

ICF Semiannual Report, vol. 1, No. 2
Publications and Presentations
April–September 2000

A

Alexiou, S., Lee, R. W., Glenzer, S. H., and Castor, J. I., "Analysis of Discrepancies Between Quantal and Semiclassical Calculations of Electron Impact Broadening in Plasmas," *J. Quant. Spectros. Radiat. Transfer* **65**(1-3), 15–22 (2000).

Amendt, P., *Pseudomoment Fluid Modeling: Ion-Acoustic Landau Damping and Non-Equilibrium Temperature*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-127254 Rev 1. Submitted to *Phys. of Plasmas*.

Amendt, P., Bradley, D. K., Collins, G., Haan, S., Landen, O., and Wallace, R., *Ablative Characterization Experiments on OMEGA in Cylindrical Hohlraums: Analysis and Improved Designs*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139501 ABS. Prepared for the *42nd Annual Mtg of the American Physical Society Div of Plasma Physics*, Quebec, Canada, Oct 23–27, 2000.

Aschke, L., Depierreux, S., Estabrook, K. G., Fournier, K. B., Fuchs, J., Glenzer, S., Lee, R. W., Rozmus, W., Thoe, R. S., and Young, P. E., "Towards an Experimental Benchmark for Aluminum X-Ray Spectra," *J. Quant. Spectros. Radiat. Transfer* **65**(1-3), 23–30 (2000).

B

Back, C. A., Bauer, J. D., Hammer, J. H., Lasinski, B. F., Turner, R. E., Rambo, P. W., Landen, O. L., Suter, L. J., Rosen, M. D., and Hsing, W. W., *Diffusive, Supersonic X-Ray Transport in Radiatively-Heated Foam Cylinders*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-136316; also in *Phys. Plasmas* **7**(5), 2126–2134 (2000).

Back, C. A., Golovkin, I., Mancini, R., Missalla, T., Landen, O. L., Lee, R. W., and Klein, L., *Diagnosing Plasma Gradients Using Spectral Line Shapes*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139309 ABS. Prepared for the *15th Intl Conf on Spectral Line Shapes*, Berlin, Germany, Jul 10–14, 2000.

Back, C. A., Grun, J., Decker, C. D., Davis, J., Laming, J. M., Feldman, U., Suter, L. J., Landen, O. L., Miller, M., Serduke, F., and Wuest, C., *X-Ray Sources Generated from Gas-*

Filled Laser-Heated Targets, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-138111. Prepared for the 22th American Physical Society Topical Conf on Atomic Processes in Plasmas, Reno, NV, Mar 19–24, 2000.

Back, C. A., Woolsey, N. C., Missalla, T., Landen, O. L., Libby, S. B., Klein, L. S., and Lee, R. W., *Implosions: An Experimental Testbed for High Energy Density Physics*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-129715; also in *Astrophys. J.* **127**, 227–232 (2000).

Bajt, S., *Molybdenum-Ruthenium/Beryllium Multilayer Coatings*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-136089; also in *J. Vac. Sci. Tech. A* **18**(2), 557–559 (2000).

Bajt, S., Barty, A., Nugent, K. A., McCartney, M., Wall, M., and Paganin, D., *Quantitative Phase-Sensitive Imaging in a Transmission Electron Microscope*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-133368; also in *Ultramicroscopy* **83**(1-2), 67–73 (2000).

Baker, K. L., Drake, R. P., Bauer, B. S., and Estabrook, K. G., *Observation of the Langmuir Decay Instability Driven by Stimulated Raman Scattering*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-138496 ABS. Submitted to *Phys. of Plasmas*.

Baldis, H., Kalantar, D. H., Remington, B. A., Weber, S. V., Meyers, M. A., Wark, J. S., Ravichandran, G., and Hauer, A. A., *Studies of Dynamic Properties of Shock Compressed Solids by In-Situ Transient X-Ray Diffraction*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-ID-139526.

Bayramian, A. J., Bibeau, C., Beach, R. J., Marshall, C. D., and Payne, S. A., *Consideration of Stimulated Raman Scattering in Yb:Sr₅(PO₄)₃F Laser Amplifiers*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-136913; also in *Appl. Opt.* **39**(21), 3746–3753 (2000).

Bayramian, A. J., Bibeau, C., Beach, R. J., Marshall, C. D., Payne, S. A., and Krupke, W. F., *Three-Level Q-Switched Laser Operation of Ytterbium-Doped Sr₅(PO₄)₃F at 985 nm*,

Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-136792; also in *Opt. Lett.* **25**(9), 622–624 (2000).

Bennett, G. R., Wallace, J. M., Murphy, T. J., Chrien, R. E., Delamater, N. D., Gobby, P. L., Hauer, A. A., Klare, K. A., Oertel, J. A., Watt, R. G., Wilson, D. C., Varnum, W. S., Craxton, R. S., Glebov, V. Yu., Schnittman, J. D., Stoeckl, C., Pollaine, S. M., and Turner, R. E., “Moderate-Convergence Inertial Fusion Implosions in Tetrahedral Hohlräume at Omega,” *Phys. Plasmas* **7**(6), 2594–2603 (2000).

Berger, R. L., Williams, E. A., Tikhonchuk, V. T., Brantov, A., Rozmus, W., Bychenkov, V., Valeo, E., and Brunner, S., *Thermal Effects on Laser Beam Interactions with Plasma: Collisional to Collisionless*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139463 ABS. Prepared for the 42nd Annual Mtg of the American Physical Society Div of Plasma Physics, Quebec, Canada, Oct 23–27, 2000.

Bibeau, C., Bayramian, A., Beach, R. J., Chanteloup, J. C., Ebberts, C. A., Emanuel, M. A., Orth, C. D., Payne, S. A., Rothenberg, J. E., Powell, H. T., Shaffers, K. I., Skidmore, J. A., Sutton, S. B., and Zapata, L. E., *Mercury and Beyond: Diode-Pumped Solid-State Lasers for Inertial Fusion Energy*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-133970; also in *Comptes Rendus* **1**(6), 745–749 (2000).

Borghesi, M., MacKinnon, A. J., Campbell, H. D., Galimberti, M., Gizzi, L. A., Nazarov, W., Schiavi, A., and Willi, O., *Propagation Issues and Fast Particle Source Characterization in Laser–Plasma Interactions at Intensities Exceeding 10^{19} W/cm²*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-138316 ABS. Prepared for the 26th European Conf on Laser Interaction with Matter, Prague, Czech Republic, Jun 12–16, 2000.

Bradley, D. K., Bell, P. M., Dymoke-Bradshaw, A. K. L., Hares, J. D., Bahr, R. E., and Smalyuk, V. A., *Development and Characterization of a Single Line of Sight Framing Camera*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-138002. Prepared for the 13th Topical Conf on High-Temperature Plasma Diagnostics, Tucson, AZ, Aug 18–22, 2000.

Bradley, D. K., Collins, G. W., Celliers, P., Moon, S., Da Silva, L. B., Cauble, R., Hammel, B. A., and Wallace, R. J., *Shock Compressing Diamond into the Metallic Phase*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-131400 ABS Rev 1. Prepared for the *42nd Annual Mtg of the American Physical Society Div of Plasma Physics*, Quebec, Canada, Oct 23–27, 2000.

