. C. Sangster, V. A. Smalyuk, and J. M. Soures, "Measuring Shock-Bang Timing and $\rho R$ Evolution of $D^3He$ Implosions at OMEGA," Phys. Plasmas **11**, 2798 (2004) (invited).

Y. Geng, A. C. A. Chen, J. J. Ou, S. H. Chen, K. Klubek, K. M. Vaeth, and C. W. Tang, "Monodisperse Glassy-Nematic Conjugated Oligomers with Chemically Tunable Polarized Light Emission," Chem. Mater. **15**, 4352 (2003).

Y. Geng, A. Trajkovska, S. W. Culligan, J. J. Ou, H. M. P. Chen, D. Katsis, and S. H. Chen, "Origin of Strong Chiroptical Activities in Films of Nonafluorenes with a Varying Extent of Pendant Chirality," J. Am. Chem. Soc. **125**, 14,032 (2003).

O. V. Gotchev, L. J. Hayes, P. A. Jaanimagi, J. P. Knauer, F. J. Marshall, and D. D. Meyerhofer, "Large-Grazing-Angle, Multi-Image Kirkpatrick–Baez Microscope as the Front End to a High-Resolution Streak Camera for OMEGA," Rev. Sci. Instrum. **74**, 5065 (2003).

L. L. Gregg, A. E. Marino, J. C. Hayes, and S. D. Jacobs, "Grain Decoration in Aluminum Oxynitride (ALON) from Polishing on Bound Abrasive Laps," in *Optical Manufacturing and Testing V*, edited by H. P. Stahl (SPIE, Bellingham, WA, 2003), Vol. 5180, pp. 47–54.

D. F. Grosz, A. Agarwal, S. Banerjee, D. N. Maywar, and A. P. Küng, "All-Raman Ultralong-Haul Single-Wideband DWDM Transmission Systems with OADM Capability," J. Lightwave Technol. **22**, 423 (2004).

D. F. Grosz, A. Agarwal, A. P. Küng, S. Banerjee, D. N. Maywar, and T. H. Wood, "Performance of a ULH Single Wide-Band All-Raman DWDM Transmission System Over Dispersion-Managed Spans," IEEE Photonics Technol. Lett. **16**, 1197 (2004).

D. F. Grosz, D. N. Maywar, A. P. Küng, A. Agarwal, and S. Banerjee, "Performance of Non-Fibre Based Dispersion Compensation for Long-Haul 10.7 Gbit/s DWDM Transmission," Electron. Lett. **40**, 825 (2004).

M. J. Guardalben, J. Keegan, L. J. Waxer, V. Bagnoud, I. A. Begishev, J. Puth, and J. D. Zuegel, "Design of a Highly Stable, High-Conversion-Efficiency, Optical Parametric Chirped-Pulse Amplification System with Good Beam Quality," Opt. Express **11**, 2511 (2003).

L. Guazzotto, R. Betti, J. Manickam, and S. Kaye, "Numerical Study of Tokamak Equilibria with Arbitrary Flow," Phys. Plasmas **11**, 604 (2004).

Q. Guo, X. Teng, and H. Yang, "Fabrication of Magnetic FePt Patterns from Langmuir–Blodgett Films of Platinum–Iron Oxide Core-Shell Nanoparticles," Adv. Mater. **16**, 1337 (2004).

Q. Guo, X. Teng, and H. Yang, "Overpressure Contact Printing," Nano Lett. **4**, 1657 (2004).

B. Hou, J. A. Nees, W. Theobald, G. A. Mourou, L. M. Chen, J.-C. Kieffer, A. Krol, and C. C. Chamberlain, "Dependence of Hard X-Ray Yield on Laser Pulse Parameters in the Wavelength-Cubed Regime," Appl. Phys. Lett. **84**, 2259 (2004).

B. Hu and R. Betti, "Resistive Wall Mode in Collisionless Quasistationary Plasmas," Phys. Rev. Lett. **93**, 105002 (2004).

S. D. Jacobs, "Innovations in Polishing of Precision Optics," in *International Progress on Advanced Optics and Sensors,* Frontiers Science Series, Vol. 40, edited by H. Ohmori and H. M. Shimizu (Universal Academy Press, Tokyo, Japan, 2003), pp. 3–14 (invited).

T. J. Kessler, J. Bunkenburg, H. Huang, A. Kozlov, C. Kelly, and D. D. Meyerhofer, "The Coherent Addition of Gratings for Pulse Compression in High-Energy Laser Systems," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 621–625.

T. J. Kessler, J. Bunkenburg, H. Huang, A. Kozlov, and D. D. Meyerhofer, "Demonstration of Coherent Addition of Multiple Gratings for High-Energy Chirped-Pulse-Amplified Lasers," Opt. Lett. **29**, 635 (2004).

A. K. Knight, F.-Y. Tsai, M. J. Bonino, and D. R. Harding, "Suitability of Different Polyimide Capsule Materials for Use as ICF Targets," Fusion Sci. Technol. **45**, 187 (2004).

J. A. Koch, T. W. Barbee, Jr., S. Dalhed, S. Haan, N. Izumi, R. W. Lee, L. A. Welser, R. C. Mancini, F. J. Marshall, T. C. Sangster, V. A. Smalyuk, J. M. Soures, and L. Klein, "Core Temperature and Density Profiles from Multispectral Imaging of ICF Plasmas," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 857–861.

A. Korneev, P. Kouminov, V. Matvienko, G. Chulkova, K. Smirnov, B. Voronov, G. N. Gol'tsman, M. Currie, W. Lo, K. Wilsher, J. Zhang, W. Slysz, A. Pearlman, A. Verevkin, and R. Sobolewski, "Sensitivity and Gigahertz Counting Performance of NbN Superconducting Single-Photon Detectors," Appl. Phys. Lett. **84**, 5338 (2004).

T. Z. Kosc, K. L. Marshall, and S. D. Jacobs, "Polymer Cholesteric Liquid Crystal Flake Particle Displays Utilizing Maxwell-Wagner Polarization Effects for Switching," in the *Conference Record of the 23rd International Display Research Conference* (Society for Information Display, San Jose, CA, 2003), pp. 237–239.

T. Kosteski, N. P. Kherani, P. Stradins, F. Gaspari, W. T. Shmayda, L. S. Sidhu, and S. Zukotynski, "Tritiated Amorphous Silicon Betavoltaic Devices," IEE Proc.-Circuits Devices Syst. **150**, 274 (2003).

T. I. Lakoba, C. Dorrer, and D. N. Maywar, "Polarization-Mode Dispersion of a Circulating Loop," J. Opt. Soc. Am. B **21**, 243 (2004).

J. Leuthold, R. Ryf, D. N. Maywar, S. Cabot, J. Jaques, and S. S. Patel, "Nonblocking All-Optical Cross Connect Based on Regenerative All-Optical Wavelength Converter in a Transparent Demonstration Over 42 Nodes and 16800 km," J. Lightwave Technol. **21**, 2863 (2003).

C. K. Li, F. H. Séguin, J. A. Frenje, R. D. Petrasso, J. A. Delettrez, P. W. McKenty, T. C. Sangster, R. L. Keck, J. M. Soures, F. J. Marshall, D. D. Meyerhofer, V. N. Goncharov, J. P. Knauer, P. B. Radha, S. P. Regan, and W. Seka, "Effects of Nonuniform Illumination on Implosion Asymmetry in Direct-Drive Inertial Confinement Fusion," Phys. Rev. Lett. **92**, 205001 (2004).

J. Li, W. R. Donaldson, and T. Y. Hsiang, "Simulation of Submicrometer Metal–Semiconductor–Metal Ultraviolet Photodiodes on Gallium Nitride," Solid-State Electron. **48**, 2329 (2004).

J. Li, Y. Xu, T. Y. Hsiang, and W. R. Donaldson, "Picosecond Response of Gallium-Nitride Metal–Semiconductor–Metal Photodetectors," Appl. Phys. Lett. **84**, 2091 (2004).

X. Z. Lin, X. Teng, and H. Yang, "Direct Synthesis of Narrowly Dispersed Silver Nanoparticles Using a Single-Source Precursor," Langmuir **19**, 10,081 (2003).

J. D. Lindl, B. A. Hammel, B. G. Logan, D. D. Meyerhofer, S. A. Payne, and J. D. Sethian, "The US Inertial Confinement Fusion (ICF) Ignition Programme and the Inertial Fusion Energy (IFE) Programme," Plasma Phys. Control. Fusion **45**, A217 (2003).

S. G. Lukishova, A. W. Schmid, A. J. McNamara, R. W. Boyd, and C. R. Stroud, Jr., "Room-Temperature Single-Photon Source: Single-Dye Molecule Fluorescence in Liquid Crystal Host," IEEE J. Sel. Top. Quantum Electron. **9**, 1512 (2003).

