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## Publications and Conference Presentations

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### Publications

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- A. C.-A. Chen, J. U. Wallace, K. P. Klubek, M. B. Madaras, C. W. Tang, and S. H. Chen, "Device Characteristics of Organic Light-Emitting Diodes Comprising Terfluorene Modified with Triphenyltriazine," *Chem. Mater.* **19**, 4043 (2007).
- C. Dorrer, I. A. Begishev, A. V. Okishev, and J. D. Zuegel, "High-Contrast Optical-Parametric Amplifier as a Front End of High-Power Laser Systems," *Opt. Lett.* **32**, 2143 (2007).
- C. Dorrer, A. V. Okishev, I. A. Begishev, J. D. Zuegel, V. I. Smirnov, and L. B. Glebov, "Optical Parametric Chirped-Pulse-Amplification Contrast Enhancement by Regenerative Pump Spectral Filtering," *Opt. Lett.* **32**, 2378 (2007).
- H. Huang and T. Kessler, "Tiled-Grating Compressor with Uncompensated Dispersion for Near-Field-Intensity Smoothing," *Opt. Lett.* **32**, 1854 (2007).
- I. V. Igumenshchev, V. N. Goncharov, W. Seka, D. Edgell, and T. R. Boehly, "The Effect of Resonance Absorption in OMEGA Direct-Drive Designs and Experiments," *Phys. Plasmas* **14**, 092701 (2007).
- I. Kang and C. Dorrer, "Method of Optical Pulse Characterization Using Sinusoidal Optical Phase Modulations," *Opt. Lett.* **32**, 2538 (2007).
- J. R. Marciante, W. R. Donaldson, and R. G. Roides, "Averaging of Replicated Pulses for Enhanced-Dynamic-Range Single-Shot Measurement of Nanosecond Optical Pulses," *IEEE Photon. Technol. Lett.* **19**, 1344 (2007).
- J. Qiao, A. Kalb, M. J. Guardalben, G. King, D. Canning, and J. H. Kelly, "Large-Aperture Grating Tiling by Interferometry for Petawatt Chirped-Pulse-Amplification Systems," *Opt. Express* **15**, 9562 (2007).
- E. Reiger, S. Dorenbos, V. Zwiller, A. Korneev, G. Chulkova, I. Milostnaya, O. Minaeva, G. Gol'tsman, J. Kitaygorsky, D. Pan, W. Słysz, A. Jukna, and R. Sobolewski, "Spectroscopy With Nanostructured Superconducting Single Photon Detectors," *J. Sel. Top. Quantum Electron.* **13**, 934 (2007).
- S. N. Shafrir, J. C. Lambropoulos, and S. D. Jacobs, "Subsurface Damage and Microstructure Development in Precision Microground Hard Ceramics Using Magnetorheological Finishing Spots," *Appl. Opt.* **46**, 5500 (2007).
- A. Simon, "Comment on 'Magnetic Field Effects on Gas Discharge Plasmas' [*Phys. Plasmas* 13, 063511 (2006)]," *Phys. Plasmas* **14**, 084703 (2007).
- L. Sun and J. R. Marciante, "Filamentation Analysis in Large-Mode-Area Fiber Lasers," *J. Opt. Soc. Am. B.* **24**, 2321 (2007).
- S. Wu, P. Geiser, J. Jun, J. Karpinski, and R. Sobolewski, "Femtosecond Optical Generation and Detection of Coherent Acoustic Phonons in GaN Single Crystals," *Phys. Rev. B* **76**, 085210 (2007).
- C. D. Zhou and R. Betti, "Hydrodynamic Relations for Direct-Drive Fast-Ignition and Conventional Inertial Confinement Fusion Implosions," *Phys. Plasmas* **14**, 072703 (2007).

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**Forthcoming Publications**

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B. Ashe, C. Giacomini, G. Myhre, and A. W. Schmid, "Optimizing a Cleaning Process for Multilayer Dielectric (MLD) Diffraction Gratings," to be published in the Proceedings of SPIE.

J. E. DeGroot, A. E. Marino, J. P. Wilson, A. L. Bishop, and S. D. Jacobs, "Removal Rate Model for Magnetorheological Finishing (MRF) of Glass," to be published in Applied Optics.