Budil, K. S., Gold, D. M., Estabrook, K. G., Remington, B. A., Kane, J., Bell, P. M., Pennington, D. M., Brown, C., Hatchett, S. P., Koch, J. A., Key, M. H., and Perry, M. D., *Development of a Radiative-Hydrodynamics Testbed Using the Petawatt Laser Facility*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-131549; also in *Astrophys. J.* **127**, 261–265 (2000).

Bullock, A. B., and Bolton, P. R., *Optical Spectral Emission Picosecond Pulse Laser-Induced Back-Ablation of Aluminum Films*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-138916. Submitted to *J. Appl. Phys.*

Bullock, A. B., Landen, O. L., and Bradley, D. K., *10 μm and 5 μm Pinhole-Assisted Point-Projection Backlit Imaging for NIF*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-137904. Prepared for the *13th Topical Conf on High-Temperature Plasma Diagnostics*, Tucson, AZ, Jun 18–22, 2000.

Bullock, A. B., Landen, O. L., and Bradley, D. K., *Modeling of Multi-Kilovolt X-Ray Driven Ablation and Closure of Pinholes during Point-Projection Backlit Imaging*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139589 ABS. Prepared for the *42nd Annual Mtg of the American Physical Society Div of Plasma Physics*, Quebec, Canada, Oct 23–27, 2000.

Bullock, A. B., Landen, O. L., and Bradley, D. K., *Multi-Kilovolt X-Ray Driven Ablation and Closure of 5 μm and 10 μm Pinholes During Point-Projection Backlit Imaging*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-138515 ABS. Prepared for the *30th Annual Anomalous Absorption Conf*, Ocean City, MD, May 21–26, 2000.

Bullock, A. B., Landen, O. L., and Bradley, D. K., *Relative X-Ray Backlighter Intensity Comparison of Ti and Ti/Sc Combination Foils Driven in Double-Sided and Single-Sided Laser Configuration*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139282. Prepared for the *13th Topical Conf on High-Temperature Plasma Diagnostics*, Tucson, AZ, Jun 18–22, 2000.

C

Callahan-Miller, D. A., and Tabak, M., *Progress in Target Physics and Design for Heavy Ion Fusion*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-134746; also in *Phys. Plasmas* **7**(5), 2083–2091 (2000).

Cauble, R., Celliers, P. M., Collins, G. W., Da Silva, L. B., Gold, D. M., Foord, M. E., Budil, K. S., and Wallace, R. J., *Equation of State and Material Property Measurements of Hydrogen Isotopes at the High-Pressure, High-Temperature, Insulator-Metal Transition*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-132210; also in *Astrophys. J.* **127**(2), 267–273 (2000).

Celliers, P. M., and Conia, J., *Measurement of Localized Heating in the Focus of an Optical Trap*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-136479; also in *Appl. Opt.* **39**(19), 3396–3407 (2000).

Celliers, P. M., Collins, G. W., Bradley, D. K., Cauble, R., Moon, S. J., Wallace, R. J., Hammel, B. A., and Hsing, W. W., *Optical Measurements of Strongly-Shocked Water*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-138777 ABS. Prepared for the *1st Intl Workshop on Warm Dense Matter*, Vancouver, BC, May 28–31, 2000.

Celliers, P. M., Collins, G. W., Bradley, D. K., Cauble, R., Munro, D. H., Moon, S. J., Gold, D. M., Da Silva, L. B., Weber, F. A., Wallace, R. J., Hammel, B. A., and Hsing, W. W., *VISAR for Measuring EOS and Shock Propagation in Liquid Deuterium and Other Dielectrics*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-138446 ABS. Prepared for the *13th Topical Conf on High-Temperature Plasma Diagnostics*, Tucson, AZ, Jun 19–22, 2000.

Celliers, P. M., Collins, G. W., Da Silva, L. B., Cauble, R., Moon, S. J., Wallace, R. J., Hammel, B. A., Hsing, W. W., Masclet, I., Marchet, B., Rebec, M., Reverdin, C., Koenig, M., Benuzzi, A., and Batani, D., *Optical Measurements of Strongly-Shocked Water*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-138777 ABS Rev 1. Prepared for the 42nd Annual Mtg of the American Physical Society Div of Plasma Physics, Quebec, Canada, Oct 23–27, 2000.

Celliers, P. M., Collins, G. W., Da Silva, L. B., Gold, D. M., Cauble, R., Wallace, R. J., Foord, M. E., and Hammel, B. A., *Shock-Induced Transformation of Liquid Deuterium into a Metallic Fluid*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-130339 Rev 1; also in *Phys. Rev. Lett.* **84**(24), 5564–5567 (2000).

Cherfils, C., and Lafitte, O., “Analytic Solutions of the Rayleigh Equation for Linear Density Profiles,” *Phys. Rev E* **62**(2PtB), 2967–2970 (2000).

Clark, D. S., Fisch, N. J., Langdon, A. B., and Valeo, E. J., *Stability of High Power Laser Pulse to Backward Raman Scattering in Plasma*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139715 ABS. Prepared for the 42nd Annual Mtg of the American Physical Society Div of Plasma Physics, Quebec, Canada, Oct 23–27, 2000.

Collins, G. W., Celliers, P. M., Da Silva, L. B., Gold, D. M., and Cauble, R., *Laser-Shock-Driven Laboratory Measurements of the Equation of State of Hydrogen Isotopes in the Megabar Regime*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-135406; also in *High Press. Res.* **16**(5-6), 281–290 (2000).

Collins, G. W., Celliers, P. M., Da Silva, L. B., Munro, D., Cauble, R., Wallace, R. J., Moon, S. J., Hammel, B. A., and Hsing, W., *Multiple-Shock Compression of Liquid Deuterium*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-136861 ABS Rev 1. Prepared for the 42nd Annual Mtg of the American Physical Society Div of Plasma Physics, Quebec, Canada, Oct 23–27, 2000.

Colvin, J. D., *Summary of Vulcan Calculations*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-ID-138455.

Cook, R., *Models of Polyimide Spray Coating*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-136289; also in *Fusion Tech.* **38**, 74–82 (2000).

D

Dattolo, E., Suter, L., Monteil, M.-C., Jadaud, J.-P., Dague, N., Glenzer, S., Turner, R., Juraszek, D., Lasinski, B., Decker, C., Landen, O., and MacGowan, B., *Status of Our Understanding and Modeling of X-Ray Coupling Efficiency in Laser Heated Hohlraums*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-137622 Rev 1. Submitted to *Phys. of Plasmas*.

Depierreux, S., Labaune, C., Fuchs, J., and Baldis, H. A., “Application of Thomson Scattering to Identify Ion Acoustic Waves Stimulated by the Langmuir Decay Instability,” *Rev. Sci. Inst.* **71**(9), 3391–3401 (2000).