S. G. Lukishova, A. W. Schmid, C. M. Supranowitz, N. Lippa, A. J. McNamara, R. W. Boyd, and C. R. Stroud, Jr., "Dye-Doped Cholesteric-Liquid-Crystal Room-Temperature Single-Photon Source," J. Mod. Opt. **51**, 1535 (2004).

J. R. Marciante and D. H. Raguin, "High-Efficiency, High-Dispersion Diffraction Gratings Based on Total Internal Reflection," Opt. Lett. **29**, 542 (2004).

F. J. Marshall, J. A. Delettrez, R. Epstein, R. Forties, R. L. Keck, J. H. Kelly, P. W. McKenty, S. P. Regan, and L. J. Waxer, "Direct-Drive-Implosion Experiments with Enhanced Fluence Balance on OMEGA," Phys. Plasmas **11**, 251 (2004).

K. L. Marshall, B. Klehn, B. Watson, and D. W. Griffin, "Recent Advances in the Development of Phase-Shifting Liquid Crystal Interferometers for Visible and Near-IR Applications," in *Advanced Characterization Techniques for Optics, Semiconductors, and Nanotechnologies*, edited by A. Duparré and B. Singh (SPIE, Bellingham, WA, 2003), Vol. 5188, pp. 48–60.

K. L. Marshall, B. Schudel, and I. A. Lippa, "Transition Metal Dithiolene Complexes as Near-IR Dyes for Liquid Crystal Device Applications," in *Liquid Crystals VII*, edited by I.-C. Khoo (SPIE, Bellingham, WA, 2003), Vol. 5213, pp. 201–212.

A. V. Maximov, J. Myatt, W. Seka, R. W. Short, and R. S. Craxton, "Modeling of Stimulated Brillouin Scattering Near the Critical-Density Surface in the Plasmas of Direct-Drive Targets," Phys. Plasmas **11**, 2994 (2004).

R. L. McCrory (keynote speaker), "Progress in Inertial Confinement Fusion in the United States," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 3–8.

P. W. McKenty, T. C. Sangster, M. Alexander, R. Betti, R. S. Craxton, J. A. Delettrez, L. Elasky, R. Epstein, A. Frank, V. Yu. Glebov, V. N. Goncharov, D. R. Harding, S. Jin, J. P. Knauer, R. L. Keck, S. J. Loucks, L. D. Lund, R. L. McCrory, F. J. Marshall, D. D. Meyerhofer, S. P. Regan, P. B. Radha, S. Roberts, W. Seka, S. Skupsky, V. A. Smalyuk, J. M. Soures, K. A. Thorp, M. Wozniak, J. A. Frenje, C. K. Li, R. D. Petrasso, F. H. Séguin, K. A. Fletcher, S. Padalino, C. Freeman, N. Izumi, J. A. Koch, R. A. Lerche, M. J. Moran, T. W. Phillips, G. J. Schmid, and C. Sorce, "Direct-Drive Cryogenic Target Implosion Performance on OMEGA," Phys. Plasmas **11**, 2790 (2004) (invited).

J. Myatt, A. V. Maximov, W. Seka, R. S. Craxton, and R. W. Short, "Modeling Stimulated Brillouin Scattering in the Underdense Corona of a Direct Drive Inertial Confinement Fusion Target," Phys. Plasmas **11**, 3394 (2004).

R. Narayan, I. V. Igumenshchev, and M. A. Abramowicz, "Magnetically Arrested Disk: An Energetically Efficient Accretion Flow," Publ. Astron. Soc. Jpn. **55**, L69 (2003).

J.-R. Park, W. R. Donaldson, R. Boni, and R. Sobolewski, "Characterization of Single and Double Fiber-Coupled Diffusing Spheres," Appl. Opt. **43**, 3967 (2004).

S. P. Regan, J. A. Delettrez, V. N. Goncharov, F. J. Marshall, J. M. Soures, V. A. Smalyuk, P. B. Radha, B. Yaakobi, R. Epstein, V. Yu. Glebov, P. A. Jaanimagi, D. D. Meyerhofer, T. C. Sangster, W. Seka, S. Skupsky, C. Stoeckl, D. A. Haynes, Jr., J. A. Frenje, C. K. Li, R. D. Petrasso, and F. H. Séguin, "Dependence of Shell Mix on Feedthrough in Direct-Drive Inertial Confinement Fusion," Phys. Rev. Lett. **92**, 185002 (2004).

B. A. Remington, G. Bazan, J. Belak, E. Bringa, M. Caturla, J. D. Colvin, M. J. Edwards, S. G. Glendinning, D. S. Ivanov, B. Kad, D. H. Kalantar, M. Kumar, B. F. Lasinski, K. T. Lorenz, J. M. McNaney, D. D. Meyerhofer, M. A. Meyers, S. M. Pollaine, D. Rowley, M. Schneider, J. S. Stölken, J. S. Wark, S. V. Weber, W. G. Wolfer, B. Yaakobi, and L. V. Zhigilei, "Materials Science Under Extreme Conditions of Pressure and Strain Rate," Metall. Trans. A, Phys. Metall. Mater. Sci. **35A**, 2587 (2004).

S. Skupsky, R. Betti, T. J. B. Collins, V. N. Goncharov, J. A. Marozas, P. W. McKenty, P. B. Radha, T. R. Boehly, J. P. Knauer, F. J. Marshall, D. R. Harding, J. D. Kilkenny, D. D. Meyerhofer, T. C. Sangster, and R. L. McCrory, "Advanced Direct-Drive Target Designs for the NIF," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 61–64.

S. Skupsky, J. A. Marozas, R. S. Craxton, R. Betti, T. J. B. Collins, J. A. Delettrez, V. N. Goncharov, P. W. McKenty, P. B. Radha, T. R. Boehly, J. P. Knauer, F. J. Marshall, D. R. Harding, J. D. Kilkenny, D. D. Meyerhofer, T. C. Sangster, and R. L. McCrory, "Polar Direct Drive on the National Ignition Facility," Phys. Plasmas **11**, 2763 (2004) (invited).

X. Teng and H. Yang, "Effects of Surfactants and Synthetic Conditions on the Sizes and Self-Assembly of Monodisperse Iron Oxide Nanoparticles," J. Mater. Chem. **14**, 774 (2004).

X. Teng and H. Yang, "Synthesis of Face-Centered Tetragonal FePt Nanoparticles and Granular Films from $Pt@Fe_2O_3$ Core–Shell Nanoparticles," J. Am. Chem. Soc. **125**, 14,559 (2003).

L. Veisz, W. Theobald, T. Feurer, H. Schwoerer, I. Uschmann, O. Renner, and R. Sauerbrey, "Three-Halves Harmonic Emission from Femtosecond Laser Produced Plasmas with Steep Density Gradients," Phys. Plasmas **11**, 3311 (2004).

A. Verevkin, A. Pearlman, W. Slysz, J. Zhang, M. Currie, A. Korneev, G. Chulkova, O. Okunev, P. Kouminov, K. Smirnov, B. Voronov, G. N. Gol'tsman, and R. Sobolewski, "Ultrafast Superconducting Single-Photon Detectors for Near-Infrared-Wavelength Quantum Communications," J. Mod. Opt. **51**, 1447 (2004).

Y. Wang, J. F. Wong, X. Teng, X. Z. Lin, and H. Yang, " 'Pulling' Nanoparticles into Water: Phase Transfer of Oleic Acid Stabilized Monodisperse Nanoparticles into Aqueous Solutions of $\alpha$-Cyclodextrin," Nano Lett. **3**, 1555 (2003).

D. C. Wilson, C. W. Cranfill, C. Christensen, R. A. Forster, R. R. Peterson, N. M. Hoffman, G. D. Pollak, C. K. Li, F. H. Séguin, J. A. Frenje, R. D. Petrasso, P. W. McKenty, F. J. Marshall, V. Yu. Glebov, C. Stoeckl, G. J. Schmid, N. Izumi, and P. Amendt, "Multifluid Interpenetration Mixing in Directly Driven Inertial Confinement Fusion Capsule Implosions," Phys. Plasmas **11**, 2723 (2004).

Y. Xu, M. Khafizov, L. Satrapinsky, P. Kúš, A. Plecenik, and R. Sobolewski, "Time-Resolved Photoexcitation of the Superconducting Two-Gap State in $MgB_2$ Thin Films," Phys. Rev. Lett. **91**, 197004 (2003).

B. Yaakobi, D. D. Meyerhofer, T. R. Boehly, J. J. Rehr, B. A. Remington, P. G. Allen, S. M. Pollaine, and R. C. Albers, "Extended X-Ray Absorption Fine Structure Measurements of Laser-Shocked V and Ti and Crystal Phase Transformation in Ti," Phys. Rev. Lett. **92**, 095504 (2004).

