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## Publications and Conference Presentations

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### Publications

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- 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 Adiabatic Shaping by Relaxation in Inertial Fusion Implosions," *Phys. Plasmas* **11**, 5 (2004).
- 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).
- C. Dorrer and D. N. Maywar, "RF Spectrum Analysis of Optical Signals Using Nonlinear Optics," *J. Lightwave Technol.* **22**, 266 (2004).
- 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).
- L. Guazzotto, R. Betti, J. Manickam, and S. Kaye, "Numerical Study of Tokamak Equilibria with Arbitrary Flow," *Phys. Plasmas* **11**, 604 (2004).
- 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).
- T. Kostas, N. P. Kherani, P. Stradins, F. Gaspari, W. T. Shmayda, L. S. Sidhu, and S. Zukotynski, "Tritiated Amorphous Silicon Betavoltaic Devices," *IEEE 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. 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).
- J. R. Marcianite 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).
- 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).
- 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).
- J. D. Zuegel and D. W. Jacobs-Perkins, "Efficient, High-Frequency Bulk Phase Modulator," *Appl. Opt.* **43**, 1946 (2004).

## Forthcoming Publications

A. C. A. Chen, S. W. Culligan, Y. Geng, K. P. Klubek, K. M. Vaeth, and C. W. Tang, "Polarized Organic Light-Emitting Diodes Through Energy Transfer Using Monodisperse Conjugated Oligomers," to be published in *Advanced Materials*.

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," to be published in *Physics of Plasmas*.

J. A. Frenje, C. K. Li, F. H. Séguin, J. Deciantis, S. Kurebayashi, J. R. Rygg, R. D. Petrasso, J. 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<sup>3</sup>He Implosions at OMEGA," to be published in *Physics of Plasmas* (invited).

C. K. Li, F. H. Séguin, J. A. Frenje, R. D. Petrasso, J. A. Delettrez, R. L. Keck, J. M. Soures, P. W. McKenty, F. J. Marshall, V. N. Goncharov, J. P. Knauer, D. D. Meyerhofer, P. B. Radha, S. P. Regan, T. C. Sangster, and W. Seka, " $\rho R$  Asymmetry in the Spherical Implosions of Inertial Confinement Fusion," to be published in *Physical Review Letters*.

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," to be published in *Physical Review Letters*.

S. G. Lukishova, A. W. Schmid, C. Supranowitz, A. McNamara, R. W. Boyd, and C. R. Stroud, Jr., "Dye-Doped Cholesteric-Liquid-Crystal Room-Temperature Single Photon Source," to be published in the *Journal of Modern Optics*.

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," to be published in *Physics of Plasmas*.

R. L. McCrory, D. D. Meyerhofer, R. Betti, T. R. Boehly, R. S. Craxton, T. J. B. Collins, J. A. Delettrez, R. Epstein, V. Yu. Glebov, V. N. Goncharov, D. R. Harding, R. L. Keck, J. H. Kelly, J. P. Knauer, S. J. Loucks, L. Lund, J. A. Marozas, P. W. McKenty, F. J. Marshall, S. F. B. Morse, P. B. Radha, S. P. Regan, S. Roberts, W. Seka, S. Skupsky, V. A. Smalyuk, C. Sorce, C. Stoeckl, J. M. Soures, R. P. J. Town, B. Yaakobi, J. A. Frenje, C. K. Li, R. D. Petrasso, F. H. Séguin, K. A. Fletcher, S. Padalino, C. Freeman, and T. C. Sangster, "Direct-Drive Inertial Confinement Fusion Research at the Laboratory for Laser Energetics," to be published in the proceedings of *Current Trends in International Fusion Research: A Review*.

R. L. McCrory, D. D. Meyerhofer, S. J. Loucks, S. Skupsky, R. E. Bahr, R. Betti, T. R. Boehly, R. S. Craxton, T. J. B. Collins, J. A. Delettrez, W. R. Donaldson, R. Epstein, J. A. Frenje, V. Yu. Glebov, V. N. Goncharov, D. R. Harding, P. A. Jaanimagi, R. L. Keck, J. H. Kelly, T. J. Kessler, J. P. Knauer, C. K. Li, L. D. Lund, J. A. Marozas, P. W. McKenty, F. J. Marshall, S. F. B. Morse, R. D. Petrasso, P. B. Radha, S. P. Regan, S. Roberts, T. C. Sangster, F. H. Séguin, W. Seka, V. A. Smalyuk, C. Sorce, J. M. Soures, C. Stoeckl, R. P. J. Town, B. Yaakobi, and J. D. Zuegel, "Progress in Direct-Drive Inertial Confinement Fusion Research at the Laboratory for Laser Energetics," to be published in *Nuclear Fusion*.

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," to be published in *Physics of Plasmas* (invited).

J. Myatt, A. V. Maximov, W. Seka, R. S. Craxton, and R. W. Short, "Modeling SBS in the Underdense Corona of a Direct-Drive Inertial Confinement Fusion Target," to be published in *Physics of Plasmas*.

J.-R. Park, W. R. Donaldson, and R. Sobolewski, "Characterization of Single and Double Fiber Coupled Diffusing Spheres," to be published in *Applied Optics*.

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," to be published in *Physical Review Letters*.

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. Stölken, J. D. Wark, S. V. Weber, W. G. Wolfer, and B. Yaakobi, "Materials Science Under Extreme Conditions of Pressure and Strain Rate," to be published in *Metallurgical and Materials Transactions A*.

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," to be published in *Physics of Plasmas* (invited).

A. Verevkin, A. Pearlman, W. Slysz, J. Zhang, R. Sobolewski, M. Currie, A. Korneev, G. Chulkova, O. Okunev, P. Kouminov, K. Smirnov, B. Voronov, and G. N. Gol'tsman, "Ultrafast Superconducting Single-Photon Detectors for Near-Infrared-Wavelength Quantum Communications," to be published in the *Journal of Modern Optics*.

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," to be published in *Physics of Plasmas* (invited).

### Conference Presentations

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.

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."

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."