Dimonte, G., *Spanwise Homogeneous Buoyancy-Drag Model for Nonlinear Rayleigh–Taylor Instability*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139368 ABS. Prepared for the 42nd Annual Mtg of the APS Div of Plasma Physics, Quebec City, Canada, Oct 23–27, 2000.

Dimonte, G., *Spanwise Homogeneous Buoyancy-Drag Model for Rayleigh–Taylor Mixing and Experimental Evaluation*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-133936; also in *Phys. Plasmas* **7**(6) 2255–2269 (2000).

Ditmire, T., Rubenchik, A., Mirnov, V. V., and Ucer, D., *Modeling of the Expansion of Ultra-Short-Pulse Laser-Produced Plasmas in Magnetic Fields*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-141060; also in *Astrophys. J.* **127**, 293–297 (2000).

Ditmire, T., Shigemori, K., Remington, B. A., Estabrook, K., and Smith, R. A., *The Production of Strong Blast Waves Through Intense Laser Irradiation of Atomic Clusters*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-131534; also in *Astrophys. J.* **127**, 299–304 (2000).

Ditmire, T., Zweiback, J., Yanovsky, V. P., Cowan, T. E., Hays, G., and Wharton, K. B., *Nuclear Fusion in Gases of Deuterium Clusters Heated by Femtosecond Laser*, Lawrence

Livermore National Laboratory, Livermore, CA, UCRL-JC-136978 Rev 1; also in *Phys. Plasmas* 7(5), 1993–1998 (2000).

Dittrich, T. R., Haan, S. W., and Hinkel, D. E., *Small Scale Capsules for the National Ignition Facility*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139492 ABS. Prepared for the 42nd Annual Mtg of the American Physical Society Div of Plasma Physics, Quebec, Canada, Oct 23–27, 2000.

Dittrich, T. R., Haan, S. W., and Strobel, G. L., *Effects of ^3He Buildup in the DT Gas in NIF Ignition Capsules*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139491 ABS. Prepared for the 42nd Annual Mtg of the American Physical Society Div of Plasma Physics, Quebec, Canada, Oct 23–27, 2000.

Drake, R. P., Carroll III, J. J., Smith, T. B., Keiter, P., Glendinning, S. G., Hurricane, O., Estabrook, K., Ryutov, D. D., Remington, B. A., Wallace, R. J., Michael, E., and McCray, R., “Laser Experiments to Simulate Supernova Remnants,” *Phys. Plasmas* 7(5), 2142–2148 (2000).

Drake, R. P., Robey, H. F., Hurricane, O. A., Remington, B. A., Knauer, J., Arnett, D., Ryutov, D. D., Kane, J. O., Budil, K. S., and Grove, J., *Experiments to Produce a Hydrodynamically Unstable, Spherically Diverging System of Relevance to Instabilities in Supernovae*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139077. Submitted to *Astrophys. J.*

Drake, R. P., Smith, T. B., Carroll III, J. J., Yan, Y., Glendinning, S. G., Estabrook, K., Ryutov, D. D., Remington, B. A., Wallace, R. J., and McCray, R., “Progress Toward the Laboratory Simulation of Young Supernova Remnants,” *Astrophys. J.* **127**, 305–310 (2000).

Dunn, J., Li, Y., Osterheld, A. L., Nilsen, J., Hunter, J. R., and Shlyaptsev, V. N., *Gain Saturation Regime for Laser-Driven Tabletop, Transient Ni-Like Ion X-Ray Lasers*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-136645; also in *Phys. Rev. Lett.* **84**(21), 4834–4837 (2000).

Edwards, J., Glendinning, S. G., Suter, L. J., Remington, B. A., Landen, O., Turner, R. E., Shepard, T. J., Lasinski, B., Budil, K., Robey, H., Kane, J., Louis, H., Wallace, R., Graham, P., Dunne, M., and Thomas, B. R., *Turbulent Hydrodynamic Experiments Using a New Plasma Piston*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-136317 Rev 2; also in *Phys. Plasmas* **7**(5), 2099–2107 (2000).

F

Farley, D. R., and Logory, L. M., *Single-Mode, Nonlinear Mix Experiments at High Mach Number Using Nova*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139615; also in *Astrophys. J. Suppl. Ser.* **127**(2), 311–316 (2000).

Foord, M. E., Glenzer, S. H., Thoe, R. S., Wong, K. L., Fournier, K. B., Wilson, B. G., and Springer, P. T., *Ionization Processes and Charge-State Distribution in a Highly Ionized High-Z Laser-Produced Plasma*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-137022; also in *Phys. Rev. Lett.* **85**(5), 992–995 (2000).

Foord, M. E., Glenzer, S. H., Thoe, R. S., Wong, K. L., Fournier, K. B., Albritton, J. R., Wilson, B. G., and Springer, P. T., *Accurate Determination of the Charge State Distribution in a Well Characterized Highly Ionized Au Plasma*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-134388; also in *J. Quant. Spectros. Radiat. Transfer* **65**(1-3), 231–241 (2000).

Frank, A. M., Lee, R. S., and Remington, B. A., *Numerical Simulations of Laser-Driven Microflyer Plates*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139603 ABS. Prepared for the 42nd Annual Mtg of the American Physical Society Div of Plasma Physics, Quebec, Canada, Oct 23–27, 2000.

Fuchs, J., Labaune, C., Depierreux, S., Michard, A., and Baldis, H., *Modification of Spatial and Temporal Gains of Stimulated Brillouin and Raman by Polarization Smoothing*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-136786; also in *Phys. Rev. Lett.* **84**(14), 3089–3092 (2000).

G

Galimberti, M., Giulietti, A., Giulietti, D., Gizzi, L. A., Borghesi, M., Campbell, H. D., MacKinnon, A. J., Schiavi, A., and Willi, O., *Gamma-Ray Measurements in Relativistic Laser Interactions with Underdense Plasmas*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-138317 ABS. Prepared for the *26th European Conf on Laser Interaction with Matter*, Prague, Czech Republic, Jun 12–16, 2000.

Galmiche, D., Cherfils, C., Glendinning, S. G., Remington, B. A., and Richard, A., *Numerical Analysis of Spherically Convergent Rayleigh–Taylor Experiments*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139076. Prepared for the *26th European Conf on Laser Interaction with Matter*, Prague, Czech Republic, Jun 12–16, 2000.

Geddes, C. G. R., Kirkwood, R. K., Glenzer, S. H., Estabrook, K., Cohen, B. I., Young, P. E., Joshi, C., and Wharton, K. B., *Observation of Ion Wave Decay Products of Langmuir Waves Generated by Stimulated Raman Scattering in Ignition Scale Plasmas*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-140379. Submitted to *Phys. Rev. Lett.*

Genin, F. Y., Feit, M. D., Kowzowski, M. R., Rubenchik, A. M., Salleo, A., and Yoshiyama, J., *Rear-Surface Laser Damage on 355-nm Silica Optics Owing to Fresnel Diffraction on Front-Surface Contamination Particles*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-133839; also in *Appl. Optics* **39**(21), 3654–3663 (2000).

