
Publications and Conference Presentations

Publications

- R. Betti, K. Anderson, V. N. Goncharov, R. L. McCrory, D. D. Meyerhofer, S. Skupsky, and R. P. J. Town, "Deceleration Phase of Inertial Confinement Fusion Implosions," *Phys. Plasmas* **9**, 2277 (2002).
- W. R. Donaldson, R. Boni, R. L. Keck, and P. A. Jaanimagi, "A Self-Calibrating, Multichannel Streak Camera for Inertial Confinement Fusion Applications," *Rev. Sci. Instrum.* **73**, 2606 (2002).
- L. T. Hudson, A. Hennis, R. D. Deslattes, J. F. Seely, G. E. Holland, R. Atkin, L. Marlin, D. D. Meyerhofer, and C. Stoeckl, "A High-Energy X-Ray Spectrometer Diagnostic for the OMEGA Laser," *Rev. Sci. Instrum.* **73**, 2270 (2002).
- R. L. Keck, W. R. Donaldson, V. Yu. Glebov, P. A. Jaanimagi, F. J. Marshall, P. W. McKenty, D. D. Meyerhofer, S. P. Regan, W. Seka, C. Stoeckl, and R. Boni, "Laser and X-Ray Irradiation Diagnostics That Have Paved the Path to Significantly Improved ICF Target Performance," in *Advanced Diagnostics for Magnetic and Inertial Fusion*, edited by P. E. Stott, A. Wootton, G. Gorini, E. Sindoni, and D. Batani (Kluwer Academic/Plenum Publishers, New York, 2002), pp. 181–188.
- S. V. Lebedev, J. P. Chittenden, F. N. Beg, S. N. Bland, A. Ciardi, D. Ampleford, S. Hughes, M. G. Haines, A. Frank, E. G. Blackman, and T. Gardiner, "Laboratory Astrophysics and Collimated Stellar Outflows: The Production of Radiatively Cooled Hypersonic Plasma Jets," *Astrophys. J.* **564**, 113 (2002).
- A. V. Okishev, D. Battaglia, I. Begishev, and J. D. Zuegel, "Highly Stable, Diode-Pumped, Cavity-Dumped Nd:YLF Regenerative Amplifier for the OMEGA Laser Fusion Facility," in *OSA TOPS Vol. 68, Advanced Solid-State Lasers*, edited by M. E. Fermann and L. R. Marshall (Optical Society of America, Washington, DC, 2002), pp. 418–422.
- A. V. Okishev, M. D. Skeldon, R. L. Keck, and W. Seka, "A New High-Bandwidth, All-Solid-State Pulse-Shaping System for the OMEGA Laser Facility," in *Laser Optics 2000: Ultrafast Optics and Superstrong Laser Fields*, edited by A. A. Andreev and V. E. Yashin (SPIE, Bellingham, WA, 2001), pp. 69–73.
- S. Papernov, A. W. Schmid, R. Krishnan, and L. Tsybeskov, "Using Colloidal Gold Nanoparticles for Studies of Laser Interaction with Defects in Thin Films," in *Laser-Induced Damage in Optical Materials: 2000*, edited by G. J. Exarhos, A. H. Guenther, M. R. Kozlowski, K. L. Lewis, and M. J. Soileau (SPIE, Bellingham, WA, 2001), pp. 146–154.
- P. B. Radha, J. A. Delettrez, R. Epstein, V. Yu. Glebov, R. L. Keck, R. L. McCrory, P. W. McKenty, D. D. Meyerhofer, F. J. Marshall, S. P. Regan, S. Roberts, T. C. Sangster, 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. Fletcher, S. Padalino, C. Freeman, N. Izumi, R. A. Lerche, and T. W. Phillips, "Inference of Mix in Direct-Drive Implosions on OMEGA," *Phys. Plasmas* **9**, 2208 (2002) (invited).
- S. P. Regan, J. A. Delettrez, R. Epstein, P. A. Jaanimagi, B. Yaakobi, V. A. Smalyuk, F. J. Marshall, D. D. Meyerhofer, W. Seka, D. A. Haynes, Jr., I. E. Golovkin, and C. F. Hooper, Jr., "Characterization of Direct-Drive-Implosion Core Conditions on OMEGA with Time-Resolved Ar *K*-Shell Spectroscopy," *Phys. Plasmas* **9**, 1357 (2002).
- F. H. Séguin, C. K. Li, J. A. Frenje, D. G. Hicks, K. M. Green, S. Kurebayashi, R. D. Petrasso, J. M. Soures, D. D. Meyerhofer, V. Yu. Glebov, P. B. Radha, C. Stoeckl, S. Roberts, C. Sorce, T. C. Sangster, M. D. Cable, K. A. Fletcher, and S. Padalino, "Using Secondary-Proton Spectra to Study the Compression and Symmetry of Deuterium-Filled Targets at OMEGA," *Phys. Plasmas* **9**, 2725 (2002).

