

1-22-96

SANDIA REPORT

SAND93-4042 • UC-712

Unlimited Release

Printed November 1995

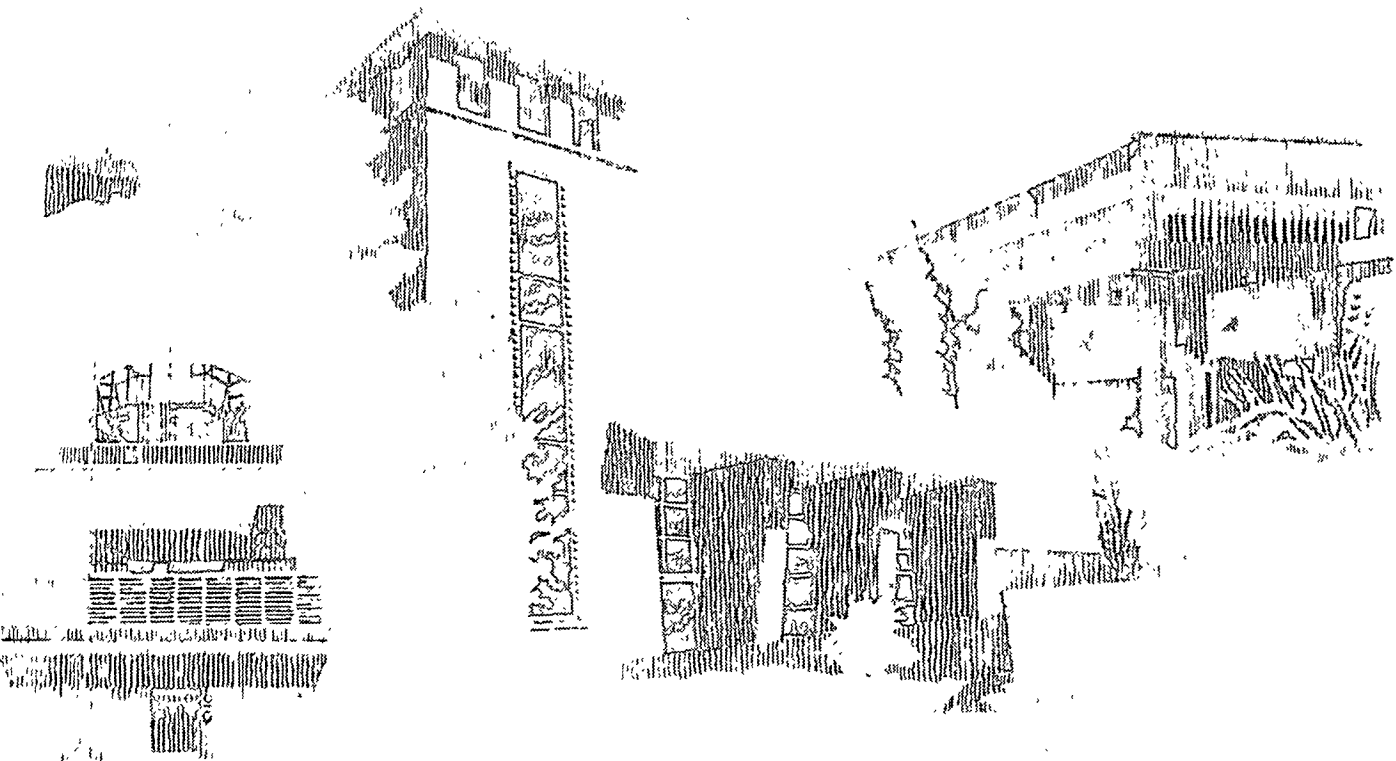
RECEIVED
JAN 30 1996
OSTI

Index of Light Ion Inertial Confinement Fusion Publications and Presentations January 1989 through December 1993

Mary Ann Sweeney

Prepared by
Sandia National Laboratories
Albuquerque, New Mexico 87185 and Livermore, California 94550
for the United States Department of Energy
under Contract DE-AC04-94AL85000

Approved for public release; distribution is unlimited.



SF29000(8-81)

MASTER
DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

Issued by Sandia National Laboratories, operated for the United States Department of Energy by Sandia Corporation.

NOTICE: This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, nor any of their contractors, subcontractors, or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government, any agency thereof or any of their contractors or subcontractors. The views and opinions expressed herein do not necessarily state or reflect those of the United States Government, any agency thereof or any of their contractors.

Printed in the United States of America. This report has been reproduced directly from the best available copy.

Available to DOE and DOE contractors from
Office of Scientific and Technical Information
PO Box 62
Oak Ridge, TN 37831

Prices available from (615) 576-8401, FTS 626-8401

Available to the public from
National Technical Information Service
US Department of Commerce
5285 Port Royal Rd
Springfield, VA 22161

NTIS price codes
Printed copy: A09
Microfiche copy: A01

Index of Light Ion Inertial Confinement Fusion Publications and Presentations January 1989 through December 1993

Mary Ann Sweeney, scientific editor
Beam, Plasma, and Electromagnetic Theory Department
Sandia National Laboratories
Albuquerque, NM 87185-1186

Abstract

This report lists publications and presentations that are related to inertial confinement fusion and were authored or coauthored by Sandians in the Pulsed Power Sciences Center from 1989 through 1993. The 661 publications and presentations are categorized into the following general topics: (1) reviews, (2) ion sources, (3) ion diodes, (4) plasma opening switches, (5) ion beam transport, (6) targets and deposition physics, (7) advanced driver and pulsed power technology development, (8) diagnostics, and (9) code development. Research in these areas is arranged by topic in chronological order, with the early efforts under each topic presented first. The work is also categorized alphabetically by first author. A list of acronyms, abbreviations, and definitions of use in understanding light ion inertial confinement fusion research is also included.