Glendinning, S. G., Bradley, D. K., Cauble, R., Edwards, J. M., Louis, H., Moreno, J., Moon, S., Remington, B. A., Turano, E., Craxton, R. S., Town, R., and Boehly, T. R., *Directly-Driven Shock Characterization in Plastics Using VISAR*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139602 ABS. Prepared for the *42nd Annual Mtg of the American Physical Society Div of Plasma Physics*, Quebec, Canada, Oct 23–27, 2000.

Glendinning, S. G., Budil, K. S., Cherfils, C., Drake, R. P., Farley, D., Kalantar, D. H., Kane, J., Marinak, M. M., Remington, B. A., Richard, A., Ryutov, D., Stone, J., Wallace, R. J., and Weber, S. V., *Experimental Measurements of Hydrodynamic Instabilities on Nova of*

Relevance to Astrophysics, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-130104; also in *Astrophys. J.* **127**, 325–331 (2000).

Glendinning, S. G., Colvin, J., Haan, S., Kalantar, D. H., Landen, O. L., Marinak, M. M., Remington, B. A., Wallace, R., Cherfils, C., Dague, N., Divol, L., Galmiche, D., and Richard, A. L., *Ablation Front Rayleigh–Taylor Growth Experiments in Spherically Convergent Geometry*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-134966; also in *Phys. Plasmas* **7**(5), 2033–2039 (2000).

Glenzer, S. H., *Observation of Saturated Brillouin Instability in Fusion Plasmas with Thomson Scattering*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139423 ABS. Prepared for *Frontier Science Research Conf and Technology of Laser–Matter Interactions*, La Jolla, CA, Jul 24–26, 2000.

Glenzer, S. H., *Thomson Scattering in Inertial Confinement Fusion Research*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-135822; also in *Contrib. Plasma Phys.* **40**(1-2), 36–45 (2000).

Glenzer, S. H., Bar-Shalom, A., Fournier, K., Hammel, B., Klapisch, M., Lee, R., Suter, L., Thoe, B., and Wilson, B., *Ionization Balance in Inertial Confinement Fusion Hohlraums*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139505 ABS. Prepared for the *42nd Annual Mtg of the American Physical Society Div of Plasma Physics*, Quebec, Canada, Oct 23–27, 2000.

Glenzer, S. H., Estabrook, K. G., Lee, R. W., MacGowan, B. J., and Rozmus, W., *Detailed Characterization of Laser Plasmas for Benchmarking of Radiation-Hydrodynamic Modeling*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-133739; also in *J. Quant. Spectros. Radiat. Transfer* **65**(1-3), 253–271 (2000).

Glenzer, S. H., Fournier, K. B., Decker, C., Hammel, B. A., Lee, R. W., Lours, L., MacGowan, B. J., and Osterheld, A. L., *Accuracy of K-Shell Spectra Modeling in High-Density Plasmas*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-137905; also in *Phys. Rev. E* **62** (2PT B), 2728–2738 (2000).

Glenzer, S. H., Fournier, K. B., Hammel, B. A., Lee, R. W., MacGowan, B. J., and Back, C. A., *Accuracy of X-Ray Spectra Modeling of Inertial Confinement Fusion Plasmas*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-137557. Prepared for the 12th American Physical Society Topical Conf on Atomic Processes in Plasmas, Reno, NV, Mar 19–23, 2000.

Glenzer, S. H., Suter, L. J., Berger, R. L., Estabrook, K. G., Hammel, B. A., Kauffman, R. L., Kirkwood, R. K., MacGowan, B. J., Moody, J. D., Rothenberg, J. E., and Turner, R. E., *Hohlraum Energetics with Smoothed Laser Beams*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-129862; also in *Phys. Plasmas* 7(6), 2585–2593 (2000).

Glenzer, S. H., Suter, L. J., Turner, R. E., Landen, O. L., Kirkwood, R. K., and Young, P. E., *Wall Losses of Soft X Rays in a Confined Hohlraum Geometry*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-138516 ABS. Prepared for the 30th Annual Anomalous Absorption Conf, Ocean City, MD, May 21–26, 2000.

Gold, D. M., Celliers, P. M., Collins, G. W., Budil, K. S., Cauble, R., Da Silva, L. B., Foord, M. E., Stewart, R. E., Wallace, R. J., and Young, D., *Interferometric and Chirped Optical Probe Techniques for High-Pressure Equation-Of-State Measurements*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-130118; also in *Astrophys. J.* 127, 333–357 (2000).

Goldman, S. R., Barnes, C. W., Caldwell, S. E., Wilson, D. C., Batha, S. H., Grove, J. W., Gittings, M. L., Hsing, W. W., Kares, R. J., Klare, K. A., Kyrala, G. A., Margevicius, R. W., Weaver, R. P., Wilke, M. D., Dunne, A. M., Edwards, M. J., Graham, P., and Thomas, B. R., *Production of Enhanced Pressure Regions Due to Inhomogeneities in Inertial Fusion Targets*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-137588; also in *Phys. Plasmas* 7(5), 2007–2013 (2000).

H

Haan, S. W., Glendinning, S. G., Turner, R. E., and Amendt, P. A., *Analysis of Polyimide Rayleigh-Taylor Experiments on OMEGA*, Lawrence Livermore National

Laboratory, Livermore, CA, UCRL-JC-139502 ABS. Prepared for the *42nd Annual Mtg of the American Physical Society Div of Plasma Physics*, Quebec, Canada, Oct 23–27, 2000.

Haan, S. W., Strobel, G. L., Dittrich, T. R., Suter, L. J., Lindl, J. D., and Herrmann, M. C., *Absorbed Energy Dependence of Surface Roughness Requirements for 250 eV Ignition Capsules*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139504 ABS. Prepared for the *42nd Annual Mtg of the American Physical Society Div of Plasma Physics*, Quebec, Canada, Oct 23–27, 2000.

Hartemann, F. V., Troha, A. L., Baldis, H. A., Gupta, A., Kerman, A. K., Lindahl, E. C., Luhman, Jr., N. C., and Van Meter, J. R., “High-Intensity Scattering Processes of Relativistic Electrons in Vacuum and Their Relevance to High-Energy Astrophysics,” *Astrophys. J.* **127**, 347–356 (2000).

Hatchett, S. P., Brown, C. G., Cowan, T. E., Henry, E. A., Johnson, J. S., Key, M. H., Koch, J. A., Langdon, A. B., Lasinski, B. F., Lee, R. W., MacKinnon, A. J., Pennington, D. M., Perry, M. D., Phillips, T. W., Roth, M., Sangster, T. C., Singh, M. S., Snavely, R. A., Stoyer, M. A., Wilks, S. C., and Yasuike, K., *Electron, Photon, and Ion Beams from the Relativistic Interaction of Petawatt Laser Pulses with Solid Targets*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-135029; also in *Phys. Plasmas* **7**(5), 2076–2082 (2000).

Hinkel, D. E., Haan, S. W., Pollaine, S. M., Dittrich, T. R., Jones, O. S., Suter, L. J., and Langdon, A. B., *Scaled Targets for the National Ignition Facility*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-138284 ABS Rev 1. Prepared for the *42nd Annual Mtg of the American Physical Society Div of Plasma Physics*, Quebec, Canada, Oct 23–27, 2000.