C. Dorrer, "Analysis of Pump-Induced Temporal Contrast Degradation in Optical Parametric Chirped-Pulse Amplification," to be published in the Journal of the Optical Society of America B.

V. N. Goncharov, "Ablative Richtmyer–Meshkov Instability: Theory and Experimental Results," to be published in the Proceedings of Scottish Summer School.

V. N. Goncharov, "Direct-Drive Inertial Fusion: Basic Concepts and Ignition Target Designing," to be published in the Proceedings of Scottish Summer School.

O. V. Gotchev, N. W. Jang, J. P. Knauer, M. D. Barbero, and R. Betti, "Magneto-Inertial Approach to Direct-Drive Laser Fusion," to be published in the Journal of Fusion Energy.

W. Guan and J. R. Marciante, "Pump-Induced, Dual-Frequency Switching in a Short-Cavity, Ytterbium-Doped Fiber Laser," to be published in Optics Express.

C. Kim, J. U. Wallace, A. Trajkovska, J. J. Ou, and S. H. Chen, "Quantitative Assessment of Coumarin-Containing Polymer Film's Capability for Photoalignment of Liquid Crystals," to be published in Macromolecules.

D. N. Maywar, K. Solomon, and G. P. Agrawal, "Remote Optical Control of an Optical Flip-Flop," to be published in Optics Letters.

A. V. Okishev, C. Dorrer, V. I. Smirnov, L. B. Glebov, and J. D. Zuegel, "ASE Suppression in a Diode-Pumped Nd:YLF Regenerative Amplifier Using a Volume Bragg Grating," to be published in Frontiers in Optics 2007.

T. C. Sangster, R. L. McCrory, V. N. Goncharov, D. R. Harding, S. J. Loucks, P. W. McKenty, D. D. Meyerhofer, S. Skupsky, B. A. Hammel, J. D. Lindl, E. Moses, J. Atherton, G. B. Logan, S. Yu, J. D. Kilkenny, A. Nikroo, H. Wilken, K. Matzen, R. Leeper, R. Olsen, J. Porter, C. Barnes, J. C. Fernandez, D. Wilson, J. D. Sethian, and S. Obenshain, "Overview of Inertial Fusion Research in the United States," to be published in Nuclear Fusion.

S. N. Shafir, J. C. Lambropoulos, and S. D. Jacobs, "Toward Magnetorheological Finishing of Magnetic Materials," to be published in the Journal of Manufacturing Science and Engineering.

C. Stoeckl, T. R. Boehly, J. A. Delettrez, S. P. Hatchett, J. A. Frenje, V. Yu. Glebov, C. K. Li, J. E. Miller, R. D. Petrasso, F. H. Séguin, V. A. Smalyuk, R. B. Stephens, W. Theobald, B. Yaakobi, and T. C. Sangster, "Hydrodynamics Studies of Direct-Drive, Cone-in-Shell, Fast-Ignitor Targets on OMEGA," to be published in Physics of Plasmas.

J. U. Wallace, R. H. Young, C. W. Tang, and S. H. Chen, "Charge-Retraction Time-of-Flight Measurement for Organic Charge Transport Materials," to be published in Applied Physics Letters.

D. Wang, A. S. Cross, G. Guarino, S. Wu, A. Mycielski, and R. Sobolewski, "Studies of Coherent Acoustic Phonons in CdMnTe Diluted-Magnetic Single Crystals," to be published in the Journal of Physics: Conference Series.

L. Welser-Sherrill, R. C. Mancini, J. A. Koch, N. Izumi, R. Tommasini, S. W. Haan, D. A. Haynes, I. E. Golovkin, J. A. MacFarlane, J. A. Delettrez, F. J. Marshall, S. P. Regan, and V. A. Smalyuk, and G. Kyrala, "Spectroscopic Determination of Temperature and Density Profiles and Mix in Indirect-Drive Implosion Cores," to be published in Physical Review E.