MASTER

Table of Contents

Index of Light Ion Inertial Confinement Fusion Publications and Presentations January 1989 through December 1993

Introduction.....	7
Acronyms, Abbreviations, and Definitions	9
Meetings at Which Presentations Were Given	27
Topical Index, Arranged Chronologically	31
A. Reviews.....	31
B. Ion Sources.....	37
C. Ion Diodes	47
D. Plasma Opening Switches.....	61
E. Ion Beam Transport.....	67
F. Targets and Deposition Physics	71
G. Advanced Driver and Pulsed Power Technology Development.....	77
H. Diagnostics.....	91
I. Code Development	101
Author Index, Arranged Alphabetically	105
Distribution	169

Introduction

Fusion is a potential source of electrical energy and process heat for industry that is characterized by the availability of a tremendous amount of natural raw fuel and the potential for reduced environmental impact. In recent years, the United States has had fusion research programs in two distinct areas: low-intensity, long-duration magnetic confinement fusion energy (MFE) and high-intensity, short-duration inertial confinement fusion (ICF). The goal of MFE research is to develop the technology to demonstrate the application of magnetic fusion to commercial energy production. The objective of the National ICF Program is to provide an intense burst of thermonuclear reaction products (x-rays, gamma rays, neutrons, and hot plasma) to drive high yield physics experiments related to nuclear weapons physics, basic science, and energy production. Current funding of fusion research is focused on devices that will allow demonstration of scientific, as opposed to engineering, feasibility: the tokamak for MFE and the glass laser for ICF, with lesser support for alternative magnetic devices and alternative inertial drivers. Over the past twenty years, Sandia National Laboratories has undertaken a different approach to fusion by inertial confinement. Instead of laser beams we rely on capacitor-based, short-pulse energy storage devices to convert electrical energy into light ions that implode tiny pellets containing deuterium and tritium. This approach to the fuel-pellet implosion process is potentially efficient, simple, and cost effective, but, like all other approaches to fusion, it requires the solutions to a series of formidable technical problems. This document provides a record, in the form of a listing of publications and presentations, of the progress made from 1989 to 1993 in solving these problems.

The charged-particle-beam approach to inertial confinement fusion was made possible by the growth of pulsed power technology, which began in the mid 1960s. This technology was supported by the Atomic Energy Commission (now the Department of Energy) and the Defense Nuclear Agency to provide radiation sources to test the survivability of intercontinental ballistic missiles against bursts of radiation from anti-ballistic-missile warheads. For more than twenty-five years, aboveground pulsed-power simulators have supplemented underground testing of the survivability and hardening of nuclear weapons. The Sandia National Laboratories fusion effort formally began in 1973 as a direct spin-off of this simulation technology that bathed a weapon component in bremsstrahlung radiation. Facilities such as the Particle Beam Fusion Accelerator II (PBFA II) have the potential to be on the critical path to a proposed high-yield laboratory facility for aboveground experiments (AGEX) of nuclear weapons physics, and an affordable facility may not be possible without pulsed power technology.

This report lists publications and presentations, with Sandians as authors or coauthors, relating to ICF from 1989 through 1993. The publications and presentations are categorized under the following topics: (1) reviews, (2) ion sources, (3) ion diodes, (4) plasma opening switches, (5) ion beam transport, (6) targets and deposition physics, (7) advanced driver and pulsed power technology development, (8) diagnostics, and (9) code development. The research is arranged in chronological order, with the early efforts under each topic presented first. In some cases, a publication or presentation is listed under more than one topic area. The work is also categorized alphabetically by first author. Where a

presentation was followed by a conference publication or proceedings, both the presentation and the publication are included. A publication consisting of an abstract only is not included. In addition, where known, invited talks and papers are so designated.

The report also includes a list of acronyms, abbreviations, and definitions useful in reading papers on light ion ICF research. In addition, we have provided a chronological list of the 95 plasma-related meetings at which presentations were given.

The light ion approach emphasizes teaming with universities, industry, and other Department of Energy (DOE) laboratories to understand and resolve key physics issues by using the best facilities, computational techniques, and x-ray sources. A number of the presentations and publications listed include non-Sandian authors. Some of the institutions represented include Los Alamos National Laboratory, Cornell University, Krall Associates, University of Wisconsin, Ktech Corporation, Naval Research Laboratory, Phillips Laboratory, Physics International, Maxwell Laboratories, University of New Mexico, Mission Research Corporation, NumerEx, Vanderbilt University, Science Engineering Associates, EG&G, Weizmann Institute of Science in Israel, and Karlsruhe Nuclear Fusion Center in Germany.

The editor would appreciate being made aware of presentations and publications related to inertial confinement fusion that have been inadvertently omitted. For those with access to the HP LAN in Organization 9500 at Sandia National Laboratories, the list is available in the following FrameMaker file: /users/masween/publish/89to93icfpubs.doc.

The work indexed in this report was formerly supported by the U. S. Department of Energy under Contract No. DE-AC04-76-D000789. Since 1 October 1993 this work has been supported under Contract No. DE-AC04-94-AL85000.

About Sandia National Laboratories

Sandia National Laboratories is a multiprogram engineering and science laboratory operated for the Department of Energy since 1949, first by the American Telephone and Telegraph Company and, beginning 1 October 1993, by Martin Marietta Corporation (now Lockheed Martin). Sandia National Laboratories has major facilities in Albuquerque, New Mexico, and in Livermore, California, as well as a test range near Tonopah, Nevada, and within the Navy Pacific Missile Range in Kauai, Hawaii. The light ion inertial confinement fusion effort is concentrated at the New Mexico site. The Laboratories' principal mission since 1949 has been systems engineering for the nonnuclear components of nuclear weapons systems. In the early 1970s Sandia, recognizing a match of its technical capabilities to the national energy problem, began to apply its expertise and experience to develop new energy sources and to achieve improvements in present energy sources. Sandia is now responsible for major programs in fossil, solar, inertial confinement fusion, and fission energy. On a smaller scale, Sandia conducts energy research in geothermal, magnetic fusion, wind turbines, environmental, conservation, combustion, and basic energy sciences. In the last five years, funding for environmental research, arms control, and civilian spin-off technologies has increased and a significant number of cooperative research and development agreements (CRADAs) have been signed with private industry. Some work at the laboratories is undertaken for other federal agencies, such as the Department of Defense, the National Aeronautics and Space Administration, the National Cancer Institute, the Nuclear Regulatory Commission, the Department of State, the U. S. Geological Survey, and the Environmental Protection Agency. The nine core competencies at Sandia are engineering processes and materials, computational and information sciences, microelectronics, engineering sciences, surety technologies, advanced manufacturing, pulsed power, engineered systems, and experimental, computational, and analytic evaluation.