B. Yaakobi, D. D. Meyerhofer, T. R. Boehly, J. J. Rehr, B. A. Remington, P. G. Allen, S. M. Pollaine, and R. C. Albers, "Extended X-Ray Absorption Fine Structure Measurements of Laser Shocks in Ti and V and Phase Transformation in Ti," Phys. Plasmas **11**, 2688 (2004) (invited).

J. Zhang, N. Boiadjieva, G. Chulkova, H. Deslandes, G. N. Gol'tsman, A. Korneev, P. Kouminov, M. Leibowitz, W. Lo, R. Malinsky, O. Okunev, A. Pearlman, W. Slysz, K. Smirnov, C. Tsao, A. Verevkin, V. Voronov, K. Wilsher, and R. Sobolewski, "Noninvasive CMOS Circuit Testing with NbN Superconducting Single-Photon Detectors," Electron. Lett. **39**, 1086 (2003).

J. D. Zuegel and D. W. Jacobs-Perkins, "Efficient, High-Frequency Bulk Phase Modulator," Appl. Opt. **43**, 1946 (2004).

## OMEGA External Users' Publications

B. Afeyan, M. Mardirian, K. Won, D. S. Montgomery, J. Hammer, R. K. Kirkwood, and A. J. Schmitt, "Optical Mixing Controlled Stimulated Scattering Instabilities: Suppression of SRS by the Controlled Introduction of Ion Acoustic and Electron Plasma Wave Turbulence," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 264–267

P. Amendt, H. F. Robey, H.-S. Park, R. E. Turner, R. E. Tipton, J. L. Milovich, J. D. Colvin, M. J. Edwards, R. Hibbard, H. Louis, R. Wallace, D. P. Rowley, W. S. Varnum, R. G. Watt, D. C. Wilson, W. Garbett, and A. M. Dunne, "Hohlraum-Driven Ignition-Like Double-Shell Implosion Experiments on OMEGA: Analysis and Interpretation," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 80–84.

P. M. Celliers, G. W. Collins, D. G. Hicks, M. Koenig, E. Henry, A. Benuzzi-Mounaix, D. Batani, D. K. Bradley, L. B. Da Silva, R. J. Wallace, S. J. Moon, J. H. Eggert, K. K. M. Lee, L. R. Benedetti, R. Jeanloz, I. Masclet, N. Dague, B. Marchet, M. Rabec le Gloahec, Ch. Reverdin, J. Pasley, O. Willi, D. Neely, and C. Danson, "Electronic Conduction in Shock-Compressed Water," Phys. Plasmas **11**, L41 (2004).

C. R. Christensen, D. C. Wilson, C. W. Barnes, G. P. Grim, G. L. Morgan, M. D. Wilke, and F. J. Marshall, "Asymmetry and Mix in Direct-Drive ICF Experiments," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 158–161.

D. H. Cohen, J. J. MacFarlane, P. Jaanimagi, O. L. Landen, D. A. Haynes, D. S. Conners, K. L. Penrose, and N. C. Shupe, "Tracer Spectroscopy Diagnostics of Doped Ablators in Inertial Confinement Fusion Experiments on OMEGA," Phys. Plasmas **11**, 2702 (2004).

N. Delameter, G. Kyrala, D. Wilson, R. Watt, J. Guzik, W. M. Wood, W. Varnum, and D. Haynes, "Progress with Double Shell Target Implosions on OMEGA," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 190–192.

E. L. DeWald, S. W. Pollaine, O. L. Landen, P. A. Amendt, R. E. Turner, R. J. Wallace, K. M. Campbell, and S. H. Glenzer, "Hydro-Coupling Effects on Compression Symmetry in Gas-Filled Hohlraum Experiments at the OMEGA Laser," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 490–493.

L. Disdier, R. A. Lerche, J. L. Bourgade, and V. Yu. Glebov, "Capillary Detector with Deuterated Scintillator for Inertial Confinement Fusion Neutron Images," Rev. Sci. Instrum. **75**, 2134 (2004).

R. P. Drake, D. R. Leibrandt, E. C. Harding, C. C. Kuranz, M. A. Blackburn, H. F. Robey, B. A. Remington, M. J. Edwards, A. R. Miles, T. S. Perry, R. J. Wallace, H. Louis, J. P. Knauer, and D. Arnett, "Nonlinear Mixing Behavior of the Three-Dimensional Rayleigh–Taylor Instability at a Decelerating Interface," Phys. Plasmas **11**, 2829 (2004).

J. Edwards, K. T. Lorenz, B. A. Remington, S. Pollaine, J. Colvin, D. Braun, B. F. Lasinski, D. Reisman, J. M. McNaney, J. A. Greenough, R. Wallace, H. Louis, and D. Kalantar, "Laser-Driven Plasma Loader for Shockless Compression and Acceleration of Samples in the Solid State," Phys. Rev. Lett. **92**, 075002 (2004).

W. Garbett, P. Graham, and A. M. Dunne, "An Assessment of Mix in OMEGA Double Shell Capsule Implosions," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 126–130.

S. H. Glenzer, P. Arnold, G. Bardsley, R. L. Berger, G. Bonnano, T. Borger, D. E. Bower, M. Bowers, R. Bryant, S. Buckman, S. C. Burkhart, K. Campbell, M. P. Chrisp, B. I. Cohen, C. Constantin, F. Cooper, J. Cox, E. DeWald, L. Divol, S. Dixit, J. Duncan, D. Eder, J. Edwards, G. Erbert, B. Felker, J. Fornes, G. Frieders, D. H. Froula, S. D. Gardner, C. Gates, M. Gonzalez, S. Grace, G. Gregori, A. Greenwood, R. Griffith, T. Hall, B. A. Hammel, C. Haynam, G. Heestand, M. Henesian, G. Hermes, D. Hinkel, J. Holder, F. Holdner, G. Holtmeier, W. Hsing, S. Huber, T. James, S. Johnson, O. S. Jones, D. Kalantar, J. H. Kampschroer, R. Kauffman, T. Kelleher, J. Knight, R. K. Kirkwood, W. L. Kruer, W. Labiak, O. L. Landen, A. B. Langdon, S. Langer, D. Latray, A. Lee, F. D. Lee, D. Lund, B. MacGowan, S. Marshall, J. McBride, T. McCarville, L. McGrew, A. J. Mackinnon, S. Mahavandi, K. Manes, C. Marshall, J. Menapace, E. Metens, N. Meezan, G. Miller, S. Montelongo, J. D. Moody, E. Moses, D. Munro, J. Murray, J. Neumann, M. Newton, E. Ng, C. Niemann, A. Nikitin, P. Opsahl, E. Padilla, T. Parham, G. Parrish, C. Petty, M. Polk, C. Powell, I. Reinbachs, V. Rekow, R. Rinnert, B. Riordan, M. Rhodes, V. Roberts, H. Robey, G. Ross, S. Sailors, R. Saunders, M. Schmitt, M. B. Schneider, S. Shiromizu, M. Spaeth, A. Stephens, B. Still, L. J. Suter, G. Tietbohl, M. Tobin, J. Tuck, B. M. Van Wonterghem, R. Vidal, D. Voloshin, R. Wallace, P. Wegner, P. Whitman, E. A. Williams, K. Williams, K. Winward, K. Work, B. Young, P. E. Young, P. Zapata, R. E. Bahr, W. Seka, J. Fernandez, D. Montgomery, and H. Rose, "Progress in Long Scale Length Laser–Plasma Interactions," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 207–212.

I. E. Golovkin, J. J. MacFarlane, P. R. Woodruff, L. A. Welser, D. L. McCrorey, R. C. Mancini, and J. A. Koch, "Modeling of Indirect-Drive ICF Implosions Using 1-D Hydrodynamics Code with Inline Collisional-Radiative Atomic Kinetics," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 166–169.

G. Gregori, S. H. Glenzer, F. J. Rogers, O. L. Landen, C. Blancard, G. Faussurier, P. Renaudin, S. Kuhlbrodt, and R. Redmer, "Electronic Structure Measurement of Solid Density Plasmas Using X-Ray Scattering," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 902–906.

G. Gregori, S. H. Glenzer, F. J. Rogers, S. M. Pollaine, O. L. Landen, C. Blancard, G. Faussier, P. Renaudin, S. Kuhlbrodt, and R. Redmer, "Electronic Structure Measurements of Dense Plasmas," Phys. Plasmas **11**, 2754 (2004).

M. A. Gunderson, D. A. Haynes, Jr., N. D. Delameter, and S. P. Regan, "Experimental Results on the Effects of Line Merging in Spectral Line Data Analysis," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 884–887.

J. F. Hansen, M. J. Edwards, H. F. Robey, A. Miles, D. Froula, G. Gregori, A. Edens, and T. Ditmire, "Laboratory Simulations of Supernova Shockwave Propagation and ISM Reaction," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 962–965.