Honea, E. C., Beach, R. J., Mitchell, S. C., Skidmore, J. A., Emanuel, M. A., Sutton, S. B., Payne, S. A., Avizonis, P. V., Monroe, R. S., and Harris, D. G., *High-Power Dual-Rod Yb:YAG Laser*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-136413; also in *Opt. Lett.* **25**(11), 805–807 (2000).

Hsing, W. W., *Stability Limit of the Ablation-Front Rayleigh–Taylor Instability*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139126 ABS. Prepared for the *42nd Annual Mtg of the American Physical Society Div of Plasma Physics*, Quebec City, Canada, Oct 23–27, 2000.

J

Jones, O. S., Suter, L. J., Glenzer, S., and Wallace, R., *Cocktail Hohlräume*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139456 ABS. Prepared for the *42nd Annual Mtg of the American Physical Society Div of Plasma Physics*, Quebec, Canada, Oct 23–27, 2000.

K

Kalantar, D. H., Belak, J., Colvin, J. D., Remington, B. A., Weber, S. V., Allen, A. M., Loveridge, A., Wark, J. S., Boehly, T. R., and Paisley, D., *High Pressure, High Strain Rate Materials Experiments*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139585 ABS. Prepared for the *42nd Annual Mtg of the American Physical Society Div of Plasma Physics*, Quebec, Canada, Oct 23–27, 2000.

Kalantar, D. H., Bell, P. M., Perry, T. S., Sewall, N., Diamond, C., and Piston, K., *Optimizing Data Recording for the NIF Core Diagnostic X-Ray Streak Camera*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-138107. Prepared for the *13th Topical Conf on High Temperature Plasma Diagnostics*, Tucson, AZ, Jun 18–20, 2000.

Kalantar, D. H., Colvin, J. D., Mikaelian, K. O., Remington, B. A., Weber, S. V., Wiley, L. G., Allen, A. M., Loveridge, A., Wark, J. S., Paisley, D., and Meyers, M. A., *Laser-Based Solid-State Experiments at High Pressure and Strain Rates*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-140066 ABS. Prepared for the *Intl Conf on Shock Waves in Condensed Matter*, St. Petersburg, Russia, Oct 8–13, 2000.

Kalantar, D. H., Remington, B. A., Chandler, E. A., Colvin, J. D., Gold, D. M., Mikaelian, K. O., Weber, S. V., Wiley, L. G., Wark, J. S., Loveridge, A., Hauer, A., Failor, B. H., Meyers, M. A., and Ravichandran, G., *Developing Solid-State Experiments on the Nova*

Laser, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-131851; also in *Astrophys. J.* **127**, 357–363 (2000).

Kalantar, D. H., Remington, B. A., Colvin, J. D., Mikaelian, K. O., Weber, S. V., Wiley, L. G., Wark, J. S., Loveridge, A., Allen, A. M., Hauer, A. A., and Meyers, M. A., *Solid-State Experiments at High Pressure and Strain Rate*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-136355; also in *Phys. Plasmas* **7**(5), 1999–2006 (2000).

Kane, J., Arnett, D., Remington, B. A., Glendinning, S. G., Bazan, G., Drake, R. P., and Fryxell, B. A., *Supernova Experiments on the Nova Laser*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-129000; also in *Astrophys. J.* **127**, 365–369 (2000).

Kane, J. O., Robey, H. F., Remington, B. A., Drake, R. P., Knauer, J., Ryutov, D. D., Louis, H., Teysier, R., Hurricane, O., Arnett, D., Rosner, R., and Calder, A., *Three-Layer Shock Imprint Experiment at the OMEGA Laser*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-138940. Submitted to *Phys. Rev. Lett.*

Kauffman, R., *Inertial Confinement Fusion Monthly Highlights*, March 2000, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-TB-128550-00-06.

Keilty, K. A., Liang, E. P., Ditmire, T., Remington, B. A., Shigemori, K., and Rubenchik, A. M., “Modeling of Laser-Generated Radiative Blast Waves,” *Astrophys. J.* **538**(2Pt1), 645–652 (2000).

Keilty, K., Liang, E., Remington, B., London, R., Estabrook, K., and Kane, J., “Numerical Simulations of Blast Waves Generated by an Impulsive Temperature Source,” *Astrophys. J.* **127**, 375–377 (2000).

Kim, B.-K., Feit, M. D., Rubenchik, A. M., Joslin, E. J., Eichler, J., Stoller, P. C., and Da Silva, L. B., *Effects of High Repetition Rate and Beam Size on Hard Tissue Damage Due to Sub-Picosecond Laser Pulses*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-135926; also in *Appl. Phys. Lett.* **76**(26), 4001–4003 (2000).

Kirkwood, R. K., Langdon, A. B., Decker, C., Moody, J. D., Young, P. E., Suter, L. J., Glenzer, S. H., and Seka, W., *Study of the Dependence of Energy Transfer between Beams on*

Intensity in a Flowing Plasma, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139586 ABS. Prepared for the 42nd Annual Mtg of the American Physical Society Div of Plasma Physics, Quebec, Canada, Oct 23–27, 2000.

Klein, R. I., Budil, K. S., Perry, T. S., and Bach, D. R., *Interaction of Supernova Remnants with Interstellar Clouds: From the Nova Laser to the Galaxy*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-135430; also in *Astrophys. J. Suppl.* **127**, 379–383 (2000).

Koch, J. A., Bernat, T. P., Collins, G. W., Hammel, B. A., Koziowski, B. J., MacKinnon, A. J., Sater, J. D., Bittner, D. N., and Lee, Y., *Quantitative Analysis of Backlit Shadowgraphy as a Diagnostic of Hydrogen Ice Surface Quality in ICF Capsules*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-135496; also in *Fusion Tech.* **38**(1), 123–131 (2000).

Koch, J. A., Presta, R. W., Sacks, R. A., Zacharias, R. A., Bliss, E. S., Dailey, M. J., Feldman, M., Grey, A. A., Holdener, F. R., Salmon, J. T., Seppala, L. G., Toeppen, J. S., Van Atta, L., Van Wonterghem, B. M., Whistler, W. T., Winters, S. E., and Woods, B. W., *Experimental Comparison of a Shack-Hartmann Sensor and a Phase-Shifting Interferometer for Large-Optics Metrology Applications*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-136105; also in *Appl. Opt.* **39**(25), 4540–4546 (2000).

Koziowski, B., *Crystal Growth and Radiation Induced Changes in Solid Molecular Hydrogens*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-LR-139310.

Kruer, W. L., *Interaction of Plasmas with Intense Lasers*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-132222; also in *Phys. Plasmas* **7**(6), 2270–2278 (2000).

L

Labaune, C., Baldis, H. A., Schifano, E., Bauer, B. S., Maximov, A., Ourdev, I., Rozmus, W., and Pesme, D., *Enhanced Forward Scattering in the Case of Two Crossed Laser Beams Interacting with a Plasma*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-135653; also in *Phys. Rev. Lett.* **85**(8), 1658–1661 (2000).