W. Seka, R. S. Craxton, R. L. Keck, J. P. Knauer, D. D. Meyerhofer, S. P. Regan, C. Stoeckl, B. Yaakobi, R. E. Bahr, D. Montgomery, H. Baldis, and R. Kirkwood, "Laser-Plasma Interaction Diagnostics for ICF Fusion Research," in *Advanced Diagnostics for Magnetic and Inertial Fusion*, edited by P. E. Stott, A. Wootton, G. Gorini, E. Sindoni, and D. Batani (Kluwer Academic/Plenum Publishers, New York, 2002), pp. 27–30.

A. D. Semenov, G. N. Gol'tsman, and R. Sobolewski, "Hot-Electron Effect in Superconductors and Its Applications for Radiation Sensors," *Supercond. Sci. Technol.* **15**, R1 (2002).

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V. A. Smalyuk, J. A. Delettrez, V. N. Goncharov, F. J. Marshall, D. D. Meyerhofer, S. P. Regan, T. C. Sangster, R. P. J. Town, and B. Yaakobi, "Rayleigh-Taylor Instability in the Deceleration Phase of Spherical Implosion Experiments," *Phys. Plasmas* **9**, 2738 (2002).

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C. Stoeckl, J. A. Delettrez, R. Epstein, V. Yu. Glebov, R. L. Keck, R. L. McCrory, P. W. McKenty, F. J. Marshall, D. D. Meyerhofer, P. B. Radha, S. P. Regan, S. Roberts, W. Seka, S. Skupsky, V. A. Smalyuk, C. Sorce, J. M. Soures, R. P. J. Town, B. Yaakobi, J. A. Frenje, C. K. Li, R. D. Petrasso, F. H. Séguin, K. Fletcher, S. Padalino, C. Freeman, N. Izumi, R. Lerche, T. W. Phillips, and T. C. Sangster, "Core Performance and Mix in Direct-Drive Spherical Implosions on OMEGA," in *Advanced Diagnostics for Magnetic and Inertial Fusion*, edited by P. E. Stott, A. Wootton, G. Gorini, E. Sindoni, and D. Batani (Kluwer Academic/Plenum Publishers, New York, 2002), pp. 19–26.

F.-Y. Tsai, E. L. Alfonso, S. H. Chen, D. R. Harding, and T. N. Blanton, "Effects of Processing Conditions on the Quality and Properties of Vapor-Deposited Polyimide Shells," *Fusion Sci. Technol.* **41**, 178 (2002).

A. Verevkin, J. Zhang, R. Sobolewski, A. Lipatov, O. Okunev, G. Chulkova, A. Korneev, K. Smirnov, and G. N. Gol'tsman, "Detection Efficiency of Large-Active-Area NbN Single-Photon Superconducting Detectors in the Ultraviolet in Near-Infrared Range," *Appl. Phys. Lett.* **80**, 4687 (2002).

Forthcoming Publications

A. Babushkin, M. J. Harvey, and M. D. Skeldon, "The Output Signal-to-Noise Ratio of a Nd:YLF Regenerative Amplifier," to be published in *Applied Optics*.

T. R. Boehly, T. J. B. Collins, O. Gotchev, T. J. Kessler, J. P. Knauer, T. C. Sangster, and D. D. Meyerhofer, "Observations of Modulated Shock Waves in Solid Targets Driven by Spatially Modulated Laser Beams," to be published in the *Journal of Applied Physics*.

H. Brunnader, W. T. Shmayda, D. R. Harding, L. D. Lund, and R. Janezic, "Advanced Tritium Recovery System," to be published in *Fusion Science and Technology*.

Y. Cao, H. Li, J. A. Szpunur and W. T. Shmayda, "Effects of Textures on Hydrogen Diffusion in Nickel," to be published in *Materials Science Forum*.