R. F. Heeter, M. E. Foord, K. B. Fournier, K. B. Froula, A. J. MacKinnon, M. J. May, M. B. Schneider, and B. K. F. Young, "Characterization of Non-LTE Gold Plasmas in controlled Conditions with Finite $T_r$," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 1018–1021.

D. E. Hinkel, M. B. Schneider, E. A. Williams, A. B. Langdon, L. J. Suter, and P. T. Springer, "Filamentation, Deflection, Scatter, and Crossed Beam Energy Transfer in High Temperature Hohlraums," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 242–246.

P. A. Holstein, D. Babonneau, C. Bowen, F. Chaland, C. Cherfils, E. Dattolo, S. Depierreux, D. Galmiche, P. Gauthier, J. Giorla, J. P. Jadaud, L. Masse, M. C. Monteil, F. Poggi, G. Riazuelo, P. Seytor, and F. Wagon, "Progress in Target Physics for LMJ at CEA," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 65–69.

H. Ji, M. Brown, S. C. Hsu, H. Li, and R. P. Drake, "Mini-Conference and Related Sessions on Laboratory Plasma Astrophysics," Phys. Plasmas **11**, 2976 (2004).

J. A. King, R. R. Freeman, M. H. Key, K. Akli, M. Borghesi, R. Clarke, T. Cowan, H. Habara, H. Heathcote, S. Karsch, R. Kodama, K. Lancaster, A. MacKinnon, C. Murphy, P. Norreys, P. Patel, L. Romagnani, R. Snavely, R. Stephens, C. Stoeckl, Y. Toyama, M. Zepf, and B. Zhang, "Ti *K*-alpha Radiography of Imploding Cu Doped Cd Shells and Coned Shells," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 449–452.

J. A. Koch, T. W. Barbee, Jr., S. Dalhed, S. Haan, N. Izumi, R. W. Lee, L. A. Welser, R. C. Mancini, F. J. Marshall, T. C. Sangster, V. A. Smalyuk, J. M. Soures, and L. Klein, "Core Temperature and Density Profiles from Multispectral Imaging of ICF Plasmas," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 857–861.

M. Koenig, E. Henry, A. Benuzzi-Mounaix, G. Huser, B. Faral, E. Martinolli, S. Lepape, P. Audebert, T. Vinci, D. Batani, M. Tomasini, B. Telaro, B. Marchet, I. Masclet, M. Rabec, Ch. Reverdin, P. Loubeyre, T. Hall, P. Celliers, G. Collins, L. DaSilva, R. Cauble, D. Hicks, D. Bradley, A. MacKinnon, P. Patel, J. Eggert, J. Pasley, O. Willi, D. Neely, M. Notley, C. Danson, M. Borghesi, L. Romagnani, T. Boehly, and K. Lee, "Recent Developments in High Pressure Physics Using Laser Driven Shocks," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 897–901.

B. J. Kozioziemski, R. A. London, R. L. McEachern, and D. N. Bittner, "Demonstration of Symmetry Control of Infrared Heated Deuterium Lasers in Hohlraums," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 762–765.

W. Kruer, J. Moody, L. Suter, S. Glenzer, A. MacKinnon, D. Froula, G. Gregori, L. Divol, M. Miller, R. Bahr, W. Seka, K. Oades, and R. M. Stevenson, "Blue and Green Light? Wavelength Scaling for NIF," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 223–227.

N. E. Lanier, M. M. Balkey, C. W. Barnes, S. H. Batha, R. D. Day, N. D. Delameter, J. R. Fincke, G. R. Magelssen, R. M. Hueckstaedt, J. M. Scott, W. P. Steckle, Jr., A. M. Dunne, C. Horsfield, K. W. Parker, and S. D. Rothman, "Richtmyer–Meshkov Mixing in Directly Driven Cylindrically Convergent Systems," in *Inertial Fusion Sciences and Applications 2003*,

edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 140–144.

C. K. Li, F. H. Séguin, J. A. Frenje, R. D. Petrasso, J. A. Delettrez, P. W. McKenty, T. C. Sangster, R. L. Keck, J. M. Soures, F. J. Marshall, D. D. Meyerhofer, V. N. Goncharov, J. P. Knauer, P. B. Radha, S. P. Regan, and W. Seka, "Effects of Nonuniform Illumination on Implosion Asymmetry in Direct-Drive Inertial Confinement Fusion," Phys. Rev. Lett. **92**, 205001 (2004).

S. B. Libby, M. Tabak, R. D. Hoffman, M. A. Stoyer, S. W. Haan, S. P. Hatchett, D. P. McNabb, W. E. Ormand, J. Escher, P. Navratil, D. Gogny, M. S. Weiss, M. Mustafa, J. Becker, W. Younes, E. Hartouni, and R. A. Ward, "Prospects for Investigating Unusual Nuclear Reaction Environments Using the National Ignition Facility," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 935–939.

J. D. Lindl, P. Amendt, R. L. Berger, S. G. Glendinning, S. H. Glenzer, S. W. Haan, R. L. Kauffman, O. L. Landen, and L. J. Suter, "The Physics Basis for Ignition Using Indirect-Drive Targets on the National Ignition Facility," Phys. Plasmas **11**, 339 (2004).

A. R. Miles, D. G. Braun, M. J. Edwards, H. F. Robey, R. P. Drake, and D. R. Leibrandt, "Numerical Simulation of Supernova-Relevant Laser-Driven Hydro Experiments on OMEGA," Phys. Plasmas **11**, 3631 (2004).

A. R. Miles, M. J. Edwards, and H. F. Robey, "The Effect of a Short Wavelength Mode on the Nonlinear Evolution of a Long Wavelength Perturbation Driven by a Strong Blast Wave," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 145–149.

G. H. Miller, "The National Ignition Facility: Experimental Capability," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 529–534.

J. L. Milovich, P. Amendt, M. Marinak, and H. Robey, "Multimode Short-Wavelength Perturbation Growth Studies for the National Ignition Facility Double-Shell Ignition Target Designs," Phys. Plasmas **11**, 1552 (2004).

J. D. Moody, L. Divol, S. H. Glenzer, A. J. MacKinnon, D. H. Froula, G. Gregori, W. L. Kruer, L. J. Suter, E. A. Williams, R. Bahr, and W. Seka, "Experimental Studies of Simultaneous 351 nm and 527 nm Laser Beam Interactions in a Long Scale Length Plasma," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 218–222.

R. E. Olson, R. J. Leeper, A. Nobile, and J. A. Oertel, "Preheat Effects on Shock Propagation in Indirect-Drive Inertial Confinement Fusion Ablator Materials," Phys. Rev. Lett. **91**, 235002 (2003).

R. E. Olson, R. J. Leeper, A. Nobile, J. A. Oertel, G. A. Chandler, K. Cochrane, S. C. Dropinski, S. Evans, S. W. Haan, J. L. Kaae, J. P. Knauer, K. Lash, L. P. Mix, A. Nikroo, G. A. Rochau, G. Rivera, C. Russell, D. Schroen, R. J. Sebring, D. L. Tanner, R. E. Turner, and R. J. Wallace, "Shock Propagation, Preheat, and X-Ray Burnthrough in Indirect-Drive Inertial Confinement Fusion Ablator Materials," Phys. Plasmas **11**, 2778 (2004).

H.-S. Park, J. A. Koch, O. L. Landen, T. W. Phillips, T. J. Goldsack, E. Clark, R. Eagleton, and R. D. Edwards, "High Energy X-ray Source Generation by Short Pulse High Intensity Lasers," in *Laser-Generated and Other Laboratory X-Ray and EUV Sources, Optics, and Applications*, edited by G. A. Kyrala, J.-C. J. Gauthier, C. A. MacDonald, and A. M. Khounsary (SPIE, Bellingham, WA, 2004), Vol. 5196, pp. 213–219.

K. Parker, C. J. Horsfield, S. D. Rothman, S. H. Batha, M. M. Balkey, N. D. Delameter, J. R. Fincke, R. M. Hueckstaedt, N. E. Lanier, and G. R. Magelssen, "Observation and Simulation of Plasma Mix After Reshock in a Convergent Geometry," Phys. Plasmas **11**, 2696 (2004).

A. B. Reighard, R. P. Drake, K. Dannenberg, T. S. Perry, H. F. Robey, B. A. Remington, R. J. Wallace, D. D. Ryutov, J. Greenough, J. Knauer, T. Boehly, S. Bouquet, A. Calder, R. Rosner, B. Fryxell, D. Arnett, M. Koenig, and J. Stone, "Collapsing Radiative Shocks in Argon Gas on the OMEGA Laser," in *Inertial Fusion Sciences and Applications 2003*,

edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 950–953.