Acronyms, Abbreviations, and Definitions

1-D	One-dimensional geometry or simulation code
2-D	Two-dimensional geometry or simulation code
2 1/2-D	A simulation code using two dimensions in coordinate space and three dimensions in velocity space to calculate particle positions
3-D	Three-dimensional geometry or simulation code
achromatic solenoidal focusing	Baseline ballistic ion beam transport scheme for LMF that employs a solenoidal lens focusing system
ACS	Access Control System: automated system to restrict personnel and visitor access during PBFA-II experiments
active ion source	Source that does not require the accelerator to deliver power to the diode in order to generate ions
AGEX	Aboveground Experiments: laboratory experiments to simulate nuclear weapons effects and weapons physics
A-K gap	Physical gap between the cathode tip and the opposing anode surface; also, gap between the virtual cathode formed by an electron sheath emanating from the cathode tip and the anode surface (This reduced gap is also known as the effective gap.)
albedo	Refers to the fraction of x-rays absorbed in a material that are subsequently re-emitted
ALE	Arbitrary Lagrangian-Eulerian
ALIAS	Advanced Light Ion Accelerator System: system consisting of 10-ohm, 1-MV water Blumlein connected to a pulse power splitter to form a two-stage extraction ion diode
A module	In LMF and ETF designs, one of about 20 low-voltage modules for delivering power to an extraction ion diode
anode	Positive ion emitting electrode of a diode
applied-B diode	Diode with an applied (i.e., external) magnetic field
ATHETA	Sandia code to solve magnetostatics problems in two dimensions using cylindrical coordinates; used to design magnetic field coils and anode and gas cell shapes in pulsed power diodes
Auger process	Two-electron process in which an electron in a less tightly bound state fills an electronic vacancy with the simultaneous emission of a second electron from the atom
AVS	Application Visualization System: Stardent software that allows 3-D objects to be viewed, animated, and manipulated on a computer terminal screen

barrel diode	Ion diode configuration in which an axisymmetric ion source is focused radially inward towards the center of a cylindrically-symmetric device (A barrel diode is the same as a radial diode.)
Bdot probe	dB/dt loop probe used to measure ion current in pulsed power experiments
biconic	Two conical conductors having a common axis and vertex
Blackjack 5	Maxwell Laboratories accelerator used in 1989 and 1990 to test PBFA-II plasma opening switch geometries
blade load	Thin electron emitting metal to which electrical power is delivered
B module	In LMF and ETF designs, one of about 12 high-voltage modules that would deliver power to an extraction ion diode; the power pulse is roughly a factor of ten higher than that delivered by an A module
BOLVAPS	Boil Off Lithium Vapor Source: active source that produces lithium vapor by rapid ohmic heating of a thin film laminate containing lithium
breakeven	Point at which the energy generated in a fusion reaction equals the energy necessary to maintain the reaction
bremsstrahlung	Hard x-ray radiation produced by the slowing down of a free electron by interaction with an ion; German word for braking radiation
brightness temperature	Temperature of a blackbody radiator that has the same brightness as a given source; in the case of a hohlraum filled with low-density foam, brightness temperature is a more accurate measure of temperature than radiation temperature
BUILDPPF	Post-processor routine that allows new PFF files to be constructed from one or more existing PFF files
capacitor	Pulsed power device consisting of conducting plates of opposite charge on either side of a dielectric surface, used for storage of electrical energy in a charged system
cathode	Electron emitting electrode of a diode
CCD	Charge-coupled detector: a device that arranges a relatively large number of discrete detectors in an array and that requires only one output channel
channel transport	Transport scheme using magnetic field of z-discharge current to confine the ion beam; also known as wall-confined channel transport
charge exchange effect	Process whereby a beam ion in the A-K gap exchanges its charge with a background neutral
charge neutralization	Condition such that the net space charge is zero; in situations for which small charge clumps exist in an ion beam, the residual charge can contribute to beam microdivergence
Child-Langmuir current density	See J_{CL}

circuit code	Computer code for analyzing the elements of the circuit in a pulsed power device to determine an unknown voltage or current
C/M System	Control/Monitor System: central computer console within the screen room that controls PBFA II and its support systems
coax	Transmission line cable used to transmit data signals and consisting of a tube of electrically conducting material surrounding a central conductor and covered by insulator material
COBRA	Cornell Beam Radiation Accelerator: 5-MV, 200-kA accelerator being constructed at Cornell University to support joint research on extraction ion diodes and non-protonic ion beams
conduction time	Interval of POS operation during which electrons from the generator take a path from the cathode, across a plasma filling the A-K gap, and run back along the anode to the generator; the switch conduction time ends when a gap opens between the cathode and the fill plasma, breaking the current path
CONRAD	One-dimensional University of Wisconsin hydrodynamics code that includes the effects of vaporization and condensation of wall materials and deposition of x-rays and ions in the reactor chamber gas and walls
Contamination Area	Area where access is restricted to limit exposure to removable radioactive contamination of surfaces
contrast ratio	Ratio between peak of the ion power in the "B" module beams of LMF vs peak of the ion power in the "A" module beams; also, ratio between peak and foot of a power pulse; the contrast ratio for a high yield target depends upon the fuel equation of state
Controlled Area	Area where access is restricted to limit exposure to radioactive hardware
convergence ratio	Ratio between uncompressed and compressed fuel radius
CRADA	Cooperative Research And Development Agreement between a national laboratory and private industry, authorized by the Department of Energy
CR-39 film	Nuclear-track-recording diagnostic that uses filters to range out different portions of the ion beam in determining the energy distribution
cryogenic cathode	Technique to delay formation of cathode plasma by cooling the cathode to about -200 °C
CS&T	Core Science and Technology program of National Ignition Facility
CT	Current Toggled plasma opening switch: switch that uses a rapidly rising external magnetic field at the cathode to open the gap further
current enhancement	Ratio of ion current density to Child-Langmuir current density, J_i/J_{CL}