R. Epstein, J. A. Delettrez, V. Yu. Glebov, V. N. Goncharov, P. W. McKenty, P. B. Radha, S. Skupsky, V. A. Smalyuk, and C. Stoeckl, "One-Dimensional Simulation of the Effects of Unstable Mix on Neutron and Charged-Particle Yield from Laser-Driven Implosion Experiments," to be published in *Lasers and Particle Beams*.

S. D. Jacobs and L. L. Gregg, "Making Waves with the Optics Suitcase," to be published in *Optics and Photonics News*.

T. Z. Kosci, K. L. Marshall, S. D. Jacobs, J. C. Lambropoulos, and S. Faris, "Electric-Field-Induced Motion of Polymer Cholesteric Liquid Crystal Flakes in a Moderately Conductive Fluid," to be published in *Applied Optics*.

M. V. Kozlov and C. J. McKinstrie, "Sound Waves in One-Ion Plasmas," to be published in *Physics of Plasmas*.

M. V. Kozlov and C. J. McKinstrie, "Sound Waves in Two-Ion Plasmas," to be published in *Physics of Plasmas*.

P. Kús, A. Plecenik, L. Satrapinsky, Y. Xu, and R. Sobolewski, "Superconducting Properties of MgB₂ Thin Films Prepared on Flexible Substrates," to be published in *Applied Physics Letters*.

J. A. Marozas and J. D. Zuegel, "The Smoothing Performance of Ultrafast Pickets on the NIF," to be published in the *Journal of the Optical Society of America B*.

S. Papernov and A. W. Schmid, "Correlations Between Embedded Single Gold Nanoparticles in SiO₂ Thin Film and Nanoscale Crater Formation Induced by Pulsed-Laser Radiation," to be published in the *Journal of Applied Physics*.

S. P. Regan, J. A. Delettrez, F. J. Marshall, J. M. Soures, V. A. Smalyuk, B. Yaakobi, V. Yu. Glebov, P. A. Jaanimagi, D. D. Meyerhofer, P. B. Radha, W. Seka, S. Skupsky, C. Stoeckl, R. P. J. Town, D. A. Haynes, Jr., C. F. Hooper, Jr., C. K. Li, R. D. Petrasso, and F. H. Séguin, "Shell Mix in Compressed Core of Spherical Implosion," to be published in *Physical Review Letters*.

F. H. Séguin, C. K. Li, J. A. Frenje, S. Kurebayashi, R. D. Petrasso, F. J. Marshall, D. D. Meyerhofer, J. M. Soures, T. C. Sangster, C. Stoeckl, J. A. Delettrez, P. B. Radha, V. A. Smalyuk, and S. Roberts, "Measurements of ρR Asymmetries at Burn Time in Inertial Confinement Fusion Capsules," to be published in *Physics of Plasmas*.

C. R. Shmayda, W. T. Shmayda, and N. P. Kherani, "Monitoring Tritium Activity on Surfaces: Recent Developments," to be published in *Fusion Science and Technology*.

W. T. Shmayda, A. Bruggeman, J. Braet, and S. Vanderbiesen, "Treatment of Tritiated Solvents," to be published in *Fusion Science and Technology*.

W. T. Shmayda and R. D. Gallagher, "Recovery of Tritium from Pharmaceutical Mixed Waste Liquids," to be published in *Fusion Science and Technology*.

W. T. Shmayda, S. Zukotynski, D. Yeghikyan, and F. Gaspari, "Properties of Amorphous Carbon Films," to be published in *Fusion Science and Technology*.

R. W. Short and A. Simon, "Damping of Perturbations in Weakly Collisional Plasmas," to be published in *Physics of Plasmas*.

M. D. Skeldon, "An Optical-Pulse-Shaping System Based on an Electro-Optic Modulator Driven by an Aperture-Coupled-Stripline Electrical-Waveform Generator," to be published in the *Journal of the Optical Society of America B*.

C. Stoeckl, V. Yu. Glebov, J. D. Zuegel, and D. D. Meyerhofer, "Wide-Dynamic-Range 'Neutron Bang Time' Detector on OMEGA," to be published in the *Review of Scientific Instruments*.