B. A. Remington, G. Bazan, J. Belak, E. Bringa, M. Caturla, J. D. Colvin, M. J. Edwards, S. G. Glendinning, D. Ivanov, B. Kad, D. H. Kalantar, M. Kumar, B. F. Lasinski, K. T. Lorenz, J. M. McNaney, D. D. Meyerhofer, M. A. Meyers, S. M. Pollaine, D. Rowley, M. Schneider, J. S. Stolken, J. S. Wark, S. V. Weber, W. G. Wolfer, and B. Yaakobi, "Materials Science Under Extreme Conditions of Pressure and Strain Rate," Metall. Mater. Trans. A **35A**, 2587 (2004).

B. A. Remington, R. M. Cavallo, M. J. Edwards, B. F. Lasinski, K. T. Lorenz, H. E. Lorenzana, J. McNaney, S. M. Pollaine, D. P. Rowley, and B. Yaakobi, "Materials Science at the Extremes of Pressure and Strain Rate," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 917–921.

H. F. Robey, P. A. Amendt, H.-S. Park, O. L. Landen, R. G. Watt, and W. S. Varnum, "Experimental Investigation of the Effect of *M*-Band Preheating in Indirectly-Driven Double-Shell Implosions," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 162–165.

H. F. Robey, A. R. Miles, J. F. Hansen, B. E. Blue, and R. P. Drake, "Laser-Driven Hydrodynamic Experiments in the Turbulent Plasma Regime: From OMEGA to NIF," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 135–139.

G. J. Schmid, J. A. Koch, M. J. Moran, R. A. Lerche, N. Izumi, T. Phillips, V. Glebov, T. C. Sangster, and C. Stoeckl, "CVD Diamond Detector Stability Issues for Operation at the National Ignition Facility," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 881–883.

H. Shiraga, S. Fujioka, R. Kodama, K. A. Tanaka, R. B. Stephens, P. Jaanimagi, C. Stoeckl, T. C. Sangster, D. D. Meyerhofer, and S. P. Hatchett, "10-ps X-Ray Imaging of Cone-Shell Target Implosions at OMEGA Laser," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 438–440.

W. P. Steckle, Jr., K. V. Wilson, R. J. Sebring, and A. Nobile, "Evaluation of Low Density Materials for Use in Inertial Fusion Targets," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 783–786.

R. B. Stephens, A. Nikroo, D. Hill, J. N. Smith, Jr., S. P. Hatchett, C. Stoeckl, M. J. Bonino, T. C. Sangster, H. Shiraga, S. Fujioka, and K. A. Tanaka, "Hydrodynamics of Direct Drive Reentrant Cone Targets for Fast Ignition," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 383–386.

L. J. Suter, S. Glenzer, S. Haan, B. Hammel, K. Manes, N. Meezan, J. Moody, M. Spaeth, L. Divol, K. Oades, and M. Stevenson, "Prospects for High-Gain, High Yield National Ignition Facility Targets Driven by $2\omega$ (Green) Light," Phys. Plasmas **11**, 2738 (2004).

L. J. Suter, S. Glenzer, S. Haan, B. Hammel, K. Manes, N. Meezan, J. Moody, M. Spaeth, L. Divol, K. Oades, and M. Stevenson, "Prospects for High-Gain, High Yield NIF Targets Driven by $2\omega$ (Green) Light," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 23–34.

J. Tassart, "Inertial Fusion Science in Europe," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 15–20.

M. Taylor, J. Foster, P. Rosen, R. Williams, B. H. Wilde, T. S. Perry, P. Keiter, R. Coker, R. P. Drake, and A. M. Khokhlov, "Transition to Turbulence in Plasma Jet Experiments," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 485–489.

E. A. Williams, B. I. Cohen, L. Divol, M. R. Dorr, J. A. Hittinger, D. E. Hinkel, A. B. Langdon, R. K. Kirkwood, D. H. Froula, and S. H. Glenzer, "Effects of Ion Trapping on Crossed-Laser-Beam Stimulated Brillouin Scattering," Phys. Plasmas **11**, 231 (2004)

D. C. Wilson, C. W. Cranfill, C. Christensen, R. A. Forster, R. R. Peterson, N. M. Hoffman, G. D. Pollak, C. K. Li, F. H. Séguin, J. A. Frenje, R. D. Petrasso, P. W. McKenty, F. J. Marshall, V. Yu. Glebov, C. Stoeckl, G. J. Schmid, N. Izumi, and P. Amendt, "Multifluid Interpretation Mixing in Directly Driven Inertial Confinement Fusion Capsule Implosions," Phys. Plasmas **11**, 2723 (2004).

D. C. Wilson, N. D. Delameter, G. D. Pollak, R. G. Watt, C. W. Cranfill, W. S. Varnum, and P. Amendt, "Mixing in Double Shell Capsules," in *Inertial Fusion Sciences and Applications 2003*, edited by B. A. Hammel, D. D. Meyerhofer, J. Meyer-ter-Vehn, and H. Azechi (American Nuclear Society, La Grange Park, IL, 2004), pp. 121–125.

## Conference Presentations

The following presentations were made at the 87th OSA Annual Meeting, Tucson, AZ, 5–9 October 2003:

S. G. Lukishova, A. W. Schmid, A. J. McNamara, R. W. Boyd, and C. R. Stroud, "Efficient Room Temperature Single-Photon Source: Single Dye Molecule Fluorescence in Photonic-Band-Gap Cholesteric Liquid Crystal Host."

J. R. Marciante, N. O. Farmiga, J. P. Kondis, and J. R. Frederick, "Phase Effects of Secondary Reflections on the Performance of Reflective Liquid-Crystal Cells."

J. R. Marciante, N. O. Farmiga, H. T. Ta, J. I. Hirsh, and M. S. Evans, "Optical Measurement of Depth and Duty Cycle for Binary Diffraction Gratings with Sub-$\lambda$ Features."

J. R. Marciante and D. H. Raguin, "A New Class of High-Efficiency, High-Dispersion Diffraction Gratings Based on Total Internal Reflection."

J. R. Marciante, D. H. Raguin, J. I. Hirsh, and E. T. Prince, "Polarization-Insensitive High-Dispersion TIR Diffraction Gratings."

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The following presentations were made at Education and Training in Optics and Photonics, Tucson, AZ, 6–8 October 2003:

S. D. Jacobs and L. L. Gregg, "OSA Rochester Section Optics Suitcase: A Forty-Minute Middle School Outreach Program for the Cost of a Postage Stamp."

S. D. Jacobs, L. L. Gregg, E. M. Fess, and J. M. Schoen, "Optics Manufacturing Research Projects by Undergraduates Who Happen to be Women."

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W. R. Donaldson, J. A. Marozas, R. S. Craxton, D. Jacobs-Perkins, and M. Millecchia, "Spectroscopy of Broadband Harmonic Generation," LEOS 2003, Tucson, AZ, 26–30 October 2003.

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The following presentations were made at the 45th Annual Meeting of the APS Division of Plasma Physics, Albuquerque, NM, 27–31 October 2003:

K. Anderson, R. Betti, and J. P. Knauer, "Adiabat Shaping by Relaxation in Plastic and Cryogenic Shells for Experiments on the OMEGA Laser."

R. Betti and K. Anderson, "Laser-Induced Adiabat Shaping by Relaxation."

T. R. Boehly, D. G. Hicks, T. J. B. Collins, G. W. Collins, P. M. Celliers, E. Vianello, D. D. Meyerhofer, R. C. Cauble, W. Unites, D. Jacobs-Perkins, R. Earley, M. J. Bonino, W. J. Armstrong, S. G. Noyes, D. Turner, D. Guy, S. Scarantino, T. Lewis, F. A. Rister, and L. D. Lund, "Quartz Equation-of-State (EOS) Measurements at the OMEGA Laser Facility."

M. Canavan, J. R. Rygg, J. A. Frenje, C. K. Li, F. H. Séguin, R. D. Petrasso, S. W. Haan, S. P. Hatchett, J. A. Koch, O. L. Landen, V. Yu. Glebov, D. D. Meyerhofer, and T. C. Sangster, "The Utility of Knock-On D, T, and P for Diagnosing NIF Implosions."

T. J. B. Collins and S. Skupsky, "High-Gain Direct-Drive Foam Target Designs for the National Ignition Facility."

R. S. Craxton, "Hydrodynamic Simulations of Polar Direct Drive on the NIF and LMJ Based on Three-Dimensional Ray Tracing."

J. DeCiantis, B. E. Schwartz, J. A. Frenje, F. H. Séguin, S. Kurebayashi, C. K. Li, R. D. Petrasso, J. A. Delettrez, J. M. Soures, V. Yu. Glebov, D. D. Meyerhofer, S. Roberts, T. C. Sangster, and S. P. Hatchett, "Studying the Burn Region in ICF Implosions with Proton-Emission Imaging."