current neutralization	Condition in which current amplitude is equally divided between negative charge (usually electrons) and positively charged ions
DAS	Data Acquisition System: system in PBFA II that receives and records diagnostic signals; includes over 200 waveform recorders, hardware and software to control the recorders and analyze data, and more than 25 miles of cable linking diagnostic monitors to the recorders
DATHETA	Diffusive ATHETA: SNL code that calculates the time-dependent magnetic field driven by specified coil configurations in a two-dimensional region containing free space and diffusive media
DD	Deuterium-Deuterium fuel or neutrons
dE/dx measurement	Measurement of the energy deposition range of a particle in a material
diocotron mode instability	High-frequency electromagnetic instability phase not contributing to growth of ion divergence; the frequency of the instability is significantly shorter than the ion transit time across the A-K gap
diode	Two-electrode device with positively-charged terminal (anode) and negatively-charged terminal (cathode)
direct drive	ICF target concept in which laser or particle beams directly drive the target to ignition
divergence	Spreading (increase in spot size) of an ion beam caused by scattering, instabilities, etc.
DOE	Department of Energy
DP	Defense Programs
DT	Deuterium-Tritium fuel or neutrons
DYNAID	Implicit, multi-species, collisional fluid code that can handle large applied electric and magnetic fields; being developed at SNL to model charge-exchange neutrals, ionization, and other particle interactions in an ion diode
effective gap	Gap between virtual cathode and the anode, where the virtual cathode is defined by the location of electrons above the cathode surface
EHD	Electrohydrodynamic: active ion source that relies on intense electric fields to release ions from a surface
electron launcher	Voltage probe that uses launched electrons to diagnose electron flow in a magnetically insulated transmission line; sometimes referred to as an ELVM probe (electron launcher voltage monitor)
electron limiter	Non-emitting protrusion on the anode of an ion diode that has been used to control impedance collapse by the collection of electrons; in an extraction diode, can be used to reduce the divergence

electron stimulated desorption	Various phenomena associated with the desorption of neutral and ionic species from surfaces bombarded by electrons
EM	Electromagnetic: simulation technique that models the electric and magnetic fields in a pulsed power device
EMFAPS	Evaporating Metal Foil Anode Plasma Source: active ion source developed at Cornell University and the Nuclear Research Center in Karlsruhe, Germany
EOS	Equation Of State: equation describing the state (pressure, temperature, degree of ionization) of a material
ETF	Engineering Test Facility: proposed fusion facility for energy applications with low yield and a moderate repetition rate that might employ a heavy ion driver
exploding pusher target	Target in which the shell is thin enough that beam energy is deposited nearly uniformly throughout; such a target explodes rather than imploding and the fuel ρr remains low
extraction diode	Diode configuration in which an ion source is transported longitudinally down the axis of a cylindrically-symmetric device
Faraday cup	Ion current diagnostic to measure ion beam uniformity and divergence
FFT	Fast Fourier transform
fiber array diagnostic	Time-resolved, streak-camera-based diagnostic to provide temporally continuous one-dimensional images of an ion beam target
filamentation instability	Plasma instability that can cause a beam to break into a large number of tiny filaments or magnetic pinches
first wall	Structural wall of a reactor chamber that contains the pressure generated by the fusion pulse; first wall can be a dry wall, a wetted surface, or protected by a movable, replenished surface
FLASH	Post-processor for QUICKSILVER that produces 3-D graphics
flashboard	Surface composed of a solid dielectric covered partially by a thin plating of metal; plasma is created by an electrical discharge over the surface
flashover source	A plasma source created by a discharge (electric arc) occurring over the surface of a solid dielectric in a gaseous or liquid medium
FODS	Fiber optic distribution system
fuel capsule	Capsule within a hohlraum that contains cryogenic or gaseous DT fuel, often enclosed by a metallic shell
fuel ρr	Integrated value of fuel density and radius; quantity important in assessing the range of an ion (in particular, an alpha particle) in the fuel
FWHM	Full width at half maximum

Gamble II	Terawatt-level pulsed power accelerator at Naval Research Laboratory operating in negative or positive polarity
gas cell	Thin membrane, usually 1-2 μm of mylar, that separates the vacuum acceleration region in an ion diode from a gas region of a few Torr; within the gas, space charge and current neutralization is nearly complete
gas switch breakdown	Abrupt rise in electrical current that causes a gas switch to trigger
GSI	Gesellschaft fur Schwerionenforschung in Darmstadt, Germany
H/C	Halite/Centurion: underground tests of inertial confinement fusion feasibility
HELIA	Four-stage linear inductive adder machine using an extraction ion diode geometry and operating in positive polarity; originally designed as proof-of-principle experiment for the Hermes III accelerator
Hermes III	Linear inductive-voltage-adder accelerator, with demonstrated positive-polarity capability, that is similar in design and concept to the smaller SABRE and the larger proposed LMF modules. Hermes III should accurately replicate the full two-stage driver of an LMF "A" (low voltage) module as well as the injector stage of an LMF "B" (high voltage) module.
HIBALL	Heavy Ion Beams and Lithium Lead: reactor concept developed by University of Wisconsin that uses lithium-lead waterfall to protect the reactor chamber walls
HIF	Heavy Ion Fusion: ICF concept using heavy ions to drive a fusion target
high yield target	ICF target with yield of 200 to 1000 MJ; such a target requires a high degree of radiation uniformity incident on the fuel capsule
hohlraum	Foam-filled region around an indirectly-driven light-ion target; ion deposition in this region produces soft x-rays that then drive the target; in the case of a laser hohlraum, vacuum surrounds the indirect-drive target, and holes are present in the cylindrical endcaps to allow entrance of laser beams
hybrid code	Electromagnetic simulation code using a mixed fluid and particle description for the plasma
IBEST	Ion Beam Enhanced Surface Treatment: a new technology, derived from pulsed power, to obtain improved surface finishes using intense, repetitively pulsed ion beams and based upon ion source research
IC	Induction cavity
ICF	Inertial Confinement Fusion: concept in which fuel is confined inertially within a tiny capsule until thermonuclear reactions spread throughout the fuel