S. Wu, J. Zhang, P. Geiser, J. Jun, J. Karpinski, and R. Sobolewski, "Ultra-Long-Lived Coherent Acoustic Phonons in GaN Single Crystals," to be published in the Journal of Physics: Conference Series.

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**Conference Presentations**


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A. Trajkovska-Petkoska, T. Z. Kosc, K. L. Marshall, and S. D. Jacobs, "Electro-Optics of Polymer Cholesteric Liquid Crystal Flakes: Applications Toward Electronic Paper," ECLC 2007, 9th European Conference on Liquid Crystals, Lisbon, Portugal, 2–6 July 2007.

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K. L. Marshall, A. Trajkovska-Petkoska, K. Hasman, M. Leitch, G. Cox, T. Z. Kosc, and S. D. Jacobs, "Polymer Cholesteric Liquid Crystal (PCLC) Flake/Fluid Host Electro-Optic Suspensions and Their Applications in Color Flexible Reflective Displays," International Display Manufacturing Conference 2007, Taipei, Taiwan, 3–6 July 2007.

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T. Z. Kosc, A. Trajkovska-Petkoska, K. L. Marshall, S. D. Jacobs, K. Hasman, and C. Coon, "Polymer Cholesteric Liquid Crystal Flakes: A Novel Medium for Electro-Optical Particle-Based Technologies," Particles 2007, Toronto, Canada, 18–21 August 2007.

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The following presentations were made at SPIE Optics and Photonics 2007, San Diego, CA, 26–30 August 2007:

J. E. DeGroot, A. E. Marino, J. P. Wilson, A. L. Bishop, and S. D. Jacobs, "The Role of Nanodiamonds in the Polishing Zone During Magnetorheological Finishing (MRF)."

K. L. Marshall, Z. Culakova, B. Ashe, C. Giacomini, A. L. Rigatti, T. J. Kessler, A. W. Schmid, J. B. Oliver, and A. Kozlov, "Vapor-Phase-Deposited Organosilane Coatings as 'Hardening' Agents for High Peak Power Laser Optics."

K. L. Marshall, R. Wang, M. Coan, A. G. Noto, K. Leskow, R. Pauszek, and A. Moore, "Using Time-Dependent Density Functional Theory (TDDFT) in the Design and Development of Near-IR Dopants for Liquid Crystal Device Applications."

C. Miao, K. M. Bristol, A. E. Marino, S. N. Shafir, J. E. DeGroot, S. D. Jacobs, "Magnetorheological Fluid Template for Basic Studies of Mechanical-Chemical Effects During Polishing."

S. N. Shafir, J. C. Lambropoulos, and S. D. Jacobs, "MRF Spotting Technique for Studying Subsurface Damage in Deterministic Microground Polycrystalline Alumina."

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The following presentations were made at the 37th Anomalous Absorption Conference, Maui, HI, 27–31 August 2007:

J. A. Delettrez, V. N. Goncharov, P. B. Radha, C. Stoeckl, A. V. Maximov, T. C. Sangster, D. Shvarts, R. D. Petrasso, and J. A. Frenje, "Simulations of the Effect of Energetic Electrons Produced from Two-Plasmon Decay in the 1-D Hydrodynamics Code *LILAC*."

D. H. Edgell, W. Seka, J. A. Delettrez, R. S. Craxton, V. N. Goncharov, I. V. Igumenshchev, J. Myatt, A. V. Maximov, R. W. Short, T. C. Sangster, and R. E. Bahr, "Time-Dependent Spectral Shifts of Scattered Laser Light in Direct-Drive Inertial Confinement Fusion Implosion Experiments."

D. H. Edgell, W. Seka, V. N. Goncharov, I. V. Igumenshchev, R. S. Craxton, J. A. Delettrez, J. Myatt, A. V. Maximov, and R. W. Short, "Time-Resolved Scattered-Light Spectroscopy in Direct-Drive Implosion Experiments."

M. G. Haines and J. Myatt, "Competition Between the Resistive Weibel Instability and the Electrothermal Instability in Fast Ignition."

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

J. Myatt, P. Nilson, W. Theobald, M. Storm, A. V. Maximov, and R. W. Short, "Determination of Hot-Electron Conversion Efficiency and Isochoric Heating of Low-Mass Targets Irradiated by the Multi-Terawatt Laser."

