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Index of Laser Program Publications and Related Reports Calendar Year 1983

Lawrence Livermore National Laboratory

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Index of Laser Program Publications and Related Reports

Lawrence Livermore National Laboratory Calendar Year 1983

This document provides a listing of titles and authors of publications from the LLNL Laser Program during calendar year 1983. It is presented as an aid for researchers in the field who may not otherwise have access to a full listing of laser-related work done at LLNL.

The intent is to provide a brief and concise listing. Publications are classified by subject, but cross references are not supplied and those documents which logically fall in more than one category may not appear to be in the obvious location.

We recognize that gaining access to the publications may be difficult, and have appended a listing of libraries that have microfiche copies of one or more years of LLNL Laser Program publications. Copies of individual publications can often be obtained from the author or from the LLNL Technical Library, Publication Services, L-658, P.O. Box 808, Livermore, CA 94550.

D. L. Buettner and J. M. Hill were responsible for the assembly and production of this report and the associated fiche collection, M. L. Rufer guided it through the Technical Information Department, and W. F. Krupke and S. A. Massey edited the index.

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ANNUAL REPORT—1982

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UCRL-50021-82

INERTIAL CONFINEMENT FUSION REVIEWS

Robert C. Haight and Henry T. Motz

"Nuclear Data Needs for Inertial Confinement Fusion (ICF)," prepared for the 13th Meeting of the International Data Committee, Rio de Janeiro, Brazil, May 16-20, 1983.

UCRL-89160

C. Hurley

"Inertial Confinement Fusion," prepared for the American Institute of Aeronautics and Astronautics Meeting, Phoenix, Arizona, January 15, 1983.

UCRL-88415, Abst.

John H. Nuckolls

"Inertial Fusion: Strategy and Economic Potential," prepared for the 16th European Conference on Laser Interaction with Matter, London, England, September 26-30, 1983.

UCRL-89980

John F. Holzhrichter

"Laser Drivers for Inertial Confinement Fusion," prepared for the 10th Symposium on Fusion Engineering, Philadelphia, Pennsylvania, December 5-9, 1983.

UCRL-90074, Abst.

John F. Holzhrichter

"The Lawrence Livermore National Laboratory Inertial Fusion Program," prepared for the IAEA Technical Committee Meeting on Advances in ICF Research, Kobe, Japan, November 14-17, 1983.

MISC. 4187

Roger A. Haas

"General Principles of Inertial Confinement Fusion," prepared for Atomic and Molecular Processes in Controlled Thermonuclear Fusion, February 7, 1983.

UCRL-88709

SOLID STATE LASER SYSTEMS

Review Papers

C. A. Hurley, F. A. Frick, H. G. Patton, G. Bradley, and A. Martos

"Mechanical Construction of the Nova Laser," prepared for the 10th Symposium on Fusion Engineering, Philadelphia, Pennsylvania, December 5-9, 1983.

UCRL-89192

Allen J. Levy

"The Nova Laser Assurance Management System," prepared for the 10th Annual Energy Division Conference of the American Society for Quality Control, San Diego, California, September 18-21, 1983.

UCRL-89328

Allen J. Levy

"The Assurance Management Program for the Nova Laser Fusion Project," prepared for the 10th Symposium on Fusion Engineering, Philadelphia, Pennsylvania, December 5-9, 1983.

UCRL-89512

William W. Simmons

"Nova Laser Facility for Inertial Confinement Fusion," prepared for the 10th Symposium on Fusion Engineering, Philadelphia, Pennsylvania, December 5-9, 1983.

UCRL-89759

Kenneth R. Manes, David R. Speck, Greg J. Suski, Orville C. Barr, Dale G. Gritton, Joseph S. Hildum, Bert C. Johnson, Jr., Dirk J. Kuizenga, Howard G. Patton, and Cal E. Thompson

"A New Green Laser Shines in Livermore - Novette is Operational," prepared for the 1983 Annual Meeting of the Optical Society of America, New Orleans, Louisiana, October 17-20, 1983.

UCRL-89290, Abst. & Summ. Rev. 1

Kenneth R. Manes

"Novette Facility: Activation and Preliminary Experimental Results," prepared for the 10th Symposium on Fusion Engineering, Philadelphia, Pennsylvania, December 5-9, 1983.

UCRL-90054

John F. Holzrichter

"Review of Initial Laser and Target Experiments with the 0.53 μ m, 10 kJ Novette Laser," prepared for the Conference on Lasers and Electro-Optics, Baltimore, Maryland, May 17-20, 1983.

UCRL-88466, Abst. & Summ.

John F. Holzrichter

"Initial Laser and Target Experiments with the Novette Laser," prepared for the Conference on Laser and Electro-Optics, Baltimore, Maryland, May 17-20, 1983.

UCRL-89718

W. W. Simmons and R. O. Godwin

"Nova Laser Fusion Facility: Design, Engineering, and Assembly Overview," prepared for the Journal of Nuclear Technology/Fusion, February 8, 1983.

UCRL-88700

William F. Krupke

"Solid State Fusion Lasers: Present and Future," prepared for the Los Alamos Conference on Optics, Santa Fe, New Mexico, April 11-15, 1983.

UCRL-88068, Abst.