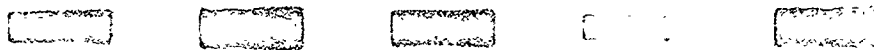
ICFAC	Inertial Confinement Fusion Advisory Committee: committee tasked by the Department of Energy to complete periodic reviews of the national ICF programs
IDL	Code to analyze voltage and current waveforms from pulsed power experiments; earlier Sandia version was called IDR
IFE	Inertial Fusion Energy
ignition target	ICF target in which the energy produced exceeds the energy lost through bremsstrahlung but is not sufficient to equal the energy used to generate the fusion process
ILE	Institute for Laser Engineering at Osaka University in Osaka, Japan: location of Reiden IV and Reiden SHVS ion beam accelerators
impedance collapse	Situation in which the diode voltage and the ion current are out of phase such that the diode voltage is decreasing as the ion current is increasing
imploding pusher target	Target in which particle beam energy is deposited primarily in the outermost layers (the ablator); the pusher layer internal to the ablative layer then implodes, driving the fuel to high temperatures and high p r.
indirect drive	ICF target concept in which laser or particle energy is converted into soft x-rays that then drive the fuel capsule
inductive voltage addition	Pulsed power technology in which low voltage pulses are generated in individual accelerating modules, fed into induction cavities that replace the wave addition in water, and then through low inductance, liquid/vacuum interfaces; pulses are then added in series using a self-magnetically-insulated transmission line
ion impact ionization	Ionization of a particle by the impact of an ion, resulting in electron ejection from the atom
IONMIX	University of Wisconsin code for computing EOS and radiative properties of plasmas
ion mode instability	Low frequency electromagnetic instability in the A-K gap responsible for increasing the ion beam divergence; the frequency of the instability is related to the ion transit time across the gap
ion movie camera	Diagnostic that produces individual snapshots of the ion beam focus at short time intervals (typically, 2 ns)
ion pinhole camera	Camera that uses CR39 film to record ions backscattered from a thick gold foil; different thickness filters provide energy discrimination for the images of different ion species
ion range filter	Diagnostic technique that uses the ion energy range in material layers to discriminate ion species and energy
IPROP	Three-dimensional, electromagnetic hybrid (mixed fluid and particle) code with a tensor conductivity, developed by Mission Research Corporation to simulate ion and electron transport and gas breakdown; fast electrons are treated as particles and followed explicitly

IPS	Internal Pulse Shaping: concept whereby the target drive history is adjusted through changes internal to the radiation case
ITF	Integrated Test Facility: facility to test hardware before installation on PBFA II
ITS	Integrated Tiger Series: codes for computing Monte Carlo transport of electrons and photons in multi-layer material; so named because the original 1-D code, TIGER, had stripes (layers) of different materials
IVORY	Pure particle-in-cell version of the three-dimensional electromagnetic code IPROP
J _{CL}	Child-Langmuir current density that scales as $\frac{4}{9} \left(\frac{2q}{m} \right)^{1/2} \epsilon_0 \frac{V^{3/2}}{d^2}$, where d is the initial (full) A-K gap
Jupiter	Powerful x-ray source being designed for aboveground experiments in effects testing, with weapons physics as a secondary mission
KALIF	Light ion accelerator at KfK in Karlsruhe, Germany; used for studies with applied-B and self-magnetically-insulated extraction ion diodes
K-Alpha x-rays	Ion-induced x-rays used to characterize the ion beam
KD0	Key Decision Zero: project classification in the DOE Project Management System that authorizes start of conceptual design
KD1	Key Decision One: project classification in the DOE Project Management System that authorizes start of formal construction
KfK	Kernforschungszenstrum, Karlsruhe, Germany: researchers here were the first to demonstrate experimentally the role of electron limiters and high magnetic insulation levels in reducing ion beam divergence
KrF laser	Krypton fluoride laser: a computer-controlled laser on PBFA II to synchronize pulses in the 36 pulse forming lines; also, a desktop-scale laser to study soft x-ray projection lithography concepts
LANL	Los Alamos National Laboratory
laser triggered switching	Method to synchronize voltage pulses in the 36 pulse forming lines on PBFA II; sometimes referred to as LTS
LASNEX	One-dimensional and two-dimensional radiation hydrodynamics code developed by LLNL and used extensively at SNL, LANL, and LLNL for ICF target design calculations
LEVIS	Laser EVaporation Ion Source: active ion source that relies on a neodymium glass laser to evaporate neutrals from a surface; a tuned dye laser is then used to produce ionization by the LIBORS process
LIBORS	Laser Ionization Based On Resonant Saturation: method to ionize a neutral lithium vapor by using a dye laser tuned to the 670.8-nm line
LIBRA	Light Ion Beam ReActor: self-consistent reactor design developed by the University of Wisconsin and by KfK in Karlsruhe, Germany, using laser-generated transport channels

LIBRA-LiTE	Modified version of LIBRA using ballistic focus with an achromatic lens system
LIBRA-SP	Modified version of LIBRA using self-pinched transport
LiF	Lithium Fluoride ion source: passive ion source for producing the first high-energy Li^+ beam on PBFA II; the source operates by electron-assisted field desorption
LIF	Light Ion Fusion: ICF concept using light ions to drive a fusion target
lightning	Atmospheric phenomenon produced by electrical discharge between one cloud and another or between a cloud and the ground
LION	Light ION accelerator at Cornell University for studying ion sources, extraction diodes, and divergence reduction
lithography	Technique to imprint a micron scale pattern on the silicon wafer of an integrated circuit element by coating the wafer with a radiation-sensitive film and then illuminating the surface with light, x-rays, or electrons
LLE	Laboratory for Laser Energetics at the University of Rochester
LLNL	Lawrence Livermore National Laboratory
LMF	Laboratory Microfusion Facility: proposed single-shot pulsed power facility to produce high yield for defense applications
LMF/ETF	Possible LMF/ETF for defense and energy applicataions that would use middle-weight ions in a multigap accelerator
load	Metal in a pulsed power device to which electrical power is delivered
long conduction time	Conduction time of 100 ns or greater for a plasma opening switch
LTS	Laser-Triggered Switching: method used in PBFA II to synchronize the voltage pulses in the 36 pulse forming lines
MACH2	Two-dimensional MHD fluid code, developed by Mission Research Corporation and used to simulate plasma opening switch performance
MAGIC	Two-dimensional MHD fluid code developed by Mission Research Corporation; used to simulate POS performance
magnetically-driven implosion	Implosion in which a z pinch converts electrical energy into kinetic energy and then into soft x-rays, with the magnetic field of the z pinch confining the implosion; ; enclosing the z-pinch source within a hohlraum allows the soft x-rays to drive the fuel capsule
magnetized fuel target	Target design that employs magnetic fields to reduce thermal conduction and thereby reduce energy losses from the fuel by the capture of alpha particles;electron beam experiments with such a target, the so-called Phi Target, were done on the Hydra accelerator in 1976
MAP diode	Magnetically confined Anode Plasma ion diode: first ion diode capable of repetitive operation at rates up to 100 Hz; invented at Cornell University