W. Seka, D. H. Edgell, J. P. Knauer, C. Stoeckl, V. N. Goncharov, I. V. Igumenshchev, J. A. Delettrez, J. Myatt, A. V. Maximov, R. W. Short, and T. C. Sangster, "Laser-Plasma Interaction Processes Observed in Direct-Drive Implosion Experiments."

R. W. Short and J. Myatt, "Modeling the Filamentation Instability of Relativistic Electron Beams for Fast Ignition."

D. Shvarts, V. A. Smalyuk, R. Betti, J. A. Delettrez, D. H. Edgell, V. Yu. Glebov, V. N. Goncharov, R. L. McCrory, P. W. McKenty, D. D. Meyerhofer, F. J. Marshall, P. B. Radha, T. C. Sangster, W. Seka, S. Skupsky, C. Stoeckl, B. Yaakobi, J. A. Frenje, C. K. Li, R. D. Petrasso, and F. H. Séguin, "The Role of Fast-Electron Preheating in Low-Adiabatic Cryogenic and Plastic (CH) Shell Implosions on OMEGA."

V. A. Smalyuk, D. Shvarts, R. Betti, J. A. Delettrez, D. H. Edgell, V. Yu. Glebov, V. N. Goncharov, S. X. Hu, F. J. Marshall, R. L. McCrory, P. W. McKenty, D. D. Meyerhofer, P. B. Radha, T. C. Sangster, W. Seka, S. Skupsky, C. Stoeckl, B. Yaakobi, J. A. Frenje, C. K. Li, R. D. Petrasso, and F. H. Séguin, "Effects of Hot-Electron Preheat in Direct-Drive Experiments on OMEGA."

A. A. Solodov, K. S. Anderson, R. Betti, V. Gotcheva, J. Myatt, J. A. Delettrez, and S. Skupsky, "Integrated Simulation of Fast-Ignition ICF."

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The following presentations were made at IFSA 2007, Kobe, Japan, 9–14 September 2007:

R. Betti, W. Theobald, C. D. Zhou, K. S. Anderson, P. W. McKenty, D. Shvarts, and C. Stoeckl, "Shock Ignition of Thermonuclear Fuel with High Areal Densities."

V. N. Goncharov, P. B. Radha, R. Betti, T. J. B. Collins, J. A. Delettrez, R. Epstein, S. X. Hu, I. V. Igumenshchev, R. L. McCrory, P. B. McKenty, D. D. Meyerhofer, S. P. Regan, T. C. Sangster, W. Seka, S. Skupsky, V. A. Smalyuk, and D. Shvarts, "Modeling High-Compression, Direct-Drive ICF Experiments."

D. R. Harding, D. D. Meyerhofer, T. C. Sangster, S. J. Loucks, R. L. McCrory, R. Betti, J. A. Delettrez, D. H. Edgell, L. M. Elasky, R. Epstein, V. Yu. Glebov, V. N. Goncharov, S. X. Hu, I. V. Igumenshchev, D. Jacobs-Perkins, R. J. Janezic, J. P. Knauer, L. D. Lund, J. R. Marciante, F. J. Marshall, D. N. Maywar, P. W. McKenty, P. B. Radha, S. P. Regan, R. G. Roides, W. Seka, W. T. Shmayda, S. Skupsky, V. A. Smalyuk, C. Stoeckl, B. Yaakobi, J. D. Zuegel, D. Shvarts, J. A. Frenje,

C. K. Li, R. D. Petrasso, and F. H. Séguin, "Cryogenic Target-Implosion Experiments on OMEGA."

D. N. Maywar, J. H. Kelly, L. J. Waxer, S. F. B. Morse, I. A. Begishev, J. Bromage, C. Dorrer, J. L. Edwards, L. Folsbee, M. J. Guardalben, S. D. Jacobs, R. Jungquist, T. J. Kessler, R. W. Kidder, B. E. Kruschwitz, S. J. Loucks, J. R. Marciante, R. L. McCrory, D. D. Meyerhofer, A. V. Okishev, J. B. Oliver, G. Pien, J. Qiao, J. Puth, A. L. Rigatti, A. W. Schmid, M. J. Shoup, III, C. Stoeckl, K. A. Thorp, and J. D. Zuegel, "OMEGA EP High-Energy Petawatt Laser: Progress and Prospects."