Laser Hardware, Diagnostics, and Power Conditioning

J. Goldhar

"Beam Deflecting Switch Utilizing Volumetric Thermal Gratings in a Gas," prepared for the Conference on Laser and Electro-Optics, Baltimore, Maryland, May 17-20, 1983.

UCRL-88402, Abst. & Summ.

Bruce Carder and Randy Lundberg

"Optimized Rotary Flux Compressors for Powering Laser Flashlamps," prepared for the 4th IEEE International Pulsed Power Conference, Albuquerque, New Mexico, June 6-8, 1983.

UCRL-88690

M. J. Kushner, R. Hopper, and R. J. Poli

"Flashlamp Spectral Converters for Pumping Nd:glass Laser Amplifiers," prepared for Lasers '83 Conference, San Francisco, California, December 12-16, 1983.

UCRL-90056, Abst. & Summ.

J. Goldhar and M. S. Henesian

"Electro-Optical Switches with Plasma Electrodes," prepared for Optics Letters, October 19, 1983.

UCRL-89929

E. Steve Fulkerson

"An Inexpensive Solid State Trigger Unit for Thyatrons," prepared for the 4th IEEE International Pulsed Power Conference, Albuquerque, New Mexico, June 6-8, 1983.

UCRL-88672

J. A. Oicles and H. D. Kitchin

"A Low Jitter, Hydrogen Thyatron Pockels Cell Driver," prepared for the 4th IEEE International Pulsed Power Conference, Albuquerque, New Mexico, June 6-8, 1983.

UCRL-88667

K. Whitham, D. G. Gritton, R. W. Holloway, B. T. Merritt

"Design and Construction of Large Capacitor Banks," prepared for the 4th IEEE International Pulsed Power Conference, Albuquerque, New Mexico, June 6-8, 1983.

UCRL-88669

A. M. Mihalka, R. E. Burch, and B. T. Merritt

"A FET Full Bridge Switcher for Inductorless Capacitor Charging for Nova," prepared for the 4th IEEE International Pulsed Power Conference, Albuquerque, New Mexico, June 6-8, 1983.

UCRL-88671

Howard L. Julien and Edward L. Molishever

"Flow Visualizations, Velocity Measurements, and Surface Convection Measurements in Simulated 20.8-cm Nova Box Amplifier Cavities," October 31, 1983.

UCID-19948

M. J. Kushner

"Modeling of Plasma Bore-Filling in Xenon Flashlamps," prepared for the 36th Gaseous Electronics Conference, Albany, New York, October 11-14, 1983.

UCRL-88698, Abst. & Vg.

L. P. Bradley, A. C. Mitchell, Q. Johnson, and J. D. Smith

"A Flash X-Ray Source for Plasma Shutter Diagnostics," prepared for Review of Scientific Instruments, February 25, 1983.

UCRL-88622

Russell B. Wilcox

"Silicon Switch Development for Optical Pulse Generation in Fusion Lasers at Lawrence Livermore National Laboratory," prepared for Picosecond Optoelectronics Meeting, San Diego, California, August 24-26, 1983.

UCRL-89020

W. K. Kelley, H. G. Patton, D. H. Fitch, B. Fretas, D. E. Hoffman, and E. M. Lopez

"Electropolishing Large Spatial Filter Tubes for the Novette and Nova High Energy Laser System," prepared for Plating and Surface Finishing, September 28, 1983.

UCRL-89689

Novette Power Conditioning Group

"Novette Power Conditioning Control System Handbook," May 1983.

M-127

K. R. Manes

"Construction and Performance of the Novette Laser/Target Interaction System," prepared for the 10th Symposium on Fusion Engineering, Philadelphia, Pennsylvania, December 5-9, 1983.

UCRL-89760, Abst.

Norman J. Brown, Robert R. Donaldson, and Daniel C. Thompson

"Fabrication of Machined Optics for Precision Applications," prepared for the Meeting of the Society of Photo-Optical Instrumentation Engineers, Kongresshaus Garmisch-Partenkirchen, West Germany, April 12-14, 1983.

UCRL-89674

J. W. Roblee, D. W. Stillman, and S. R. Patterson

"Precision Support of Annular Optics," prepared for SPIE's 27th Annual International Technical Symposium and Instrument Display, San Diego, California, August 21-26, 1983.

UCRL-89756

K. Whitham, B. T. Merritt, D. G. Gritton, R. W. Holloway, and J. A. Oicles

"Nova Power Systems: Status and Operating Experience," prepared for the 10th Symposium on Fusion Engineering, Philadelphia, Pennsylvania, December 5-9, 1983.

UCRL-89546, Abst.

L. P. Bradley and H. T. Powell

"Characteristics of Large Bore Xenon Flashlamps," prepared for the 36th Gaseous Electronics Conference, Albany, New York, October 11-14, 1983.

UCRL-89650, Abst.

R. G. Ozarski, E. S. Bliss, R. D. Boyd, J. B. Richards, D. W. Myers, and C. D. Swift

"New Alignment and Diagnostic Techniques for 2w and 3w on the Nova Laser," prepared for the Conference on Lasers and Electro-Optics, Baltimore, Maryland, May 17-20, 1983.

UCRL-88422, Abst. & Summ.