J. A. Delettrez, P. B. Radha, C. Stoeckl, S. Skupsky, and D. D. Meyerhofer, "Simulation of Enhanced Neutron Production in OMEGA EP Cryogenic Implosions."

R. Epstein, F. J. Marshall, J. A. Delettrez, P. W. McKenty, P. B. Radha, and V. A. Smalyuk, "Effects of Low-Order Irradiation Nonuniformity on X-Ray Images of ICF Implosions Experiments on OMEGA."

J. A. Frenje, C. K. Li, F. H. Séguin, J. DeCiantis, J. R. Rygg, S. Kurebayashi, B. E. Schwartz, R. D. Petrasso, J. A. Delettrez, V. Yu. Glebov, D. D. Meyerhofer, T. C. Sangster, J. M. Soures, and C. Stoeckl, "Measuring Shock-Coalescence Timing and $\rho R$ Evolution of $D^3He$ Implosions at OMEGA" (invited).

J. A. Frenje, R. D. Petrasso, C. K. Li, F. H. Séguin, J. DeCiantis, S. Kurebayashi, J. R. Rygg, B. E. Schwartz, J. A. Delettrez, V. Yu. Glebov, D. D. Meyerhofer, T. C. Sangster, J. M. Soures, S. P. Hatchett, S. W. Haan, G. J. Schmid, O. L. Landen, N. Izumi, and D. Stelter, "A Magnetic Recoil Spectrometer (MRS) for $\rho R_{\text{fuel}}$ and Ti Measurements of Warm, Fizzle, and Ignited Implosions on OMEGA and NIF."

V. Yu. Glebov, C. Stoeckl, T. C. Sangster, P. B. Radha, S. Roberts, S. Mott, S. Padalino, L. Baumgart, K. Voltz, H. M. Jiang, S. P. Hatchett, M. J. Moran, S. Kurebayashi, F. H. Séguin, and R. D. Petrasso, "Secondary Neutron Energy Spectra Measurements with the 1020 Array on OMEGA."

V. Yu. Glebov, C. Stoeckl, S. Roberts, T. C. Sangster, J. A. Frenje, R. D. Petrasso, R. A. Lerche, and R. L. Griffith, "Proton Temporal Diagnostic for ICF Experiments on OMEGA."

V. N. Goncharov, T. R. Boehly, J. P. Knauer, V. A. Smalyuk, S. P. Regan, O. V. Gotchev, P. W. McKenty, S. Skupsky, P. B. Radha, and D. D. Meyerhofer, "Designing Shock-Timing and Imprint Experiments for the Direct-Drive Inertial Confinement Fusion Implosions."

O. V. Gotchev, V. N. Goncharov, P. A. Jaanimagi, J. P. Knauer, and D. D. Meyerhofer, "Streaked Imaging of Ablative Richtmyer–Meshkov Growth in ICF Targets on OMEGA."

L. Guazzotto and R. Betti, "High-$\beta$ Tokamak Equilibria with Poloidal Flows Exceeding the Poloidal Alfvén Velocity."

J. P. Knauer, V. N. Goncharov, K. Anderson, R. Betti, V. Yu. Glebov, F. J. Marshall, P. W. McKenty, P. B. Radha, S. P. Regan, T. C. Sangster, C. Stoeckl, J. A. Frenje, C. K. Li, R. D. Petrasso, and F. H. Séguin, "Direct-Drive ICF Implosions with Picket-Fence Pulse Shapes."

J. P. Knauer, S. Sublett, T. J. B. Collins, A. Frank, I. V. Igumenshchev, D. D. Meyerhofer, A. Poludnenko, J. M. Foster, P. A. Rosen, P. Keiter, B. H. Wilde, B. Blue, T. S. Perry, H. F. Robey, A. M. Khokhlov, and R. P. Drake, "Development of a Test Bed for Astrophysical Jet Hydrodynamics."

S. Kurebayashi, F. H. Séguin, J. A. Frenje, C. K. Li, R. D. Petrasso, J. R. Rygg, B. E. Schwartz, J. DeCiantis, V. Yu. Glebov, J. A. Delettrez, T. C. Sangster, J. M. Soures, and S. P. Hatchett, "Investigation of the Use of Secondary Protons and Neutrons for Studying Fuel Areal Density in Imploded, $D_2$-Filled Capsules."

J. A. Marozas, P. B. Radha, T. J. B. Collins, P. W. McKenty, and S. Skupsky, "Optimization of Low-Order Uniformity for Polar Direct Drive on the National Ignition Facility (NIF)."

F. J. Marshall, J. A. Delettrez, R. Epstein, R. Forties, V. Yu. Glebov, J. H. Kelly, T. J. Kessler, J. P. Knauer, P. W. McKenty, S. P. Regan, V. A. Smalyuk, C. Stoeckl, J. A. Frenje, C. K. Li, R. D. Petrasso, and F. H. Séguin, "Direct-Drive Implosions on OMEGA with Optimized Illumination Uniformity."

A. V. Maximov, J. Myatt, R. W. Short, W. Seka, and C. Stoeckl, "Modeling of the Two-Plasmon-Decay Instability Driven by Incoherent Laser Beams."

P. W. McKenty, T. C. Sangster, J. A. Delettrez, R. Epstein, V. Yu. Glebov, D. R. Harding, J. P. Knauer, R. L. Keck, S. J. Loucks, L. D. Lund, R. L. McCrory, F. J. Marshall, D. D. Meyerhofer, S. F. B. Morse, S. P. Regan, P. B. Radha, S. Roberts, W. Seka, S. Skupsky, V. A. Smalyuk, C. Sorce, J. M. Soures, J. A. Frenje, C. K. Li, R. D. Petrasso, F. H. Séguin, K. A. Fletcher, S. Padalino, C. Freeman, N. Izumi, J. A. Koch, R. A. Lerche, M. J. Moran, T. W. Phillips, and G. J. Schmid, "Direct-Drive Cryogenic Target Performance Issues on OMEGA" (invited).

D. D. Meyerhofer, W. Seka, M. Alexander, R. S. Craxton, M. D. Wittman, M. Pandina, L. S. Iwan, L. M. Elasky, D. R. Harding, T. J. Kessler, R. L. Keck, L. D. Lund, D. Weiner, A. Warrick, T. G. Brown, and C. Cotton, "Cryogenic Target Characterization at LLE."

J. Myatt, A. V. Maximov, R. W. Short, J. A. Delettrez, and C. Stoeckl, "Intense Electron-Beam Transport in Dense Cryogenic DT Fast-Ignition Fusion Targets."

R. D. Petrasso, J. R. Rygg, C. K. Li, F. H. Séguin, S. P. Hatchett, V. Yu. Glebov, D. D. Meyerhofer, T. C. Sangster, and J. M. Soures, "Experimental Studies of Time-Dependent Mix in OMEGA Direct-Drive Implosions."

S. P. Regan, H. Sawada, V. A. Smalyuk, V. N. Goncharov, J. A. Delettrez, P. B. Radha, R. Epstein, F. J. Marshall, B. Yaakobi, D. D. Meyerhofer, T. C. Sangster, and D. A. Haynes, Jr., "Diagnosing Shell Mix in Direct-Drive with Time-Resolved X-Ray Spectroscopy."

J. R. Rygg, F. H. Séguin, C. K. Li, J. A. Frenje, R. D. Petrasso, S. P. Hatchett, J. A. Delettrez, V. Yu. Glebov, V. N. Goncharov, R. L. Keck, J. P. Knauer, F. J. Marshall, D. D. Meyerhofer, T. C. Sangster, and V. A. Smalyuk, "The Effects of Implosion Asymmetry on Shock Dynamics in OMEGA Direct-Drive Experiments."

T. C. Sangster, J. A. Delettrez, R. Epstein, V. Yu. Glebov, V. N. Goncharov, D. R. Harding, D. Jacobs-Perkins, R. L. Keck, J. D. Kilkenny, J. P. Knauer, S. J. Loucks, L. D. Lund, R. L. McCrory, P. W. McKenty, J. A. Marozas, F. J. Marshall, D. D. Meyerhofer, S. F. B. Morse, S. P. Regan, P. B. Radha, W. Seka, S. Skupsky, V. A. Smalyuk, J. M. Soures, C. Stoeckl, K. A. Thorp, J. A. Frenje, C. K. Li, R. D. Petrasso, F. H. Séguin, K. A. Fletcher, S. Padalino, and C. Freeman, "Experimental Results from Cryogenic $D_2$ Implosions on the OMEGA Laser."

H. Sawada, S. P. Regan, V. N. Goncharov, J. P. Knauer, R. Epstein, R. S. Craxton, J. A. Delettrez, F. J. Marshall, B. Yaakobi, D. D. Meyerhofer, P. B. Radha, T. C. Sangster, and W. Seka, "Experimental Investigation of Coronal Plasma Conditions in Direct-Drive ICF Using Time-Resolved X-Ray Spectroscopy."

