
Publications and Conference Presentations

Publications

- C. Dorrer and J. Bromage, "Impact of High-Frequency Spectral Phase Modulation on the Temporal Profile of Short Optical Pulses," *Opt. Express* **16**, 3058 (2008).
- O. V. Gotchev, N. W. Jang, J. P. Knauer, M. D. Barbero, R. Betti, C. K. Li, and R. D. Petrasso, "Magneto-Inertial Approach to Direct-Drive Laser Fusion," *J. Fusion Energ.* **27**, 25 (2008).
- J. S. Green, V. M. Ovchinnikov, R. G. Evans, K. U. Akli, H. Azechi, F. N. Beg, C. Bellei, R. R. Freeman, H. Habara, R. Heathcote, M. H. Key, J. A. King, K. L. Lancaster, N. C. Lopes, T. Ma, A. J. MacKinnon, K. Markey, A. McPhee, Z. Najmudin, P. Nilson, R. Onofrei, R. Stephens, K. Takeda, K. A. Tanaka, W. Theobald, T. Tanimoto, J. Waugh, L. Van Woerkom, N. C. Woolsey, M. Zepf, J. R. Davies, and P. A. Norreys, "Effect of Laser Intensity on Fast-Electron-Beam Divergence in Solid-Density Plasmas," *Phys. Rev. Lett.* **100**, 015003 (2008).
- Z. Jiang and J. R. Marciante, "Impact of Transverse Spatial-Hole Burning on Beam Quality in Large-Mode-Area Yb-Doped Fibers," *J. Opt. Soc. Am. B* **25**, 247 (2008).
- K. L. Marshall, K. Hasman, M. Leitch, G. Cox, T. Z. Kosc, A. Trajkovska-Petkoska, and S. D. Jacobs, "Doped Multilayer Polymer Cholesteric-Liquid-Crystal (PCLC) Flakes: A Novel Electro-Optical Medium for Highly Reflective Color Flexible Displays," in the *SID 07 Digest*, edited by J. Morreale (Society for Information Display, San Jose, CA, 2007), Vol. XXXVIII, Book II, pp. 1741–1744.
- 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," in the *Proceedings of The International Display Manufacturing Conference 2007*, edited by C. H. Chen and Y.-S. Tsai (Society for Information Display, Hsinchu, Taiwan, 2007), pp. 70–73.
- A. V. Okishev, V. I. Smirnov, L. B. Glebov, and J. D. Zuegel, "An Optical Differentiator Based on a Regenerative Amplifier with an Intracavity Tunable Volume Bragg Grating Amplifier," in *Advanced Solid-State Photonics on CD-ROM* (Optical Society of America, Washington, DC, 2008), Paper WE32.
- O. Okunev, G. Chulkova, I. Milostnaya, A. Antipov, K. Smirnov, D. Morozov, A. Korneev, B. Voronov, G. Gol'tsman, W. Slysz, M. Wegrzecki, J. Bar, P. Grabiec, M. Górska, A. Pearlman, A. Cross, J. Kitaygorsky, and R. Sobolewski, "Registration of Infrared Single Photons by a Two-Channel Receiver Based on Fiber-Coupled Superconducting Single-Photon Detectors," in the *Second International Conference on Advanced Optoelectronics and Lasers*, edited by I. A. Sukhoivanov, V. A. Svich, and Y. S. Shmaliy (SPIE, Bellingham, WA, 2008), Vol. 7009, p. 70090V.
- L. Parlato, G. P. Pepe, D. Pan, C. De Lisio, V. Pagliarulo, A. Cosentino, N. Marrocco, D. Dalena, G. Peluso, A. Barone, and R. Sobolewski, "Time-Resolved Optical Characterization of Proximized Nano-Bilayers for Ultrafast Photodetector Applications," *J. Phys., Conf. Ser.* **97**, 012317 (2008).
- A. Simon, "An Alternative Analysis of Some Recent Diffusion Experiments on the Large Plasma Device," *Phys. Plasmas* **15**, 022507 (2008).
- A. Simon, "Comment on 'Two-Dimensional Equilibrium of a Low Temperature Magnetized Plasma,'" *Plasma Sources Sci. Technol.* **17**, 028001 (2008).
- T. P. Simula, N. Nygaard, S. X. Hu, L. A. Collins, B. I. Schneider, and K. Mølmer, "Angular Momentum Exchange Between Coherent Light and Matter Fields," *Phys. Rev. A* **77**, 015401 (2008).