J. E. Murray, W. F. Hagen, and B. W. Woods

"Flashlamp Induced Aberrations in Disk Amplifiers," prepared for the Conference on Lasers and Electro-Optics, Baltimore, Maryland, May 17-20, 1983.

UCRL-88460, Abst. & Summ.

B. T. Merritt & K. Whitham

"Infant Mortality Testing of High Energy-Density Capacitors Used on Nova," prepared for the 4th IEEE International Pulsed Power Conference, Albuquerque, New Mexico, June 6-8, 1983.

UCRL-88668

Julius Goldhar

"Beam Deflecting Optical Switch Using Volumetric Thermal Gratings," prepared for Applied Optics, June 28, 1983.

UCRL-89372

A. M. Mihalka

"A Programmable Controller with Overcurrent Latch for Constant Primary Peak Current in Capacitor Charging FET Switcher for Nova," prepared for the 4th IEEE International Pulsed Power Conference, Albuquerque, New Mexico, June 6-8, 1983.

UCRL-88670

Brian Grant

"Electromagnetic Forces Related to Flash Lamp Failures in the Nova/Novette Amplifiers," July 1983.

UCID-19856

D. G. Gritton, D. J. Christie, R. W. Holloway, B. T. Merritt, J. A. Oicles, K. Whitham, and R. B. Wilcox

"Novette Pulse Power System Description," prepared for the 5th Topical Meeting on the Technology of Fusion Energy, Knoxville, Tennessee, April 26-28, 1983.

UCRL-88995

Control Systems and Data Acquisition

G. J. Suski, F. W. Holloway, and J. M. Duffy

"Experience with a High Order Programming Language on the Development of the Nova Distributed Control System," prepared for the 5th IFAC Workshop on Distributed Computer Control Systems, Johannesburg, South Africa, May 18-20, 1983.

UCRL-88295

F. W. Holloway

"Strategies of Design, Development, and Activation of the Nova Control System," prepared for the 10th Symposium on Fusion Engineering, Philadelphia, Pennsylvania, December 5-9, 1983.

UCRL-89552

R. W. Carey, J. A. Auerbach, B. J. Demartini, and R. A. Lerche

"Use of ORACLE in a Scientific Environment," prepared for the 2nd International ORACLE User Group Conference, Boston, Massachusetts, August 14-17, 1983.

UCRL-88978, Abst.

R. W. Carey, J. M. Auerbach, R. A. Lerche, and B. J. Demartini

"Use of ORACLE in a Scientific Environment," prepared for the 2nd International ORACLE User Group Conference, Boston, Massachusetts, August 14-17, 1983.

UCRL-89396

D. J. Christie and D. G. Gritton

"The Safety Interlock System for the Novette Fusion Laser Facility," prepared for the 5th Topical Meeting on the Technology of Fusion Energy, Knoxville, Tennessee, April 26-28, 1983.

UCRL-88201, Abst.

D. L. McGuigan and P. J. VanArsdall

"Alignment Controls Operating on the Novette Laser," prepared for the Conference on Lasers and Electro-Optics, Baltimore, Maryland, May 17-20, 1983.

UCRL-88451, Abst. & Summ.

D. L. McGuigan

"Uses of ORACLE in the Nova Laser Control System," prepared for the 2nd International ORACLE User Group Conference, Boston, Massachusetts, August 14-17, 1983.

UCRL-89016

J. R. Hill, J. R. Severn, and P. J. VanArsdall

"NOVANET Communications Network for a Control System," prepared for the 8th Data Communications Symposium, Cape Cod, Massachusetts, October 3-6, 1983.

UCRL-89218

R. A. Lerche, R. W. Carey, and L. M. Harlan

"ASCII File Transfer Between the FFAF VAX and Wang," June 30, 1983.

UCIR-1514

Harmonic Conversion

G. J. Linford, B. C. Johnson, J. S. Hildum, W. E. Martin, K. Snyder, R. D. Boyd, W. L. Smith, C. L. Vercimak, D. Elmerl, J. T. Hunt, W. Seka, R. S. Craxton, S. D. Jacobs, L. D. Lund, R. L. McCrory, and J. M. Sours

"Comments on Large Aperture Harmonic Conversion Experiments at LLNL," prepared for Applied Optics, March 30, 1983.

UCRL-89004

B. C. Johnson, T. Marchi, J. Mihoevich, R. Wilder, and J. D. Williams
 "Optical Characterization of 74 cm Aperture Harmonic Generation (KDP) Crystal
 Arrays," prepared for the Conference on Lasers and Electro-Optics, Baltimore, Maryland,
 May 17-20, 1983.

UCRL-88452, Abst. & Summ.

LASER MATERIALS

Laser Glasses and Other Optical Materials

D. W. Hall, M. J. Weber, and R. T. Brundage
 "Fluorescence Line Narrowing in Neodymium Laser Glasses," prepared for the Journal
 of Applied Physics, September 15, 1983.

UCRL-89636

D. W. Hall and M. J. Weber
 "Modeling Gain Saturation in Neodymium Laser Glasses," prepared for IEEE Journal of
 Quantum Electronics, October 28, 1983.

UCRL-90070

W. Lee Smith
 "Nonlinear Refractive Index," prepared for the Handbook of Laser Science and
 Technology, Volume III: Optical Materials Part A, M. J. Weber, ed. (CRC Press, Boca
 Raton, Florida), September 15, 1983.