Labaune, C., Fuchs, J., Depierreux, S., Baldis, H. A., Pesme, D., Myatt, J., Huller, S., Tikhonchuk, V. T., and Laval, G., *Laser-Plasma Interaction Physics in the Context of Fusion*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139168; also in *Comptes Rendus* **1**(6),727–735 (2000).

Landen, O. L., and Glenzer, S. H., *Warm, Dense Matter Characterization by X-Ray Thomson Scattering*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-138258 ABS Rev 1. Prepared for the *Intl Workshop on Warm Dense Matter*, Vancouver, Canada, May 29–31, 2000.

Landen, O. L., Farley, D. R., Bradley, D. K., Bullock, A. B., Glendinning, S. G., Logory, L. M., Turner, R. E., Bell, P. M., Koch, J. A., Lee, F. D., Decker, C. D., Kalantar, D. H., Back, C. A., and Suter, L. J., *X-Ray Backlighting for the National Ignition Facility*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-138318 ABS. Prepared for the *13th Topical Conf on High Temperature Plasma Diagnostics*, Tucson, AZ, Jun 18–22, 2000.

Landen, O. L., Glenzer, S. H., Cauble, R. C., Lee, R. W., Edwards, J. E., and Degroot, J. S., *Warm, Dense Plasma Characterization by X-Ray Thomson Scattering*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-138941. Prepared for the *26th European Conf on Laser Interaction with Matter*, Prague, Czech Republic, Jun 12–16, 2000.

Landen, O. L., Lobban, A., Tutt, T., Bell, P. M., Costa, R., and Ze, F., *Angular Sensitivity of Gated Micro-Channel Plate Framing Cameras*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-137879. Prepared for the *13th Topical Conf on High Temperature Plasma Diagnostics*, Tucson, AZ, Jun 19–23, 2000.

Langer, S. H., Scott, H. A., Marinak, M. A., and Landen, O. L., *Modeling Line Emission from ICF Capsules in 3 Dimensions*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-131240; also in *J. Quant. Spectros. Radiat. Transfer* **65**(1-3), 333–366 (2000).

Legrand, M., Schurtz, G., Weber, S. V., Remington, B. A., and Colvin, J. D., *Laser Driven Hydrodynamic Instabilities in the Solid State and Sensitivity to Nature of Flow*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-138312 ABS. Prepared for the *30th Annual Anomalous Absorption Conf*, Ocean City, MD, May 21–26, 2000.

Li, C. K., Hicks, D. G., Seguin, F. H., Frenje, J. A., Petrasso, R. D., Soures, J. M., Radha, P. B., Glebov, V. Yu., Stoeckl, C., Harding, D. R., Knauer, J. P., Kremens, R., Marshall, F. J., Meyerhofer, D. D., Skupsky, S., Roberts, S., Sorce, C., Sangster, T. C., Phillips, T. W., Cable, M. D., and Leeper, R. J., *D³He Proton Spectra for Diagnosing Shell ρR and Fuel T_i of Imploded Capsules at Omega*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-136808; also in *Phys. Plasmas* **7**(6), 2578–2584 (2000).

Li, Y. L., Dunn, J., Nilsen, J., Barbee, T. W., Osterheld, A. L., and Shlyaptsev, V. N., *Saturated Tabletop X-Ray Laser System at 19 nm*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-134716; also in *J. Opt. Soc. Am. B* **17**(6), 1098–1101 (2000).

Logory, L. M., Miller, P. L., and Stry, P. E., *Nova High-Speed Jet Experiments*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-130188; also in *Astrophys. J.* **127**(2), 423–428 (2000).

M

Mackinnon, A. J., Borghesi, M., Patel, P., Hatchett, S., Key, M. H., Lasinski, B., Langdon, B., Snavely, R., Wilks, S. C., Willi, O., Schiavi, A., Campbell, H., Gizzi, L., and Galimberti, M., *Effect of Plasma Scalelength on MeV Proton Production in Short Pulse High Intensity Laser Plasma Interactions*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139604 ABS. Prepared for the *42nd Annual Mtg of the American Physical Society Div of Plasma Physics*, Quebec, Canada, Oct 23–27, 2000.

Mackinnon, A. J., Patel, P., Snavely, R., Wilks, S. C., Hatchett, S., Key, M. H., Borghesi, M., Schiavi, A., Campbell, H., Willi, O., Gizzi, L., and Galimberti, M., *Effect of Plasma Scale Length on Multi MeV Proton Production by Ultra Short Laser Pulses*, Lawrence

Livermore National Laboratory, Livermore, CA, UCRL-JC-139273. Submitted to *Phys. Rev. Lett.*

Mirkarimi, P. B., Bajt, S., and Wall, M. A., *Mo/Si and MO/Be Multilayer Thin Films on Zerodur Substrates for Extreme-Ultraviolet Lithography*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-135398; also in *Appl. Optics* **39**(10), 1617–1625 (2000).

Moir, R. W., *Liquid Walls for Fusion Reaction Chambers*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-135743; also in *Comments on Mod. Phys.* **2**(2), C99–C111 (2000).

Moody, J. D., MacGowan, B. J., Berger, R. L., Estabrook, K. G., Glenzer, S. H., Kirkwood, R. K., Kruer, W. L., Stone, G. F., and Montgomery, D. S., *Experimental Study of Laser Beam Transmission and Power Accounting in a Large Scalelength Laser–Plasma*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-135564; also in *Phys. Plasmas* **7**(8), 3388–3398 (2000).

Moody, J. D., MacGowan, B. J., Glenzer, S. H., Kirkwood, R. K., Kruer, W. L., Montgomery, D. S., Schmitt, A. J., Williams, E. A., and Stone, G. F., *Experimental Investigation of Short Scalelength Density Fluctuations in Laser-Produced Plasmas*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-136401; also in *Phys. Plasmas* **7**(5), 2114–2125 (2000).

Moody, J. D., MacGowan, B. J., Rothenberg, J. E., Berger, R. L., Divol, L., Glenzer, S. H., Kirkwood, R. K., Williams, E. A., and Young, P. E., *Backscatter Reduction Using Combined Spatial, Temporal, and Polarization Beam Smoothing in a Long Scalelength Laser–Plasma*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139843. Submitted to *Phys. Rev. Lett.*

Moody, J. D., Young, P. E., Chambers, D. M., Hawreliak, J., Sondhauss, P., Wark, J. S., Berger, R. L., Divol, L., Langdon, A. B., and Williams, E. A., *Observation of Laser Self-Smoothing in an Exploding Foil Plasma*, Lawrence Livermore National Laboratory,

Livermore, CA, UCRL-JC-139587 ABS. Prepared for the 42nd Annual Mtg of the American Physical Society Div of Plasma Physics, Quebec, Canada, Oct 23–27, 2000.

Munro, D. H., *Shock Timing Technique for the NIF*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139319 ABS. Prepared for the 42nd Annual Mtg of the APS Div of Plasma Physics, Quebec City, Canada, Oct 23–27, 2000.