Marshak wave	Radiation wave that propagates through hot material in front of a shock wave; named for R. E. Marshak, who did extensive work on radiative transfer theory in stars in the 1950s
Marx generator	Energy storage device used in large, single-shot pulsed power accelerators such as PBFA II
MCF	Magnetic Confinement Fusion: concept in which fusion fuel is confined magnetically for a long time within a large device (3-meter-scale) while thermonuclear reactions occur
McPIG	Micro-channel plate intensified grazing incidence spectrograph: time-resolved spectrograph used to infer target temperature and density
Mercury	Proposed pulsed-power accelerator at NRL to replace Gamble II
MHD	Magnetohydrodynamics: simulation technique that treats the motion of charged particles in a moving magnetic field
MI	Magnetically Insulated: electron flow, in which most electrons are retrapped at the cathode; also, method to exceed the limitations on power flow density imposed by material insulator breakdown
microdivergence	Divergence (spreading) of an ion beam on a small scale because of a residual net space charge
MID	Magnetically Insulated Diode: diode that employs a magnetic field to control electron behavior
MIP	Magnetically Injected Plasma: plasma source for an opening switch in which the injection process is controlled by an externally applied magnetic field
MITE	Magnetically Insulated Transmission Experiment: accelerator used during the design phase for PBFA I, the predecessor of the PBFA-II accelerator; now used for long-conduction-time plasma opening switch experiments
MITL	Magnetically Insulated Transmission Line: a transmission line in which most electrons are retrapped at the cathode
Monte Carlo technique	Technique involving the use of random sampling to obtain approximate solutions to physical and mathematical problems
multistage ion acceleration	Concept that uses two or more stages to increase the ion current in the final stage
negative polarity configuration	Accelerator configuration in which the cathode shank forms the center conductor of a coaxial MITL inductive voltage adder; electron beam accelerator configuration
neodymium glass laser	Solid laser in which the glass is doped with neodymium; Nova is an example
nuclear activation diagnostic	Detector that determines the presence of an element based upon the measurement and identification of radioactivity; can be used to measure average ion beam uniformity and total ion beam energy

NIF	National Ignition Facility: multi-laboratory project to achieve fusion and propagating burn in a neodymium glass laser facility
NLS	Neodymium Laser System: laser system used on PBFA II for the active lithium ion source LEVIS
Nova	Glass laser facility at LLNL that produces 30 kJ of 0.3-micron laser light in 1 ns for ICF and weapons physics experiments; internal pulse shaping experiments done on the Nova laser in an SNL/LLNL collaboration verify the IPS concept for ion beam drivers
NRL	Naval Research Laboratory
NWET	Nuclear Weapons Effects Testing
ONEDANT	One-dimensional LANL diffusion transport code for calculating neutron propagation from the target to the LMF reactor chamber walls
optically thin	Condition of matter such that light can pass through it without significant absorption
parallel load	See parasitic load
parasitic load	Observed load consisting of energetic ions that replaces the ion beam load on many barrel and extraction ion diodes late in time and causes diode impedance and diode voltage to drop; experimentally, defined as the difference between the total ion current in gas-cell current monitors and the lithium ions measured by a filtered Faraday Cup and by on-axis diagnostics such as the magnetic spectrometer
parallel plate transmission line	System of conductors consisting of two parallel metal plates with a dielectric filling the space between them
passive ion source	Source requiring power delivery to the diode before ions are generated
PBFA I	Particle Beam Fusion Accelerator I at SNL that was later modified to create the Saturn accelerator
PBFA II	Particle Beam Fusion Accelerator II at SNL that became operational in December 1985
PBFA X	Modification to PBFA II that includes an axially focusing, extraction ion diode
PBFA Z	Modification to PBFA II to allow generation of intense soft x-rays in z-pinch implosions for ICF-related physics experiments and simulation of weapons effects experiments
PCD	Photoconducting detector: rugged x-ray detector that has excellent time response and a low-Z composition (e.g., diamond) that minimizes the sensitivity to higher energy x-rays; an attractive replacement for the vacuum XRD and the p-i-n diode



PEOS

Plasma Erosion Opening Switch: opening switch that uses ion erosion rather than an externally applied magnetic field to control the switch position between the generator and the load

positive polarity configuration	Accelerator configuration in which the central conductor of the MITL inductive voltage adder is the anode shank; extraction ion beam accelerator configuration
preheat source	Source (ions, electrons, etc.) that heats a plasma before the main energy pulse arrives
PROTO I	Early applied-B, barrel-geometry ion diode machine used for proton beam focusing experiments in the mid 1980s
PTRAN	SNL Monte Carlo code for modeling ion scattering diagnostics
pulsed power	Diverse set of technologies for compressing electrical energy in space and time to produce intense electromagnetic pulses
QUICKSILVER	Multitasked, finite-difference, three-dimensional, fully-relativistic, electromagnetic, particle-in-cell simulation code developed at SNL for ion diode design and used, subsequently, for modeling other pulsed power devices
radial diode	Ion diode configuration in which an axisymmetric ion source is focused radially inward towards the center of a cylindrically symmetric device (A radial diode is the same as a barrel diode.)
radiation-hydrodynamics code	Computer code that calculates propagation of thermal radiation through a fluid and the effect of this radiation on the hydrodynamic motion of the fluid; at temperatures of millions of degrees in stars and in ICF targets, the energy and momentum of the radiation field are comparable to or dominate the corresponding fluid quantities
radiation smoothing	Improved radiation uniformity compared to the uniformity of the incident ion beam because of the symmetrization effect provided by the optically-thin foam within an ion-driven hohlraum
radiation transport code	Computer code that determines the propagation of thermal radiation within a fluid by solving the equation of radiative transfer
Reiden IV	Coaxial pulsed power light ion accelerator at the Institute of Laser Engineering at Osaka University; used for single-stage extraction ion diode experiments
Reiden SHVS	Inductive adder light ion accelerator (4 MV, 40 kA, 100 ns) that produces extracted ion beams at the Institute of Laser Engineering at Osaka University in Japan; used for two-stage extraction ion diode experiments
repetitive pulsed power	Compact technology that employs a motor driven alternator as the energy storage device and metglas magnetic switches for pulse compression and a firing rate of 10 Hz or greater; in contrast, "single shot" technology uses a Marx generator, laser triggered gas switching, and self-break water switching
RF glow discharge cleaning	Active method to improve ion source purity by using an RF discharge to remove anode and cathode impurities from diode surfaces in SABRE and PBFA II