UCRL-89899

William F. Krupke
 "Insulator Materials in High Power Lasers for Inertial Fusion: Present and Future,"
 prepared for the Materials Research Society Symposium, Boston, Massachusetts,
 November 14-17, 1983.

UCRL-89439

W. Lee Smith
 "Two-Photon Absorption in Condensed Media," prepared for the CRC Handbook of
 Laser Science and Technology, April 11, 1983.

UCRL-89098

W. T. White, III, W. L. Smith, and D. Milam
 "Direct Measurement of the Nonlinear Refractive Index Coefficient at 355 nm in Fused
 Silica and in BK-10 Glass," prepared for Optics Letters, August 11, 1983.

UCRL-89720

K. J. Rao and J. Wong
 "Bonding and Structure of Nd^{3+} in BeF_2 Glass by XANES and EXAFS Spectroscopy,"
 prepared for the Journal of Chemical Physics, January 7, 1983.

UCRL-88534

Steven Brawer
 "Ab Initio Calculation of the Vibrational Spectra of BeF_2 Glass Simulated by Molecular
 Dynamics," prepared for the Journal of Chemical Physics 79, No. 9, 4539-4544
 November 1, 1983.

UCRL-88779

Steven A. Brawer
 "A Theory of the Specific Heat and Viscosity of SiO_2 and BeF_2 ," prepared for
 Monograph of the American Geophysical Union, February 23, 1983.

UCRL-88887

M. J. Weber, C. F. Cline, G. J. Linford, M. Milam, S. E. Stokowski, and S. M. Yarema
 "Optical and Lasing Properties of Nd^{3+} -Doped Beryllium Fluoride Glasses," prepared
 for the 2nd International Symposium on Halide Glasses, Troy, New York,
 August 2-5, 1983.

UCRL-88997, Abst.

M. J. Weber, J. E. Lynch, D. H. Blackburn, and D. J. Cronin
 "Variation of Yb^{3+} Stimulated Emission Cross Section with Glass Composition,"
 prepared for the American Ceramic Society 85th Annual Meeting, Chicago, Illinois,
 April 23-27, 1983.

UCRL-88336, Abst.

W. L. Smith, W. E. Warren, C. L. Vercimak, and W. T. White
 "Nonlinear Refractive Index at 351 nm by Direct Measurement and Modeling of Small-Scale Self-Focusing," prepared for the Conference on Lasers and Electro-Optics, Baltimore, Maryland, May 17-20, 1983.

UCRL-88456, Abst. & Summ.

M. J. Weber, E. Hildum, S. Leung, and R. Morgret
 "Rare-Earth Faraday Rotator Materials for Lasers," prepared for the 16th Rare Earth Research Conference, Tallahassee, Florida, April 18-22, 1983.

UCRL-88337, Abst.

Robert W. Hellwarth
 "Characterization of Self-Focusing Mechanisms in Laser Materials," prepared by the University of Southern California, Los Angeles, California, for Purchase Order Number 7509105, August 26, 1983.

UCRL-15554, Abst.

W. J. Siekhaus and J. H. Kinney
 "Electron Photoemission in Insulators Under Pulsed-Laser Irradiation," prepared for the Materials Research Society Symposium, Boston, Massachusetts, November 14-17, 1983.

UCRL-89647, Abst.

Optical Coatings

B. E. Yoldas, D. P. Partlow, and H. D. Smith
 "A Wide-Spectrum Antireflective Coating on Quartz," prepared for the 1983 Annual Meeting of the Optical Society of America, New Orleans, Louisiana, October 17-20, 1983.

UCRL-89885, Summ.

E. P. Wallerstein, E. Lohada, D. Milam, H. Patton, T. Snyder, and B. Yoldas
 "Sol-Gel Anti-Reflection Coatings on Large High Power Ultra-Violet Optics," prepared for the 1983 Annual Meeting of the Optical Society of America, New Orleans, Louisiana, October 17-20, 1983.

UCRL-89310, Abst. & Summ.

W. Howard Lowdermilk
 "Graded-Index Surfaces and Films," prepared for SPIE/Technology of Stratified Media Journal, March 30, 1983.

UCRL-88996

Lee M. Cook, G. Richard Wirtenson, and Norman J. Brown
 "Antireflection Coatings, Laser Damage, Laser Fusion," prepared for the 6th International Congress and International Trade Fair, München, Germany, June 27-July 1, 1983.

UCRL-88479, Abst.

Marion Scott, Tom Beat, Darrell Erikson, and Jack Dini
 "Soft X-Ray Multilayer Coating Design and Fabrication," prepared for the 1983 Annual Meeting of the Optical Society of America, New Orleans, Louisiana, October 17-20, 1983.

UCRL-89169, Abst., Summ. & Vg.

C. Kanamori, S. Nakajima, H. Toretani, K. Nakagawa, and T. Izumitani
 "AR Coating with High Damage Threshold on SiO₂ Glass," prepared by Hoya Optics, Inc., Fremont, California, for Purchase Order Number 2531205, September 12, 1983.

UCRL-15583

F. Rainer, W. H. Lowdermilk, and D. Milam
 "Damage Thresholds of Thin Film Materials and High Reflectors at 248 nm," prepared for the Boulder Damage Symposium, Boulder, Colorado, November 15-17, 1982.