F. H. Séguin, J. R. Rygg, J. A. Frenje, C. K. Li, R. D. Petrasso, V. Yu. Glebov, V. N. Goncharov, J. P. Knauer, J. P. Marshall, D. D. Meyerhofer, T. C. Sangster, V. A. Smalyuk, J. M. Soures, and S. P. Hatchett, "Measuring Time Evolution of Areal-Density Asymmetries in OMEGA Direct-Drive Implosions."

W. Seka, C. Stoeckl, A. V. Maximov, R. S. Craxton, R. W. Short, S. P. Regan, H. Baldis, S. Depierreux, J. Myatt, and R. E. Bahr, "Experimental Investigation of the Two-Plasmon-Decay Instability at Oblique Incidence."

R. W. Short, "On the Role of Electron-Acoustic Waves in Two-Plasmon Decay and Stimulated Raman Scattering."

A. Simon and R. W. Short, "Convective Growth of the Three-Wave Parametric Instability in a Nonuniform Plasma."

S. Skupsky, J. A. Marozas, R. S. Craxton, R. Betti, T. J. B. Collins, J. A. Delettrez, V. N. Goncharov, P. W. McKenty, P. B. Radha, T. R. Boehly, J. P. Knauer, F. J. Marshall, D. R. Harding, J. D. Kilkenny, D. D. Meyerhofer, T. C. Sangster, and R. L. McCrory, "Polar Direct Drive on the National Ignition Facility" (invited).

J. M. Soures, S. J. Loucks, R. L. McCrory, D. D. Meyerhofer, S. F. B. Morse, T. C. Sangster, and C. Stoeckl, "Inertial Confinement Fusion and High-Energy-Density Physics Research Opportunities at the National Laser Users' Facility (NLUF)."

C. Stoeckl, J. A. Delettrez, T. C. Sangster, R. B. Stephens, S. P. Hatchett, J. A. Frenje, S. Fujioka, H. Shiraga, and K. A. Tanaka, "Fuel Assembly Experiments with Fast-Ignitor Cone Targets on OMEGA."

S. Sublett, J. P. Knauer, H. F. Robey, and B. Blue, "Development of a Point Projection Backlighter for Laboratory Astrophysics Experiments on OMEGA."

W. Theobald, L. Veisz, and R. Sauerbrey, "Three-Halves-Harmonic Generation in Femtosecond-Laser-Produced, Solid-Density Plasmas."

E. Vianello, T. R. Boehly, R. S. Craxton, V. N. Goncharov, J. P. Knauer, D. D. Meyerhofer, J. E. Miller, T. C. Sangster, D. G. Hicks, and P. M. Celliers, "Timing of Multiple Shocks in Planar Direct-Drive Laser-Driven Targets."

B. Yaakobi, D. D. Meyerhofer, T. R. Boehly, J. J. Rehr, B. A. Remington, P. G. Allen, S. M. Pollaine, and R. C. Albers, "Extended X-Ray Absorption Fine Structure Measurements of Laser Shocks in Ti and V and Phase Transformation in Ti" (invited).

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I. V. Igumenshchev, "Radiatively Inefficient Accretion Flows," Stellar-Mass, Intermediate-Mass, and Supermassive Black Holes, Kyoto, Japan, 28–31 October 2003.

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D. R. Harding, F.-Y. Tsai, E. L. Alfonso, S. H. Chen, A. K. Knight, and T. N. Blanton, "Properties of Vapor-Deposited Polyimide Films," Third International Symposium on Polyimides and Other High Temperature Polymers, Orlando, FL, 17–19 December 2003 (invited).

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J.-R. Park, W. R. Donaldson, and R. Sobolewski, "Time-Resolved Imaging of a Spatially Modulated Laser Pulse," LASE 2004, San Jose, CA, 24–29 January 2004.

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The following presentations were made at the 2004 Advanced Solid-State Photonics, Santa Fe, NM, 1–4 February 2004:

V. Bagnoud, J. Puth, and J. D. Zuegel, "High-Energy, 5-Hz-Repetition-Rate Laser Amplifier Using Wavefront-Corrected Nd:YLF Laser Rods."

I. A. Begishev, V. Bagnoud, M. J. Guardalben, J. Puth, L. J. Waxer, and J. D. Zuegel, "Parasitic Second-Harmonic Generation in Optical Parametric Chirped-Pulse Amplification."

J. D. Zuegel, J. R. Marciante, A. Galvanauskas, and C.-H. Liu, "High-Energy Fiber Power Amplifier for Broadband Beam Smoothing with FM-Modulated Laser Pulses on OMEGA."

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The following presentations were made at the 5th International Conference on High Energy Density Laboratory Astrophysics, Tucson, AZ, 10–13 March 2004:

T. R. Boehly, E. Vianello, J. E. Miller, R. S. Craxton, V. N. Goncharov, D. D. Meyerhofer, T. C. Sangster, D. G. Hicks, and P. M. Celliers, "Laser-Driven, Multishock Experiments in Planar Targets."

S. P. Regan, T. C. Sangster, D. D. Meyerhofer, K. Anderson, R. Betti, T. R. Boehly, T. J. B. Collins, R. S. Craxton, J. A. Delettrez, R. Epstein, O. V. Gotchev, V. Yu. Glebov, V. N. Goncharov, P. A. Jaanimagi, J. P. Knauer, J. A. Marozas, F. J. Marshall, P. W. McKenty, P. B. Radha, W. Seka, S. Skupsky, H. Sawada, V. A. Smalyuk, J. M. Soures, C. Stoeckl, B. Yaakobi, J. A. Frenje, C. K. Li, R. D. Petrasso, and F. H. Séguin, "Direct-Drive Inertial Confinement Fusion Implosions on OMEGA."

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A. Trajkovska-Petkoska, R. Varshneya, T. Z. Kosc, K. L. Marshall, and S. D. Jacobs, "Manufacture of Shaped Polymer Cholesteric Liquid Crystal Flakes Using Soft Lithography," 12th Annual University of Rochester Symposium on Materials Research (SOMR), Rochester, NY, 3 April 2004.

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A. Marino, K. Spencer, J. DeGroote, and S. D. Jacobs, "Chemical Durability of Phosphate Glasses," Industrial Associates, Rochester, NY, 5 April 2004.

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J. D. Zuegel, "Wavefront Correction of Laser Rods Using Magnetorheological Finishing (MRF)," QED Executive Symposium, Rochester, NY, 7 April 2004.

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The following presentations were made at the 15th Topical Conference on High Temperature Plasma Diagnostics, San Diego, CA, 19–22 April 2004:

S. Ghosh, R. Boni, and P. A. Jaanimagi, "Optical and X-Ray Streak Camera Gain Measurements."

V. Yu. Glebov, C. Stoeckl, T. C. Sangster, S. Roberts, G. J. Schmid, R. A. Lerche, and M. Moran, "NIF Neutron Time-of-Flight Detector Prototypes Test on OMEGA."

O. V. Gotchev, P. A. Jaanimagi, J. P. Knauer, F. J. Marshall, and D. D. Meyerhofer, "KB-PJX — A Streaked Imager Based on a Versatile X-Ray Microscope Coupled to a High-Current Streak Tube" (invited).

J. P. Knauer and C. Gindele, "Temporal and Spectral Deconvolution of Data from Diamond, Photoconductive Devices."

F. J. Marshall, J. A. Oertel, and P. J. Walsh, "A Framed, 16-Image Kirkpatrick–Baez Microscope for Laser–Plasma X-Ray Emission."

V. A. Smalyuk, V. N. Goncharov, T. R. Boehly, J. P. Knauer, D. D. Meyerhofer, and T. C. Sangster, "Self-Consistent Determination of Rayleigh–Taylor Growth Rates and Ablation-Front Density in Planar Targets Accelerated by Laser Light."

C. Stoeckl, W. Theobald, T. C. Sangster, M. H. Key, P. Patel, B. B. Zhang, R. Clarke, S. Karsch, and P. Norreys, "Operation of a Single-Photon–Counting X-Ray CCD Camera Spectrometer in a Petawatt Environment."

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The following presentations were made at the International Workshop on Fast Ignition and High Field Physics, Kyoto, Japan, 25–29 April 2004:

D. D. Meyerhofer, "Fast Ignition Research at LLE: Progress and Plans."

D. D. Meyerhofer, "Two High-Energy Beamlines at LLE: OMEGA EP."

W. Theobald, C. Stoeckl, J. A. Delettrez, V. Yu. Glebov, D. D. Meyerhofer, P. B. Radha, T. C. Sangster, V. A. Smalyuk, R. B. Stephens, S. P. Hatchett, J. A. Frenje, C. K. Li, R. D. Petrasso, F. H. Séguin, S. Fujioka, H. Shiraga, and K. A. Tanaka, "Fast-Ignitor Cone Target Fuel Assembly Experiments."