RHALE	Three-dimensional, multi-material, arbitrary-Lagrangian-Eulerian radiation-hydrodynamics code being developed at SNL for designing and modeling pulsed-power-driven targets
RHEPP	Repetitive High Energy Pulsed Power: four-cavity linear induction voltage adder at Sandia that uses oil to insulate cathode electrons from the anode and has been operated in excess of 100 Hz
rimfire switch	Multistage gas switch developed to meet high-voltage, low-jitter requirements for PBFA II; the first stage is laser triggered
RING	Refractive INdex Gradient: diagnostic for determining the expansion of a vapor or plasma
RT instability	Rayleigh-Taylor instability: instability in a gravitational field in which a dense fluid is above a less dense fluid; such an instability can reduce the yield of an ICF target
Rutherford scattering	Scattering of heavy charged particles by the Coulomb field of an atomic nucleus; can be used to determine the concentration of various species from the energy spectrum of backscattered ions
SABRE	Sandia Accelerator for Beam Research Experiments: 10-MV linear induction accelerator with a self-magnetically-insulated extraction diode for ion source, ion beam transport, and ion divergence studies
saturated distribution	Electron distribution extending uniformly from anode to cathode; this distribution is susceptible to impedance collapse
Saturn	Accelerator used primarily for weapons effects experiments and imploding z pinch experiments; so named because of the multi-ring geometry of the diodes when operated in a bremsstrahlung mode; Saturn is a reconfigured version of PBFA I
SCREAMER	One-dimensional code that uses circuit models to study the electrical behavior of PFLs, MITLs, and ion source loads
self-limited operation	MITL operation such that a loss occurs at the front of a forward-going electromagnetic wave that prevents wave reflection
self-pinched transport	Transport scheme in which the ion beam is ballistically focused to a small radius (< 1 cm) and then contained by the net self-magnetic field of the beam; self-pinched transport may be possible at < 1 Torr and/or with a laser preformed plasma
separatrix	Magnetic flux surface in a diode for which the stream function rA_θ is zero
SF ₆ gas	Insulating gas used in high voltage gas switches on PBFA II; the switch operates by laser triggered breakdown of the gas
shadowbox	Aperture plate diagnostic for recording ion damage patterns on a flat or curved surface (witness plate) located behind the gas cell window; the resultant damage patterns provide an estimate of beam divergence

shock breakout diagnostic	Temperature diagnostic based on difference in shock break through time at two portions of a stepped witness plate
SNL	Sandia National Laboratories
source divergence	Intrinsic divergence at the source produced, e.g., by nonuniformities and the thickness of the plasma source layer; can be a major contributor to overall beam divergence
soft x-ray radiation	Radiation extending from photon energies of 0.01 to 10 keV, corresponding to wavelengths of one to a thousand angstroms
SOPHIA	Transport/diagnostics code developed as an outgrowth of PICDIAG
space charge limited emission	Condition such that a plasma is of sufficient density and conductivity so that the electric field is normal to the plasma surface and vanishes at the surface
specific power deposition	Deposition in TW/g in a material
spectroscopic analysis	Technique of analyzing the components of a plasma by measuring the radiation emitted or absorbed; can be used to directly observe space- and time-resolved A-K gap charge dynamics
standoff	Extraction diode configuration in which the ion beam is transported several meters to the target
streak camera	Diagnostic for obtaining the continuous streak record of reflected laser light from a surface; used, for example, to determine the velocity of a shock wave, and hence a measure of the hohlraum temperature in an ICF target
superinsulated distribution	Electron distribution consisting of a thin, dense sheath confined to the physical cathode location; ion enhancement is about one in this case
SuperMITE	SNL accelerator used for power flow studies that originated as a demonstration module for PBFA II
SXPL	Soft X-ray Projection Lithography: method whereby a pattern is transferred by projection onto an object, using soft x-rays from a desktop-scale laser system
tamping	In an indirectly driven ion target, the slowing of the inward motion of the high-Z radiation case by the foam fill within the case
target positioner	Device to position a target within the NIF target chamber, such as a cantilevered pole with two rotational and three translation degrees of freedom
TEM analysis	Analysis using transverse electromagnetic waves
thermal target	ICF target in which the central portion--the fuel capsule--is driven by thermal (x-ray) radiation produced by laser or particle beam deposition in a high Z radiation case and, in the case of ion beams, by deposition in the foam within the radiation case