UCRL-89097

Optically Induced Damage

F. Rainer, W. H. Lowdermilk, and D. Milam
 "Bulk and Surface Damage Thresholds of Crystals and Glasses at 248 nm," prepared for Optical Engineering, January 13, 1983.

UCRL-86155

F. Rainer, C. L. Vercimak, and D. Milam
 "Measurements of the Dependence of Damage Thresholds on Laser Wavelength, Pulse Duration, and Film Thickness," prepared for the Symposium on Optical Material for High Power Lasers, Boulder, Colorado, November 14-16, 1983.

UCRL-89864, Abst.

C. K. Carniglia, T. Tuttle Hart, F. Rainer, and M. C. Staggs

"Recent Damage Results on High Reflector Coatings at 355 nm," prepared for the Symposium on Optical Materials for High Power Lasers, Boulder, Colorado, November 14-16, 1983.

UCRL-89873, Abst.

W. H. Lowdermilk and D. Milam

"Laser Damage in Porous-Silica Antireflection Films," prepared for the Symposium on Optical Materials for High Power Lasers, Boulder, Colorado, November 14-16, 1983.

UCRL-89863, Abst.

M. C. Staggs and F. Rainer

"Damage Thresholds of Fused Silica, Plastics, and KDP Crystals Measured with 0.6-nm 355-nm Pulses," prepared for the Symposium on Optical Materials for High Power Lasers, Boulder, Colorado, November 14-16, 1983.

UCRL-89866, Abst.

T. Tuttle Hart, C. K. Carniglia, F. Rainer, and M. C. Staggs

"Recent Damage Results for Antireflection Coatings at 355 nm," prepared for the Symposium on Optical Materials for High Power Lasers, Boulder, Colorado, November 14-16, 1983.

UCRL-89872, Abst.

C. L. Vercimak, D. Milam, and R. A. McGee

"Damage Studies of KDP Frequency Doublers and Triplers," prepared for the Symposium on Optical Materials for High Power Lasers, Boulder, Colorado, November 14-16, 1983.

UCRL-89865, Abst.

D. W. Hall, R. A. Haas, W. F. Krupke, and M. J. Weber

"Spectral and Polarization Hole Burning in Neodymium Glass Lasers," prepared for the Journal of Quantum Electronics, April 11, 1983.

UCRL-88419

W. J. Siekhaus, J. H. Kinney, and David Milam

"Predamage Threshold Electron Emission From Insulator and Semiconductor Surfaces," prepared for the Symposium on Optical Materials for High Power Lasers, Boulder, Colorado, November 14-16, 1983.

UCRL-89886, Abst.

H. Newkirk, J. Swain, S. Stokowski, D. Milam, D. Smith, and H. Klapper

"Characterization by X-Ray Topography of Laser-Induced Damage in Potassium Dihydrogen Phosphate Crystals," prepared for the VII International Conference on Crystal Growth, Stuttgart, Germany, September 12-26, 1983.

UCRL-88824, Rev. 1

LASER FUSION THEORY

Laser Plasma Interaction and Electron Transport

Kent Estabrook and W. L. Kruer

"2-D Lasnex Ray Trace Studies of Thermal Self Focusing in Cylindrical Geometry," prepared for the 13th Annual Anomalous Absorption Conference, Banff, Alberta, Canada, June 5-10, 1983.

UCRL-89031, Abst.

J. D. Lindl

"A Strategy for Determining the Driver Requirements for High Gain ICF Implosions Utilizing Hydrodynamically Equivalent Capsules on the NOVA Laser," prepared for the 1983 Topical Conference on the Physics of Radiatively-Driven ICF Targets, Las Vegas, Nevada, May 2-5, 1983.

UCRL-89047, Abst.

Richard More, John Lindl, and Rollin Harding

"Nuclear Spin-Polarized Fuel in Inertial-Confinement Fusion," prepared for the 1983 Topical Conference on the Physics of Radiatively-Driven ICF Targets, Las Vegas, Nevada, May 2-5, 1983.

UCRL-89039, Abst.

M. Tabak

"Design of Tritium Poor Reactor Capsules," prepared for the 1983 Topical Conference on the Physics of Radiatively-Driven ICF Targets, Las Vegas, Nevada, May 2-5, 1983.

UCRL-89046, Abst.

B. Langdon, J. Albritton, C. Randall, and G. Zimmerman
 "Thermalization of Hot Electrons in Improved Multigroup Diffusion and S₁ Computations," prepared for the 1983 Topical Conference on the Physics of Radiatively-Driven ICF Targets, Las Vegas, Nevada, May 2-5, 1983.

UCRL-89035, Abst., Rev. 1

D. More
 "Nuclear Spin-Polarized Fuel in Inertial Fusion," prepared for the 25th Annual Meeting of the Division of Plasma Physics, Los Angeles, California, November 7-11, 1983.

UCRL-89496, Abst.

M. D. Rosen, J. D. Lindl, and A. R. Thiessen
 "Simple Model of ICF Targets' Energy Gain," prepared for the 25th Annual Meeting of the Division of Plasma Physics, Los Angeles, California, November 7-11, 1983.

UCRL-89472, Abst.