N

Nilsen, J., Li, Y., and Dunn, J., *Modeling psec-Laser-Driven Neon-Like Titanium X-Ray Laser Experiments*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-135817; also in *J. Opt. Soc. Am. B* **17**(6), 1084–1092 (2000).

P

Patel, P. K., Wolfrum, E., Renner, O., Loveridge, A., Allott, R., Neely, D., Rose, S. J., and Warek, J. S., “X-Ray Line Reabsorption in a Rapidly Expanding Plasma,” *J. Quant. Spectros. Radiat. Transfer* **65**(1-3), 429–439 (2000).

Pennington, D. M., Brown, C. G., Cowan, T. E., Hatchett, S. P., Henry, E., Herman, S., Kartz, M., Key, M., Koch, J., MacKinnon, A. J., Perry, M. D., Phillips, T. W., Roth, M., Sangster, T. C., Singh, M., Snavely, R. A., Stoyer, M., Stuart, B. C., and Wilks, S. C., *Petawatt Laser Systems and Experiments*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-140019; also in *IEEE Sel. Topics Quant. Elect.* **6**(4), 676–688 (2000).

Perry, T. S., Davidson, S. J., Serduke, F. J. D., Bach, D. R., Smith, C. C., Foster, J. M., Doyas, R. J., Ward, R. A., Iglesias, C. A., Rogers, F. J., Abdallah, Jr., J., Stewart, R. E., Wallace, R. J., Kilkenny, J. D., and Lee, R. W., *Opacity Measurements in a Hot Dense Medium*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-138912; also in *Astrophys J.* **127**, 433–436(2000).

Perry, T. S., Klein, R. I., Bach, D. R., Budil, K. S., Cauble, R., Kornblum, Jr., H. N., Wallace, R. J., and Lee, R. W., *Temperature and Density Measurements of the Collision of Two Plasmas*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-135705; also in *Astrophys. J. Suppl.* **127**, 437–443 (2000).

Petzoldt, R. W., Goodin, D., and Siegel, N., "Status of Target Injection and Tracking Studies for Inertial Fusion Energy," *Fusion Tech.* **38**(1), 22–27 (2000).

Pollaine, S. M., and Nellis, W. J., *Metallic Hydrogen Generated by High Shock Pressures*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-138603 ABS. Prepared for the *11th Advanced Space Propulsion Research Workshop*, Pasadena, CA, May 31–Jun 2, 2000.

Pollaine, S. M., *Radiation Transport between Two Concentric Spheres*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-137279 Rev 1. Submitted to *Nucl. Fusion*.

Pollaine, S., Bradley, D., Landen, O., Amendt, P., Wallace, R., Jones, O., Glendinning, G., Turner, R., and Suter, L., *NIF-Scale Hohlraum Asymmetry Studies Using Point-Projection Radiography of Thin Shells*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139459 ABS. Prepared for the *42nd Annual Mtg of the American Physical Society Div of Plasma Physics*, Quebec, Canada, Oct 23–27, 2000.

R

Regan, S. P., Delettrez, J. A., Yaakobi, B., Epstein, R., Bradley, D. K., Meyerhofer, D. D., and Seka, W., *Laser-Driven Burnthrough Experiments on OMEGA*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-138442 ABS. Prepared for the *30th Annual Anomalous Absorption Conf*, Ocean City, MD, May 21–26, 2000.

Remington, B. A., *Scaling Supernovae into the Lab: Experiments on Intense Lasers*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-138713 ABS. Prepared for *Nuclei in the Cosmos 2000*, Ahrus, Denmark, Jun 27–Jul 1, 2000.

Remington, B. A., Drake, R. P., Arnett, D., and Takabe, H., *Introduction to the Proceedings of the 2nd Intl Workshop of Laboratory Astrophysics with Intense Lasers*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-138712 SUM. Prepared for the *2nd Intl Workshop of Laboratory Astrophysics with Intense Lasers*, Tucson, AZ, Mar 17–21, 1999.

Remington, B. A., Drake, R. P., Takabe, H., and Arnett, D., *A Review of Astrophysics Experiments on Intense Lasers*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-134961; also in *Phys. Plasmas* **7**(5), 1641–1652 (2000).

Richard, A. L., Jadaud, J. P., Dague, N., Monteil, M. C., Turner, R. E., Bradley, D., Wallace, R. J., Landen, O. L., Soures, J. M., Morse, S., and Pien, G., *Symmetry Experiments on OMEGA with LMJ Like Multiple Beam Cones Irradiation*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-137873. Prepared for the *26th European Conf on Laser Interaction with Matter*, Prague, Czech Republic, Jun 12–16, 2000.

Roberts, C. C., Orthion, P. J., Hassel, A. E., Parrish, B. K., Buckley, S. R., Fearon, E., Letts, S. A., and Cook, R. C., *Development of Polyimide Ablators for NIF: Analysis of Defects on Shells, a Novel Smoothing Technique and Upilex Coatings*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-137737; also in *Fus. Tech.* **38**(1), 94–107 (2000).

Robey, H. F., Kane, J. O., Drake, R. P., Remington, B. A., Louis, H., Wallace, R. J., Hurricane, O. A., and Calder, A., *Experimental Testbed for the Study of Hydrodynamic Issues in Supernovae*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139454 ABS. Prepared for the *42nd Annual Mtg of the American Physical Society Div of Plasma Physics*, Quebec, Canada, Oct 23–27, 2000.

Rothenberg, J. E., *Polarization Beam Smoothing for Inertial Confinement Fusion*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-134521; also in *J. Appl. Phys.* **87**(8), 3654–3662 (2000).

Rozmus, W., Bychenkov, V., Brantov, A. V., Glenzer, S., Estabrook, K., and Baldis, H. A., *Return Current Instability and Its Effect on the Thomson Scattering Spectra in Laser Produced Plasmas*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-138514 ABS. Prepared for the *30th Annual Anomalous Absorption Conf*, Ocean City, MD, May 21–26, 2000.

Rozmus, W., Glenzer, S. H., Estabrook, K. G., Baldis, H. A., and MacGowan, B. J., *Modeling of Thomson Scattering Spectra in High-Z, Laser-Produced Plasmas*, Lawrence

Livermore National Laboratory, Livermore, CA, UCRL-JC-130646; also in *Astrophys. J.* **127**, 459–463 (2000).

Ryutov, D. D., *Radical Restructuring of the Fusion Effort*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-136143; also in *Comments on Mod. Phys.* **2**(2), C139–U14 (2000).

Ryutov, D. D., Drake, R. P., and Remington, B. A., *Criteria for Scaled Laboratory Simulations of Astrophysical MHD Phenomena*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-133092; also in *Astrophys. J.* **127**, 465–468 (2000).

S

Schmid, G. J., Izumi, N., Lerche, R. A., Phillips, T. W., Sangster, T. C., and Stoyer, M. A., *Neutronics Calculations for Diagnostics Development at NIF and OMEGA*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139588 ABS. Prepared for the *42nd Annual Mtg of the American Physical Society Div of Plasma Physics*, Quebec, Canada, Oct 23–27, 2000.