A. Sunahara, J. A. Delettrez, C. Stoeckl, R. W. Short, and S. Skupsky, "Time-Dependent Electron-Thermal-Flux Inhibition in Direct-Drive Laser Implosion," to be published in *Physical Review Letters*.

R. P. J. Town, V. N. Goncharov, P. W. McKenty, J. A. Delettrez, R. Epstein, R. L. McCrory, P. B. Radha, S. Skupsky, V. Yu. Glebov, D. R. Harding, D. D. Meyerhofer, F. J. Marshall, S. P. Regan, W. Seka, V. A. Smalyuk, C. Stoeckl, J. M. Soures, B. Yaakobi, and J. D. Zuegel, "OMEGA Direct-Drive Cryogenic Target Physics," to be published in the proceedings of the 2nd International Conference on Inertial Fusion Sciences and Applications.

L. J. Waxer, J. H. Kelly, J. Rothenberg, A. Babushkin, C. Bibeau, A. Bayramian, and S. Payne, "Precision Spectral Sculpting for Narrowband Amplification of Broadband FM Pulses," to be published in *Optics Letters*.

B. Yaakobi, F. J. Marshall, T. R. Boehly, R. P. J. Town, and D. D. Meyerhofer, "EXAFS Experiments Using a Laser-Imploded Target as a Radiation Source," to be published in the *Journal of the Optical Society of America B*.

J. D. Zuegel and S. A. Letzring, "Bulk Microwave Phase Modulators for Smoothing by Spectral Dispersion," to be published in *Applied Optics*.

Conference Presentations

J. D. Kilkenny, R. L. McCrory, D. D. Meyerhofer, S. F. B. Morse, J. H. Kelly, T. J. Kessler, S. J. Loucks, P. W. McKenty, C. Stoeckl, R. P. J. Town, L. J. Waxer, and J. D. Zuegel, "OMEGA EP: Extended-Performance Capability for the OMEGA Laser System, Including Short-Pulse Capability," Workshop on Ultra-High Field Laser Physics, Chilton, Oxford, 10–12 April 2002.

The following presentations were made at the 2002 International Sherwood Fusion Theory Conference, Rochester, NY, 22–24 April 2002:

T. Gardiner and R. Betti, "Magnetohydrodynamic Equilibria with Pedestals Induced by Poloidal Flow."

L. Guazzotto and R. Betti, "Stabilization of the Resistive Wall Mode by Differentially Rotating Walls in a High- β Tokamak."

D. D. Meyerhofer, "Direct-Drive Inertial Confinement Fusion Research: Theory and Experiments."

R. W. Short, "Linear Undamped Waves in Near-Maxwellian Plasmas with Applications to Stimulated Raman Scattering in Laser-Produced Plasmas."

The following presentations were made at the CLEO/QELS 2002, Long Beach, CA, 19–24 May 2002:

S. G. Lukishova, R. W. Boyd, N. Lepeshkin, R. S. Bennik, and K. L. Marshall, "Feedback-Free Kaleidoscope of Patterns from Nanosecond Laser-Irradiated Nematic Liquid."

A. V. Okishev, D. Battaglia, I. Begishev, and J. Zuegel, "All Solid-State Diode-Pumped Regenerative Amplifier for the OMEGA Laser System."

L. J. Waxer, J. H. Kelly, J. A. Marozas, A. Babushkin, J. Rothenburg, C. Bibeau, A. Bayramian, R. Beach, and S. Payne, "Precision Spectral Shaping Applied to FM Pulses."

T. R. Boehly, T. J. B. Collins, D. D. Meyerhofer, D. K. Bradley, R. Cauble, P. M. Celliers, C. W. Collins, S. G. Glendinning, and D. G. Hicks, "Measurements of the Equation of State of Carbon Foams," International Conference on Warm, Dense Matter, Hamburg, Germany, 3–5 June 2002 (invited).

J. Li, W. R. Donaldson, and T. Y. Hsiang, "Packaging for a High-Speed Interdigitated GaN UV Photodetector," The 8th International Conference on Electronic Materials, IUMRS-ICEM2002, Xi'an, China, 10–14 June 2002.

S. G. Lukishova, R. W. Boyd, N. Lepeshkin, R. S. Bennink, and K. L. Marshall, "Feedback-Free Hexagon Pattern Formation with Nematic Liquid Crystals," IQEC 2002 International Quantum Electronics Conference, Moscow, Russia, 22–28 June 2002.