Richard M. More
 "Hydrodynamic Expansion of Hot Foils: Thomas-Fermi Scaling," prepared for the 25th Annual Meeting of the Division of Plasma Physics, Los Angeles, California, November 7-11, 1983.

UCRL-89497, Abst.

D. B. Boercker and R. W. Lee
 "Thomson Scattering, Spectral Line Broadening, and Bremsstrahlung in Non-Ideal Plasmas," prepared for the 4th Topical Conference on Atomic Processes in High Temperature Plasmas, Princeton, New Jersey, April 13-15, 1983.

UCRL-88706, Abst.

Y. T. Lee
 "Classical Binary-Encounter Collision Theory for Ionization in Electron-Ion Scatterings," prepared for the 13th International Conference on the Physics of Electronic & Atomic Collisions, West Berlin, West Germany, July 27-August 2, 1983.

UCRL-88899, Abst.

Judith Harte and Richard More
 "Energy Loss and Radiation by Suprathermal Electrons," prepared for the 25th Annual Meeting of the Division of Plasma Physics, Los Angeles, California, November 7-11, 1983.

UCRL-89498, Abst.

Dennis Slaughter
 "Simulated Fusion Reaction Product Energy Spectra," prepared for the 25th Annual Meeting of the Division of Plasma Physics, Los Angeles, California, November 7-11, 1983.

UCRL-89539, Abst.

M. D. Rosen
 "Evidence of a Laser Intensity Threshold for the Onset of Inhibited Electron Transport," prepared for Comments in Plasma Physics, August 24, 1983.

UCRL-89749

Kent Estabrook and W. L. Kruer
 "Thresholds of Raman Backscatter: Effects of Collisions and Landau Damping," prepared for Physical Review Letters, November 3, 1983.

UCRL-89448

Y. T. Lee
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UCRL-88767, Abst.

J. R. Albritton
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UCRL-87931

Y. T. Lee
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UCRL-88768, Abst.

F. J. Rogers

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UCRL-88763, Abst.

Y. T. Lee and R. M. More

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UCRL-89395

W. L. Kruer and Kent Estabrook

"Beat Wave Heating in Inhomogeneous Plasma Irradiated with 0.53 μ m and 1.06 μ m Light," prepared for the 25th Annual Meeting of the Division of Plasma Physics, Los Angeles, California, November 7-11, 1983.

UCRL-89446, Abst.

J. R. Albritton, Y. T. Lee, J. Green, and G. B. Zimmerman

"Radiation Generation by Not Necessarily Maxwell-Boltzmann Free Electrons," prepared for the 25th Annual Meeting of the Division of Plasma Physics, Los Angeles, California, November 7-11, 1983.

UCRL-89043, Abst., Rev. 1

Yim T. Lee

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UCRL-89571, Abst.

S. Maxon and G. Zimmerman

"2-D Spectra From an Imploding Gas Puff," prepared for the 25th Annual Meeting of the Division of Plasma Physics, Los Angeles, California, November 7-11, 1983.

UCRL-89508, Abst.

M. D. Rosen

"Analysis of Thermal Transport Experiments and Their Implication of a Threshold for Transport Inhibition," prepared for the 13th Annual Anomalous Absorption Conference, Banff, Alberta, Canada, June 5-10, 1983.

UCRL-89030, Abst.

W. L. Kruer

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UCRL-89981

Richard M. More

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UCRL-88638

Atomic Theory

Jon C. Weisheit

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UCRL-89653

Richard M. More

"Inversion Symmetry of Hydrogenic Expectation Values," prepared for the Journal of Physics B, June 9, 1983.

UCRL-88383, Rev. 1

Asymmetry and Instabilities

D. H. Munro

"Analytic Results in Linear Rayleigh-Taylor Theory," prepared for the 1983 Topical Conference on the Physics of Radiatively-Driven ICF Targets, Las Vegas, Nevada, May 2-5, 1983.

UCRL-89048, Abst.

David H. Munro

"Density Profiles of Least Rayleigh-Taylor Instability," prepared for Physics of Fluids, June 9, 1983.

UCRL-87344

K. O. Mikkelsen and J. D. Lindl

"Density Gradients to Reduce Field Instabilities in Multi-Shell ICF Targets," prepared for Physical Review, March 17, 1983.

UCRL-88032

Karl O. Mikkelsen

"Richtmyer-Meshkov instabilities in Stratified Fluids," prepared for the 25th Annual Meeting of the Division of Plasma Physics, Los Angeles, California, November 7-11, 1983.

UCRL-90176

K. O. Mikkelsen

"Analytic Theory of Rayleigh-Taylor and Richtmyer-Meshkov Instabilities," prepared for the 25th Annual Meeting of the Division of Plasma Physics, Los Angeles, California, November 7-11, 1983.

UCRL-89470, Abst.

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UCRL-89449, Abst.

A. Bruce Langdon

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UCRL-89027, Abst.

A. Bruce Langdon

"Breakdown of Magnetic Insulation in a Proton Diode," prepared for the 25th Annual Meeting of the Division of Plasma Physics, Los Angeles, California, November 7-11, 1983.

UCRL-89450, Abst.

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UCRL-89028, Abst.

Numerical Methods

J. W. K. Mark, S. S. Yu, J. K. Boyd, and W. M. Sharp

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UCRL-88910, Abst.