Shigemori, K., Ditmire, T., Remington, B. A., Yanovsky, V., Ryutov, D., Estabrook, K. G., Edwards, M. J., Rubenchik, A. M., Liang, E., and Keilty, K. A., *Observation of the Transition from Hydrodynamic to Radiative Shocks*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-134470; also in *Astrophys. J.* **533**(2Pt2), L159–L162 (2000).

Still, C. H., Berger, R. L., Langdon, A. B., Hinkel, D. E., Suter, L. J., and Williams, E. A., *Filamentation and Forward Brillouin Scatter of Entire Smoothed and Aberrated Laser Beams*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-135006; also in *Phys. Plasmas* **7**(5), 2023–2032 (2000).

Stone, J. M., Turner, N., Estabrook, K., Remington, B., Farley, D., Glendinning, S. G., and Glenzer, S., *Testing Astrophysical Radiation Hydrodynamics Codes with Hypervelocity Jet Experiments on the Nova Laser*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-135789; also in *Astrophys. J.* **127**, 497–502 (2000).

Stoyer, M. A., Hudson, G. B., Loughheed, R. W., Sangster, T. C., Freeman, C., Schwartz, B., and Olsen, M. L., *OMEGA Gas Sampling System and Radiochemical Diagnostics for NIF*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-133562 ABS Rev 1. Prepared for the *42nd Annual Mtg of the American Physical Society Div of Plasma Physics*, Quebec, Canada, Oct 23–27, 2000.

Suter, L. J., Rothenberg, J., Munro, D., Van Wonterghem, B., and Haan, S., *Exploring the Limits of the National Ignition Facility's Capsule Coupling*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-136319 Rev 1; also in *Phys. Plasmas* **7**(5), 2092–2098 (2000).

Suter, L., Haan, S., Lindl, J., Dittrich, T., Hammel, B. A., Hinkel, D., Jones, O., Pollaine, S., and Rothenberg, J., *Recent Developments in Ignition Target Designs for the National Ignition Facility*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-138309. Prepared for the *18th Intl Atomic Energy Agency Fusion Energy Conf*, Sorrento, Italy, Oct 4–8, 2000.

T

Takagi, M., Cook, R., Stephens, R., Gibson, J., and Paguio, S., *Decreasing Out-Of-Round in Poly(α -Methylstyrene) Mandrels by Increasing Interfacial Tension*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-135539; also in *Fus. Tech.* **38**(1), 46–49 (2000).

Takagi, M., Cook, R., Stephens, R., Gibson, J., and Paguio, S., *Stiffening of P α MS Mandrels During Curing*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-135545; also in *Fus. Tech.* **38**(1), 50–53 (2000).

Takagi, M., Cook, R., Stephens, R., Gibson, J., and Paguio, S., *The Effects of Controlling Osmotic Pressure on a P α MS Microencapsulated Mandrel During Curing*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-135540; also in *Fus. Tech.* **38**(1), 54–57 (2000).

Tannaka, K. A., Kodama, R., Fufita, H., Heya, M., Izumi, N., Kitagawa, Y., Mima, K., Miyanaga, N., Norimatsu, T., Pukhov, A., Sunahara, A., Takahashi, K., Allen, M., Habara, H., Iwatani, T., Matusita, T., Miyakoshi, T., Mori, M., Setoguchi, H., Sonomoto, T., Tanpo, M., Tohyama, S., Azuma, H., Kawasaki, T., Komeno, T., Maekawa, O., Matsuo, S., Shozaki, T., Suzuki, Ka, Yoshida, H., Yamanaka, T., Sentoku, Y., Weber, F., Barbee, Jr., T. W., and Da Silva, L., "Studies of Ultra-Intense Laser Plasma Interactions for Fast Ignition," *Phys. Plasmas* **7**(5), 2014–2022 (2000).

Teyssier, R., Ryutov, D., and Remington, B., "Accelerating Shock Waves in a Laser-Produced Density Gradient," *Astrophys. J.* **127**, 503–508 (2000).

Toet, D., Smith, P. M., Sigmon, T. W., and Thompson, M. O., *Experimental and Numerical Investigations of a Hydrogen-Assisted Laser-Induced Materials Transfer Procedure*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-136660; also in *J. Appl. Phys.* **87**(7), 3537–3546 (2000).

Turner, R. E., Amendt, P. A., Landen, O. L., Bradley, D., and Wallace, R. J., *Effect of Ar Dopant on ICF Implosions*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139590 ABS. Prepared for the 42nd Annual Mtg of the American Physical Society Div of Plasma Physics, Quebec, Canada, Oct 23–27, 2000.

U

Unanyan, R. G., Vitanov, N. V., Shore, B. W., and Bergmann, K., *Coherent Properties of a Tripod System Coupled Via a Continuum*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-136151; also in *Phys. Rev. A* **61**04(4), 3408, U402–U410 (2000).

V

Varnum, W. S., Delamater, N. D., Evans, S. C., Gobby, P. L., Moore, J. E., Wallace, J. M., Watt, R. G., Colvin, J. D., Turner, R., Glebov, V., Soures, J., and Stoeckl, C., "Progress Toward Ignition with Noncryogenic Double-Shell Capsules," *Phys. Rev. Lett.* **84**(22), 5153–5155 (2000).

Velikovich, A. L., Dahlburg, J. P., Schmitt, A. J., Gardner, J. H., Phillips, L., Cochran, F. L., Chong, Y. K., Dimonte, G., and Metzler, N., "Richtmyer–Meshkov-Like Instabilities and Early-Time Perturbation Growth in Laser Targets and Z-Pinch Loads," *Phys. Plasmas* **7**(5), 1662–1671 (2000).

Vitanov, N. V., Shore, B. W., Unanyan, R. G., and Bergmann, K., "Measuring a Coherent Superposition," *Opt. Comm.* **179**(1-6), 73–83 (2000).

W

Williams, E. A., Berger, R. L., Decker, C. D., Divol, L., Glenzer, S. H., Langdon, A. B., Moody, J. D., Still, C. H., Young, P. E., and Lours, L., *Modeling of Beam Propagation Experiments on Nova and Vulcan with Parallel F3D*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139461 ABS. Prepared for the 42nd Annual Mtg of the American Physical Society Div of Plasma Physics, Quebec, Canada, Oct 23–27, 2000.

Woolsey, N. C., Back, C. A., Lee, R. W., Calisti, A., Mosse, C., Stamm, R., Talin, B., Asfaw, A., and Klein, L. S., "Experimental Results on Line Shifts from Dense Plasmas," *J. Quant. Spectros. Radiat. Transfer* **65**(1-3), 573–578 (2000).

Y

Young, J. A., and Cook, R. C., *Helix Reversal Motion in Polyisocyanates*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-140380. Submitted to *Macromolecules*.

Young, P. E., Suter, L. J., and Williams, E. A., *Dependence of Laser–Plasma Instability Growth on Laser Wavelength*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-JC-139591 ABS. Prepared for the 42nd Annual Mtg of the American Physical Society Div of Plasma Physics, Quebec, Canada, Oct 23–27, 2000.