S. Wu, J. Zhang, A. Belousov, J. Karpinski, and R. Sobolewski, "Dynamics of Intervalley Transitions and Propagation of Coherent Acoustic Phonons in GaN Single Crystals Studied by Femtosecond Pump-Probe Spectroscopy," in *Gallium Nitride*

Materials and Devices III, edited by H. Morkoç, C. W. Litton, J.-I. Chyi, Y. Nanishi, and E. Yoon, (SPIE, Bellingham, WA, 2008), Vol. 6894, p. 68940K.

Forthcoming Publications

K. U. Akli, S. B. Hansen, A. J. Kemp, R. R. Freeman, F. Beg, D. Clark, D. Hey, K. Highbarger, J. Green, G. Gregori, K. Lancaster, T. Ma, A. J. MacKinnon, P. Norreys, N. Patel, P. K. Patel, R. B. Stephens, C. Stoeckl, M. Storm, W. Theobald, L. Van Woerkom, R. Weber, and M. H. Key, "Laser Heating of Solid Matter by Light Pressure-Driven Shocks," to be published in *Physical Review Letters*.

C. Dorrer, "Effect of Jitter on Linear Pulse Characterization Techniques," to be published in *Optics Express*.

C. Dorrer and I. Kang, "Linear Self-Referencing Techniques for Short Optical Pulse Characterization," to be published in the *Journal of the Optical Society of America B* (invited).

M. C. Ghilea, T. C. Sangster, D. D. Meyerhofer, R. A. Lerche, and L. Disdier, "Aperture Tolerances for Neutron Imaging Systems in Inertial Confinement Fusion," to be published in *Review of Scientific Instruments*.

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*.

V. N. Goncharov, T. C. Sangster, P. B. Radha, T. R. Boehly, T. J. B. Collins, R. S. Craxton, J. A. Delettrez, R. Epstein, V. Yu. Glebov, S. X. Hu, I. V. Igumenshchev, R. Janezic, S. J. Loucks, J. R. Marciante, J. A. Marozas, F. J. Marshall, D. N. Maywar, J. P. Knauer, P. W. McKenty, S. P. Regan, R. G. Roides, W. Seka, S. Skupsky, V. A. Smalyuk, J. M. Soures, C. Stoeckl, R. Betti, R. L. McCrory, D. D. Meyerhofer, D. Shvarts, J. A. Frenje, R. D. Petrasso, and C. K. Li, "Performance of Direct-Drive Cryogenic Targets on OMEGA," to be published in *Physics of Plasmas* (invited).

O. V. Gotchev, P. Brijesh, P. M. Nilson, C. Stoeckl, and D. D. Meyerhofer, "A Compact, Multi-Angle Electron Spectrometer for Ultra-Intense Laser–Interaction Experiments," to be published in *Review of Scientific Instruments*.

S. X. Hu, "Heating of Frozen Rydberg Gases in a Strong Magnetic Field," to be published in the *Journal of Physics B*.

S. X. Hu, V. A. Smalyuk, V. N. Goncharov, J. P. Knauer, P. B. Radha, I. V. Igumenshchev, J. A. Marozas, C. Stoeckl, B. Yaakobi, D. Shvarts, T. C. Sangster, P. W. McKenty, D. D. Meyerhofer, and R. L. McCrory, "Studies of Plastic-Ablator Compressibility for Direct-Drive Inertial Confinement Fusion on OMEGA," to be published in *Physical Review Letters*.

I. V. Igumenshchev, "Magnetically Arrested Disks and Origin of Poynting Jets: Numerical Study," to be published in the *Astrophysical Journal*.

I. Kang, C. Dorrer, L. Zhang, M. Dinu, M. Rasras, L. Buhl, S. Cabot, A. Bhardwaj, X. Liu, M. Cappuzzo, L. Gomez, A. Wong-Foy, Y. F. Chen, N. K. Dutta, S. S. Patel, D. T. Neilson, C. R. Giles, A. Piccirilli, and J. Jacques, "Characterization of the Dynamical Processes in All-Optical Signal Processing Using Semiconductor Optical Amplifiers," to be published in the *IEEE Journal of Selected Topics in Quantum Electronics* (invited).