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The following presentations were made at the 34th Anomalous Absorption Conference, Gleneden Beach, OR, 2–7 May 2004:

K. Anderson, R. Betti, J. P. Knauer, and V. N. Goncharov, "Simulations and Experiments on Adiabat Shaping by Relaxation."

R. S. Craxton, F. J. Marshall, S. Skupsky, J. A. Delettrez, R. Epstein, J. P. Knauer, P. W. McKenty, and W. Seka, "Polar-Direct-Drive Experiments on OMEGA."

J. DeCiantis, F. H. Séguin, J. R. Rygg, J. A. Frenje, S. Kurebayashi, C. K. Li, C. Chen, V. Berube, R. D. Petrasso, J. A. Delettrez, V. Yu. Glebov, D. D. Meyerhofer, S. Roberts, T. C. Sangster, and J. M. Soures, "Studying the Burn Region in ICF Implosions with Proton Emission Imaging."

J. A. Delettrez, J. Myatt, P. B. Radha, C. Stoeckl, and S. Skupsky, "Simulation of Enhanced Neutron Production in OMEGA EP Cryogenic Implosions."

R. Epstein and W. Fong, "Non-LTE Speed of Sound, Irreversibility, and Thermodynamic Consistency."

J. A. Frenje, C. K. Li, F. H. Séguin, J. DeCiantis, S. Kurebayashi, J. R. Rygg, R. D. Petrasso, J. A. Delettrez, V. Yu. Glebov, D. D. Meyerhofer, T. C. Sangster, J. M. Soures, S. P. Hatchett, S. W. Haan, M. Moran, G. J. Schmid, O. L. Landen, N. Izumi, and R. Stelter, "A High-Resolution Neutron Spectrometer for $\rho R_{\text{fuel}}$ and Ti Measurements at OMEGA and the NIF."

C. K. Li and R. D. Petrasso, "Stopping and Scattering of Directed Energetic Electrons in High-Temperature Hydrogenic Plasmas."

C. K. Li, F. H. Séguin, J. A. Frenje, R. D. Petrasso, J. A. Delettrez, P. W. McKenty, T. C. Sangster, R. L. Keck, J. M. Soures, F. J. Marshall, D. D. Meyerhofer, V. N. Goncharov, J. P. Knauer, P. B. Radha, S. P. Regan, and W. Seka, "Effects of Nonuniform Illumination on Implosion Asymmetry in Direct-Drive Inertial Confinement Fusion."

A. V. Maximov, J. Myatt, R. W. Short, W. Seka, and C. Stoeckl, "Modeling of Two-Plasmon-Decay Instability in Direct-Drive ICF Experiments."

J. Myatt, A. V. Maximov, R. W. Short, J. A. Delettrez, and C. Stoeckl, "Hybrid Particle-in-Cell Simulations of MeV Electron Transport in Fast-Ignition Targets."

J. R. Rygg, J. A. Frenje, C. K. Li, F. H. Séguin, R. D. Petrasso, J. A. Delettrez, V. Yu. Glebov, V. N. Goncharov, D. D. Meyerhofer, T. C. Sangster, J. M. Soures, and C. Stoeckl, "An Empirical, Dynamic Mix Model for ICF Implosions."

W. Seka, C. Stoeckl, R. Jiang, R. E. Bahr, T. C. Sangster, R. S. Craxton, J. A. Delettrez, A. V. Maximov, J. Myatt, and R. W. Short, "Scattered Light Measurements from Spherical Implosions on OMEGA."

R. W. Short, "On the Convective Two-Plasmon-Decay Instability in Inhomogeneous Plasmas."

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The following presentations were made at CLEO 2004, San Francisco, CA, 16–21 May 2004:

V. Bagnoud, I. A. Begishev, M. J. Guardalben, J. Puth, and J. D. Zuegel, "Multiterawatt Laser as a Front End for the OMEGA EP (Extended Performance) Laser Chain."

J. Li, T. Y. Hsiang, and W. R. Donaldson, "Study of Metal–Semiconductor–Metal Ultraviolet Photodiodes in Picosecond Regime."

A. V. Okishev, J. R. Marciante, and J. D. Zuegel, "A Novel Discrete-Arbitrary-Picket-Pulse–Shaping System for the OMEGA Laser Fusion Facility."

J.-R. Park, W. R. Donaldson, K. Kearney, and R. Sobolewski, "Arbitrary Wave Profile Generation of a Laser Using a Digital Micromirror Device."

J. D. Zuegel, V. Bagnoud, T. Mooney, and P. Dumas, "Wavefront Correction of Laser Rods Using Magnetorheological Finishing (MRF)."

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S. G. Lukishova, A. W. Schmid, C. M. Supranowitz, N. Lippa, A. J. McNamara, R. W. Boyd, and C. R. Stroud, Jr., "Deterministically Polarized, Room-Temperature Single-Photon Source: Single-Dye Molecule Fluorescence in Liquid Crystal Host," IQEC, San Francisco, CA, 16–21 May 2004.

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A. Trajkovska-Petkoska, R. Varshneya, T. Z. Kosc, K. L. Marshall, and S. D. Jacobs, "Electro-Optical Response of Shaped Polymer Cholesteric Liquid Crystal Flakes in an AC Field," Great Lakes Photonics Symposium, Cleveland OH, 7–11 June 2004.

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L. B. Glebov, L. N. Glebova, V. I. Smirnov, M. Dubinskii, L. D. Merkle, S. Papernov, and A. W. Schmid, "Laser Damage Resistance of Photo-Thermo-Refractive Glass Bragg Gratings," Solid State and Diode Laser Technology Review, Albuquerque, NM, 8–10 June 2004.

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J. B. Oliver and D. Talbot, "Optimization of Electron-Beam Deposition for Large-Aperture NIF Substrates in a Planetary Rotation System," Optical Interference Coatings, Ninth Topical Meeting, Tucson, AZ, 27 June–2 July 2004.

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V. Yu. Glebov, C. Stoeckl, T. C. Sangster, S. Roberts, and G. J. Schmid, "NIF Neutron Bang-Time Detector Prototype Test on OMEGA," ICOPS 2004 31st IEEE International Conference on Plasma Science, Baltimore, MD, 28 June–1 July 2004.

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T. C. Sangster, "Progress Toward Validation of the Direct-Drive Ignition Concept at OMEGA," 31st European Physical Society Conference on Plasmas Physics, London, United Kingdom, 28 June–2 July 2004.

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The following presentations were made at SPIE's 49th Annual Meeting, Denver, CO, 2–6 August 2004:

S. D. Jacobs, "International Innovations in Optical Finishing."

K. L. Marshall, E. Kimball, S. McNamara, T. Z. Kosc, A. Trajkovska-Petkoska, and S. D. Jacobs, "Electro-Optical Behavior of Polymer Cholesteric Liquid Crystal Flake/Fluid Suspensions in a Microencapsulation Matrix."

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The following presentations were made at the 7th International Conference on Tritium Science and Technology, Baden-Baden, Germany, 12–17 September 2004:

S. Costea, S. Pisana, N. P. Kherani, F. Gaspari, T. Kosteski, W. T. Shmayda, and S. Zukotynski, "The Use of Tritium in the Study of Defects in Amorphous Silicon."

T. Kosteski, N. P. Kherani, W. T. Shmayda, S. Costea, and S. Zukotynski, "Nuclear Batteries Using Tritium and Thin-Film Hydrogenated Amorphous Silicon."

W. T. Shmayda, "Metal Decontamination Using Low-Temperature Plasmas."

W. T. Shmayda and R. D. Gallagher, "Recovering Tritium from a Variety of Tritiated Waste Streams."

W. T. Shmayda, D. R. Harding, L. D. Lund, R. Janezic, and T. W. Duffy, "Handling Cryogenic DT Targets at the Laboratory for Laser Energetics."

W. T. Shmayda and N. P. Kherani, "Measuring Tritium Activity in Process Loops with Nude Baynard–Alpert Gauges."

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P. A. Jaanimagi, R. Boni, D. Butler, S. Ghosh, W. R. Donaldson, and R. L. Keck, "The Streak Camera Development at LLE," 26th International Congress on High-Speed Photography and Photonics, Alexandria, VA, 20–24 September 2004.

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The following presentations were made at the Boulder Damage Symposium XXXVI, Boulder, CO, 20–22 September 2004:

S. Papernov and A. W. Schmid, "High-Spatial Resolution Studies of UV-Laser Damage Morphology in $SiO_2$ Thin Films with Artificial Defects."

A. L. Rigatti, "Cleaning Process Versus Laser Damage Threshold of Coated Optical Components."