Alex Friedman

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UCRL-89468, Abst.

L. Suter

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UCRL-89469, Abst.

A. Bruce Langdon

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UCRL-88371, Abst.

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UCRL-88979

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UCRL-88363

J. Denavit
 "One-Dimensional Time-Implicit Hybrid Simulations," prepared for the 25th Annual
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UCRL-88367, Abst., Rev. 1

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 "Inertial Effects in Laser-Driven Ablation," prepared for the 1983 Topical Conference on
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UCRL-88682, Rev. 1

LASER FUSION EXPERIMENTS

Laser-Plasma Interaction and Electron Transport

R. P. Drake, R. E. Turner, D. W. Phillion, E. M. Campbell, C. Wang, J. Auerbach, F. Ze,
 W. C. Mead, B. F. Lasinski, and K. Estabrook
 "Gold Disk Experiments on Novette: Absorption and Harmonic Emission," prepared for
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 November 7-11, 1983.

UCRL-89519, Abst. & Posters

R. L. Kauffman, D. L. Matthews, R. W. Lee, and B. Whitten
 "Time-Resolved X-Ray Measurements of Laser-Produced Plasmas," prepared for the
 25th Annual Meeting of the Division of Plasma Physics, Los Angeles, California,
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UCRL-89518, Abst.

C. L. Wang, J. M. Auerbach, E. M. Campbell, R. F. Drake, K. G. Estabrook, J. A. Harte, and
 R. E. Turner
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UCRL-89499, Abst. & Poster

R. L. Kauffman
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UCRL-89810, Abst.

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 B. F. Lasinski, K. G. Tirsell, and C. Wang
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UCRL-89029, Abst.

Robert E. Turner, Donald W. Phillion, Barbara F. Lasinski, and E. Michael Campbell
 "Half- and Three-Halves Harmonic Measurements From Laser-Produced Plasmas,"
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UCRL-88954, Rev. 1

B. L. Whitten, R. W. Lee, and E. A. Crawford
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UCRL-88851, Abst.

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 B. Pruett, D. W. Phillion, P. H. Y. Lee, D. L. Matthews, R. J. Trainor, N. C. Holmes,
 C. E. Max, and F. Ze

"Behavior of Electron Transport Inferred From Layered-Disk Target Irradiations at 1.06
 and 0.35 μm Wavelength," prepared for the IEEE International Conference on Plasma
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UCRL-89678, Abst.

R. E. Turner, R. P. Drake, B. F. Lasinski, K. G. Estabrook, and E. M. Campbell
 "Measurements of Two-Plasmon Decay and Raman Scattering From Large Scale-length
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R. W. Lee, D. L. Matthews, R. L. Kauffman, K. Estabrook, and E. M. Campbell
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UCRL-89595, Abst.

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 "X-Ray Spectroscopy From Variable Z Laser-Produced Plasmas," prepared for the
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UCRL-89728

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UCRL-89456, Abst.

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UCRL-88677

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F. Ze, E. M. Campbell, R. E. Turner, R. P. Drake, D. W. Phillion, W. L. Kruer, and
 B. F. Lasinski
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UCRL-89516, Abst.

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UCRL-87462, Abst.

Ablative Compression and Related Experiments

L. Suter and F. Ze
 "Preliminary Analysis of Novette Compression Experiments," prepared for
 the 1983 Topical Conference on the Physics of Radiatively-Driven ICF Targets, Las Vegas,
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UCRL-89049, Abst.

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UCRL-88706

M. D. Rosen, D. W. Phillion, R. H. Price, E. M. Campbell, S. P. Obenshain, R. R. Whitlock,
 E. A. McLean, and B. H. Ripin
 "Creation of Ultra High Pressure Shocks by the Collision of Laser Accelerated Disks:
 Experiment and Theory," prepared for the 1983 Topical Conference on Shock Waves in
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UCRL-89750

W. C. Mead, E. M. Campbell, W. L. Kruer, R. E. Turner, C. W. Hatcher, D. S. Bailey, P. H. Y. Lee, J. Foster, K. G. Tirsell, B. Pruett, N. C. Holmes, J. T. Trainor, G. L. Stradling, B. F. Lasinski, C. E. Max, and F. Ze
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UCRL-89335

X-Ray Lasers and Backlighting

Dennis Matthews

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UCRL-89541

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"Laser-Heated X-Ray Flashlamp Brightness Measurements," prepared for the IEEE Journal of Quantum Electronics, June 1, 1983.

UCRL-89542

LASER FUSION TARGETS

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S. Pollaine and J. Lindl

"Impact of Variations in Capsule Aspect Ratio on High Direct Drive Capsules," prepared for the 25th Annual Meeting of the Division of Plasma Physics, Los Angeles, California, November 7-11, 1983.

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D. T. Attwood

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MISC. 4089

Charles D. Hendricks

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UCRL-89163

John W. Sherohman and Charles D. Hendricks

"Preliminary Basis for the Cost Estimation of a Laser Fusion Target," prepared for the Nuclear Fusion Journal, August 5, 1983.

UCRL-89674

Cryogenic Targets

Dale H. Darling

"Application of Holographic Interferometry for Hydrogen Isotope Condensation Studies in Sub Millimeter Spherical Volumes," prepared for the ICALEO Meeting, San Francisco, California, November 14-17, 1983.