C. Kim, J. U. Wallace, and S. H. Chen, "Effects of Dilution, Polarization Ratio, and Energy Transfer on Photoalignment of Liquid Crystals Using Coumarin-Containing Polymer Films," to be published in *Macromolecules*.

R. L. McCrory, D. D. Meyerhofer, R. Betti, R. S. Craxton, J. A. Delettrez, D. H. Edgell, V. Yu. Glebov, V. N. Goncharov, D. R. Harding, D. W. Jacobs-Perkins, J. P. Knauer, F. J. Marshall, P. W. McKenty, P. B. Radha, S. P. Regan, T. C. Sangster, W. Seka, R. W. Short, S. Skupsky, V. A. Smalyuk, J. M. Soures,

C. Stoeckl, B. Yaakobi, D. Shvarts, J. A. Frenje, C. K. Li, R. D. Petrasso, and F. H. Séguin, “Progress in Direct-Drive Inertial Confinement Fusion Research,” to be published in *Physics of Plasmas* (review talk).

M. Mikulics, M. Marso, S. Wu, A. Fox, M. Lepsa, D. Gruetzmacher, R. Sobolewski, and P. Kordos, “Sensitivity Enhancement of Metal–Semiconductor–Metal Photodetectors on Low-Temperature-Grown GaAs Using Alloyed Contacts,” to be published in *IEEE Photonics Technology Letters*.

M. Nakatsutsumi, J. R. Davies, R. Kodama, J. S. Green, K. L. Lancaster, K. U. Akli, F. N. Beg, S. N. Chen, D. Clark, R. R. Freeman, C. D. Gregory, H. Habara, R. Heathcote, D. S. Hey, K. Highbarger, M. H. Key, J. A. King, K. Kreskelnick, T. Ma, A. MacPhee, H. Nakamura, R. B. Stephens, M. Storm, M. Tampo, W. Theobald, L. Van Woerkom, R. L. Weber, M. S. Wei, N. C. Woolsey, and P. A. Norreys, “Space and Time Resolved Measurements of the Heating of Solids to Ten Million Kelvin by a Petawatt Laser,” to be published in the *New Journal of Physics*.

P. Nilson, W. Theobald, J. Myatt, C. Stoeckl, C. Mileham, M. Storm, O. V. Gotchev, I. A. Begishev, J. Brown, J. D. Zuegel, R. Betti, D. D. Meyerhofer, and T. C. Sangster, “High-Intensity Laser–Plasma Interactions in the Refluxing Limit,” to be published in *Physics of Plasmas* (invited).

T. C. Sangster, V. N. Goncharov, P. B. Radha, V. A. Smalyuk, R. Betti, R. S. Craxton, J. A. Delettrez, D. H. Edgell, V. Yu. Glebov, D. R. Harding, D. Jacobs-Perkins, J. P. Knauer, F. J. Marshall, R. L. McCrory, P. W. McKenty, D. D. Meyerhofer, S. P. Regan, W. Seka, R. W. Short, S. Skupsky, J. M. Soures, C. Stoeckl, B. Yaakobi, D. Shvarts, J. A. Frenje, C. K. Li, R. D. Petrasso, and F. H. Séguin, “High-Areal-Density Fuel Assembly in Direct-Drive Cryogenic Implosions,” to be published in *Physical Review Letters*.

W. Seka, D. H. Edgell, J. P. Knauer, J. Myatt, A. V. Maximov, R. W. Short, T. C. Sangster, C. Stoeckl, R. E. Bahr, R. S. Craxton, J. A. Delettrez, V. N. Goncharov, I. V. Igumenshchev, and D. Shvarts, “Time-Resolved Absorption in Cryogenic and Room-Temperature, Direct-Drive Implosions,” to be published in *Physics of Plasmas* (invited).

V. A. Smalyuk, D. Shvarts, R. Betti, J. A. Delettrez, D. H. Edgell, V. Yu. Glebov, V. N. Goncharov, R. L. McCrory, P. W. McKenty, D. D. Meyerhofer, 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 Hot-Electron Preheat in the Compression of Direct-Drive Imploding Targets with Cryogenic D₂ Ablators,” to be published in *Physical Review Letters*.