P. W. McKenty, T. J. B. Collins, J. A. Marozas, S. Skupsky, D. R. Harding, J. D. Zuegel, D. Keller, A. Shvydky, D. D. Meyerhofer, and R. L. McCrory, "Multidimensional Numerical Investigation of NIF Polar-Direct-Drive Designs with Full Beam Smoothing."

S. P. Regan, T. C. Sangster, D. D. Meyerhofer, W. Seka, R. Epstein, S. J. Loucks, R. L. McCrory, C. Stoeckl, V. Yu. Glebov, O. S. Jones, D. Callahan, P. A. Amendt, N. B. Meezan, L. J. Suter, M. D. Rosen, O. L. Landen, E. L. DeWald, S. H. Glenzer, C. Sorce, S. Dixit, R. E. Turner, and B. MacGowan, "Hohlraum Energetics and Implosion Symmetry with Elliptical Phase Plates Using a Multi-Cone Beam Geometry on OMEGA."

D. Shvarts, V. A. Smalyuk, R. Betti, J. A. Delettrez, D. H. Edgell, V. Yu. Glebov, V. N. Goncharov, R. L. McCrory, P. W. McKenty, D. D. Meyerhofer, F. J. Marshall, P. B. Radha, S. P. Regan, T. C. Sangster, W. Seka, S. Skupsky, C. Stoeckl, B. Yaakobi, J. A. Frenje, C. K. Li, R. D. Petrasso, and F. H. Séguin, "The Role of Fast-Electron Preheating in Low-Adiabatic Cryogenic Implosions on OMEGA."

S. Skupsky, V. N. Goncharov, and D. Li, "Nonlocal Ion-Heat and Momentum Transport in ICF Implosions."

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A. V. Okishev, C. Dorrer, V. I. Smirnov, L. B. Glebov, and J. D. Zuegel, "ASE Suppression in a Diode-Pumped Nd:YLF Regenerative Amplifier Using a Volume Bragg Grating," *Frontiers in Optics 2007/Laser Science XXIII*, San Jose, CA, 16–20 September 2007.

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The following presentations were made at the 8th International Conference on Tritium Science and Technology, Rochester, NY, 16–21 September 2007:

T. Duffy, R. Janezic, and W. T. Shmayda, “LLE’s High-Pressure DT-Fill-Process Control System.”

R. T. Janezic, W. T. Shmayda, G. P. Wainwright, P. Regan, K. Lintz, D. R. Harding, and S. J. Loucks, “Operational Experience of Tritium Handling During LLE’s Cryogenic Target Filling Operation.”

W. T. Shmayda, S. J. Loucks, R. T. Janezic, G. P. Wainwright, and T. Duffy, “Tritium Management on OMEGA at the Laboratory for Laser Energetics.”

W. T. Shmayda, C. R. Shmayda, C. Waddington, and R. D. Gallagher, “Operation of a 2.6-Mg/Year Heavy-Water Detritiation Plant.”

G. P. Wainwright, W. T. Shmayda, R. T. Janezic, and P. Regan, “Tritium Capture with Getter-Bed Technology at the Laboratory for Laser Energetics.”

D. N. Maywar, “Optical Control of Flip-Flops Based on Resonant-Type SOA’s,” University of Tokyo Seminar, Tokyo, Japan, 18 September 2007.

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The following presentations were made at the Boulder Damage Symposium, Boulder, CO, 24–26 September 2007:

B. Ashe, C. Giacomini, G. Myhre, and A. W. Schmid, “Optimizing a Cleaning Process for Multilayer Dielectric (MLD) Diffraction Gratings.”

S. Papernov, A. W. Schmid, J. B. Oliver, and A. L. Rigatti, “Damage Thresholds and Morphology of the Front- and Back-Irradiated SiO<sub>2</sub> Thin Films Containing Gold Nanoparticles as Artificial Absorbing Defects.”