UCRL-89201, Abst.

Target Fabrication

Charles D. Hendricks

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UCRL-89082

Charles William Hatcher

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LASER FUSION DIAGNOSTICS

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Robert H. Price

"X-Ray Imaging Systems," prepared for the NATO Advanced Study Institute, Castelvechio Pascoli Lucca, Italy, July 10-24, 1983.

UCRL-89313, Abst.

Robert H. Price

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UCRL-89315, Abst.

Robert H. Price

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UCRL-89314, Abst.

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MISC. 4150

X-Ray Diagnostics

R. H. Price and W. C. Friedhorsky

"Kirkpatrick-Baez X-Ray Microscope Optimization for Inertial Confinement Fusion Applications," May 1983.

UCID-19831

R. H. Price, T. W. Barbee, Jr., M. Gerassimenko, W. M. Cook, W. M. Ploeger, M. W. Koblerecki, and W. B. Laird

"A Kirkpatrick-Baez X-Ray Microscope (KBXRMS) With W/C Multilayer X-Ray Reflecting Coatings," prepared for the 25th Annual Meeting of the Division of Plasma Physics, Los Angeles, California, November 7-11, 1983.

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UCRL-88845

N. M. Ceglio, A. M. Hawryluk, and M. Schattenburg

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UCRL-88846

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UCRL-89570

Robert H. Price

"High Image Quality Sub 100 Picosecond Gated Framing Camera Development," prepared for the Laser Institute of America - 2nd International Conference, Los Angeles, California, November 14-17, 1983.

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UCRL-89537

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 "Absolute Calibration of Filtered X-Ray Diode Systems With Grazing Incidence Mirror Cutoffs," prepared for the 25th Annual Meeting of the Division of Plasma Physics, Los Angeles, California, November 7-11, 1983.

UCRL-89501, Abst.

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 "Time-Resolved Spectral Measurements Above 80 Å," prepared for the 27th Annual International Technical Symposium and Instrument Display, San Diego, California, August 21-24, 1983.

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UCRL-89514, Abst. & Posters

Robert H. Price, J. D. Wiedwald, R. Kalibjian, S. W. Thomas, and W. M. Cook
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UCRL-89119

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UCRL-89700

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UCRL-89430

N. M. Ceglio
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UCRL-89802

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UCRL-89803

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UCRL-89193

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UCRL-89644

High Density Diagnostics

S. M. Lane
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UCRL-88970

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UCRL-89073

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UCRL-89796, Abst.

Related Diagnostics

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UCRL-89668

Francoise Gex, Tony Huen, and Ralph Kalibjian

"S-20 Photocathode Research Activity—Part I," November 22, 1983.

UCID-19946

R. Kalibjian and G. G. Peterson

"Analysis of Space-Charge in Photonic Tubes," prepared for the Journal of Applied Physics, January 10, 1983.

UCRL-88528

Mark J. Eckart

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UCRL-89619, Abst.

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"Multi-Frame Nanosecond Camera Using a Single Microchannel Plate," prepared for Applied Physics Letters, January 1983.

UCRL-88580

D. E. Kotecki and R. Lear

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UCRL-88917

R. Kalibjian and S. Thomas

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UCRL-88691

ENERGY APPLICATIONS

Review Papers

Michael J. Monsler

"Progress in Inertial Fusion Reactor Design," prepared for the 7th International Conference on Structural Mechanics in Reactor Technology, Chicago, Illinois, August 22-26, 1983.

UCRL-88733, Summ.

James A. Blink and Michael J. Monsler

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UCRL-89429

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"The Fusion Breeder—An Early Application of Nuclear Fusion," prepared for Science, June 30, 1983.

UCRL-87801

Fusion Reactor Concepts

James A. Blink

"Tritium Breeding and Activation in the Cascade Reactor," prepared for the 10th Symposium on Fusion Engineering, Philadelphia, Pennsylvania, December 5-9, 1983.

UCRL-89292

John H. Pitts

"Mechanical and Thermal Design of the Cascade Reactor," prepared for the 10th Symposium on Fusion Engineering, Philadelphia, Pennsylvania, December 5-9, 1983.

UCRL-89273

John H. Pitts

"Cascade: A Centrifugal-Action Solid-Breeder Reaction Chamber," prepared for the 5th Topical Meeting on the Technology of Fusion Energy, Knoxville, Tennessee, April 26-28, 1983.

UCRL-88208

John H. Pitts

"Shock Propagation Through the Cascade ICF-Reactor Li_2O -Pebble Blanket," prepared for the 1983 American Nuclear Society Winter Meeting, San Francisco, California, October 30-November 4, 1983.

UCRL-89384, Summ.

J. A. Blink and N. J. Hoffman

"Tritium Control and Activation in the PulseStar Reactor," prepared for the 10th Symposium on Fusion Engineering, Philadelphia, Pennsylvania, December 5-9, 1983.

UCRL-89291, Abst.

Michael J. Monsler

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UCRL-88220, Summ.

George Patrick Lasche

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UCRL-53434

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Access to the Publications

The following libraries have microfiche copies of one or more years of LLNL Laser Program publications:

Electrical Engineering Library
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