A. A. Solodov and R. Betti, “Stopping Power and Range of Energetic Electrons in Dense Plasmas of Fast-Ignition Fusion Targets,” to be published in *Physics of Plasmas*.

M. Storm, I. A. Begishev, R. J. Brown, C. Guo, D. D. Meyerhofer, C. Mileham, J. Myatt, P. M. Nilson, T. C. Sangster, C. Stoeckl, W. Theobald, and J. D. Zuegel, “A High-Resolution Coherent Transition-Radiation Diagnostic for Laser-Produced Electron-Transport Studies,” to be published in *Review of Scientific Instruments*.

W. Theobald, R. Betti, C. Stoeckl, K. S. Anderson, J. A. Delettrez, V. Yu. Glebov, V. N. Goncharov, F. J. Marshall, D. N. Maywar, R. L. McCrory, D. D. Meyerhofer, P. B. Radha, T. C. Sangster, W. Seka, D. Shvarts, V. A. Smalyuk, A. A. Solodov, B. Yaakobi, C. D. Zhou, J. A. Frenje, C. K. Li, F. H. Séguin, R. D. Petrasso, and L. J. Perkins, “Initial Experiments on the Shock-Ignition Inertial Confinement Fusion Concept,” to be published in *Physics of Plasmas*.

A. Trajkovska-Petkoska and S. D. Jacobs, “Effect of Different Dopants on Polymer Cholesteric Liquid Crystals,” to be published in *Molecular Crystals and Liquid Crystals*.

A. Trajkovska-Petkoska, T. Z. Kosc, K. L. Marshall, K. Hasman, and S. D. Jacobs, “Motion of Doped-Polymer-Cholesteric Liquid Crystal Flakes in a Direct-Current Electric Field,” to be published in the *Journal of Applied Physics*.

B. Yaakobi, T. R. Boehly, T. C. Sangster, D. D. Meyerhofer, B. A. Remington, P. G. Allen, S. M. Pollaine, H. E. Lorenzana, K. T. Lorenz, and J. A. Hawreliak, “EXAFS Measurements of Quasi-Isentropically Compressed Vanadium Targets on the OMEGA Laser,” to be published in *Physics of Plasmas*.

Conference Presentations

A. V. Okishev, V. I. Smirnov, L. B. Glebov, and J. D. Zuegel, "Optical Differentiator Based on a Regenerative Amplifier with an Intracavity Tunable Volume Bragg Grating Filter," *Advanced Solid-State Photonics*, Nara, Japan, 27–30 January 2008.

T. C. Sangster, "OMEGA EP High-Energy Petawatt Laser: Status and Progress," *JOWOG '08*, Los Alamos, NM, 4–8 February 2008.

W. T. Shmayda, "Fusion-Power and Hydrogen-Economy Community Material Issues," *American Ceramic Society Conference*, Cocoa Beach, FL, 24–27 February 2008.

J. M. Soures and D. D. Meyerhofer, "OMEGA and OMEGA EP Provide Unique Capabilities for NLUF Programs," *NNSA–SSAA Symposium*, Washington, DC, 26–28 February 2008.

A. V. Okishev, "The OMEGA/OMEGA EP Laser System: New Frontiers in ICF and HEDP Research," *X Khariton's Topical Scientific Readings*, Sarov, Russia, 11–14 March 2008.

The following presentations were made at the NIF Diagnostic Workshop, Los Alamos National Laboratory, Los Alamos, NM, 28 March 2008:

V. Yu. Glebov, T. C. Sangster, C. Stoeckl, M. Cruz, S. Roberts, M. Moran, and R. A. Lerche, "A Neutron Bang Time (NBT) Detector for the THD Campaign on the NIF."

V. Yu. Glebov, T. C. Sangster, C. Stoeckl, T. Duffy, M. Cruz, S. Roberts, M. Moran, and R. A. Lerche, L. Dauffy, R. Tommasini, A. Throop, J. Celeste, Z. A. Ali, and C. J. Horsfield, "The NIF Neutron Time-of-Flight (nTOF) Diagnostic Status and Plans."