titanium gettering	Method to prevent recontamination of anode and cathode surfaces by differential vacuum pumping of liberated contaminants
titanium wire array diagnostic	Beam diagnostic consisting of three to five titanium strips at different azimuthal locations around a cylindrical target; used to measure the azimuthal symmetry and vertical focus of the ion beam
TL	Transmission Line
TLD	Thermoluminescent dosimeter: $\text{CaF}_2\text{:Mn}$ chip used as a radiation detector for measuring bremsstrahlung in a pulsed power accelerator
TOF	Time Of Flight: diagnostic to measure the time history of beam-produced neutrons or of DD or DT neutrons
TPX	Poly-4-methyl-pentene, CH_2 foam: low density foam used in light ion ICF hohlraums
transmission grating spectrograph	Diagnostic designed by SNL that disperses the x-ray spectrum onto photoconducting detectors
TRIDIF	Magnetic diffusion code using a triangular mesh that was developed at SNL in the 1970s by John Freeman to calculate time-dependent magnetic fields in two dimensions; uses either rectangular or cylindrical coordinates and can accurately treat slanted surfaces; not used as much now because of the difficulty in setting up the problem geometry compared to the ATHETA and DATHETA codes
TRXPC	Time-resolved x-ray pinhole camera: camera for obtaining time-resolved images of soft x-ray emission from an ion-beam-driven target in the 100 to 900 eV spectral range
TWOQUICK	Two-dimensional, fully-relativistic, electromagnetic, particle-in-cell simulation code developed at SNL for ion diode design and modeling; also used to model MITLs and POSs
two-stage diode	Extension to one-stage diode in which a third electrode is placed between the normal cathode and anode, thereby creating two acceleration gaps, with the beam injected from the first stage determining the current in the second stage; diode concept for a proposed light ion LMF that was tested, in 1994, on PBFA II
two-stream instability	Plasma electron/beam ion instability that causes longitudinal bunching of the ion beam; this classical plasma instability is affected by axial velocity spread and collision frequency
unfold method	Method to correct time response of diagnostics and associated cables
V^*	Limiting diode voltage at which the ion current diverges
V_{crit}	Voltage parameter defining the degree of magnetic insulation of electrons in an applied-B ion diode: $V_{\text{crit}} = cB_0d$, where B_0 is the gap field before the power pulse arrives and d is the initial (full) A-K gap; voltage below which the effective gap will go to zero

VIDA	Visual Ion Beam Diagnostics Analyzer
virtual cathode	Sheath region above the solid cathode surface of an applied-B diode that is filled with electrons
VUV	Vacuum ultraviolet portion of electromagnetic spectrum
wall-confined transport	See channel transport
wall plug efficiency	Efficiency of converting energy from the electrical power grid into ion beam energy; typically about 15% for ion beams
wire-guided transport	Transport scheme using the magnetic field of a current-carrying wire to confine an ion beam
XRD	X-Ray Diode: diagnostic based on the emission and collection of secondary photoelectrons; used to measure target temperature from blackbody emission in the 0.03 to 1 keV spectral range and to measure the x-ray power and yield from sources such as z pinches
XUV illumination	Illumination of a surface by light in the x-ray to ultraviolet range of the spectrum
Z_{flow}	Flow impedance: measure of how far an electron-charged cloud is from the anode of an MITL, given by the equation $V/(I_a^2 - I_c^2)^{1/2}$, with I_a and I_c the anode and cathode line currents, respectively, and V the voltage across the MITL; for a cathode that is a space-charge-limited emitter, flow impedance cannot be above the vacuum impedance of the transmission line
zinger	Location in a transmission line at which electron loss occurs because of a magnetic null; the location is characterized by the spalling of metal
z pinch load	Load that operates by sudden application of voltage to the ends of a plasma column, causing current to flow axially in the plasma

Meetings at Which Presentations Were Given

1989

American Association for Advancement of Science
Annual Meeting,
San Francisco, CA, *January 14-19, 1989*

Ninth Topical Conference on
High-Temperature Plasma Diagnostics,
Santa Fe, NM, *March 15-19, 1989*

Particle Accelerator Conference,
Chicago, IL, *March 20-23, 1989*

Conference on Lasers and Electro-Optics,
Baltimore, MD, *April 24-28, 1989*

16th IEEE International Conf. on Plasma Science,
Buffalo, NY, *May 22-24, 1989*

Fusion Power Associates Annual Meeting,
Washington, D. C., *June 1-2, 1989*

Defense Nuclear Agency Instrumentation for
Nuclear Weapons Effects Testing Conference,
Monterey, CA, *June 5-8, 1989*

Seventh IEEE Pulsed Power Conference,
Monterey, CA, *June 11-14, 1989*

International Workshop on Physics and Techniques
of High Power Opening Switches,
Novosibirsk, USSR, *July 1-2, 1989*

International Conference on Ion Sources,
Berkeley, CA, *July 10-14, 1989*

Sixth Plasma Opening Switch Workshop,
Albuquerque, NM, *August 24-25, 1989*

13th Conf. on Numerical Simulation of Plasmas,
Santa Fe, NM, *September 17-20, 1989*

Annual Meeting, New Mexico Academy of Science,
Albuquerque, NM, *September 22-23, 1989*

Fourth International Workshop on
Desorption Induced by Electronic Transitions,
Austria, *October 2-4, 1989*

Seventh American Physical Society Topical Conf on
Atomic Processes in Plasmas,
Gaithersburg, MD, *October 2-5, 1989*

National Academy of Sciences Review of ICF,
Univ. Rochester, NY, *October 23-25, 1989*

Ninth International Workshop on Laser Interaction
and Related Plasma Phenomena,
Monterey, CA, *November 6-8, 1989*

American Physical Society
Division of Plasma Physics Meeting,
Anaheim, CA, *November 13-17, 1989*

International Conference on Lasers 1989,
New Orleans, LA, *December 3-8, 1989*

1990

LMF Design Concept Review, DOE Headquarters,
Germantown, MD, *January 16-19, 1990*

Conference on Computer Codes
and the Linear Accelerator Community,
Los Alamos, NM, *January 22-25, 1990*

Fifth International Workshop on
Atomic Physics for Ion Driven Fusion,
Schliersee, Germany, *Jan 29-Feb 2, 1990*

Topical Conference on Research Trends in
Nonlinear and Relativistic Effects in Plasmas,
La Jolla, CA, *February 5-8, 1990*

American Physical Society Spring Meeting,
Washington, D.C., *April 16-19, 1990*

Seventh Plasma Opening Switch Workshop,
Albuquerque, NM, *April 24-25, 1990*

Eighth Topical Conference on
High-Temperature Plasma Diagnostics,
Hyannis, MA, *May 6-10, 1990*

National U.S. Decus Symposium,
New Orleans, LA, *May 7-11, 1990*

The Lightning Environmental Working Group,
Albuquerque, NM, *May 16, 1990*

17th IEEE International Conf. on Plasma Science,
Oakland, CA, *May 21-23, 1990*

Symposium on Optoelectronics for
Conventional and Nuclear Weapons,
Albuquerque, NM, *June 5-7, 1990*

19th IEEE Power Modulator Symposium,
San Diego, CA, *June 26-28, 1990*

Eighth International Conf. on
High-Power Particle Beams,
Novosibirsk, USSR, *July 2-5, 1990*

Defense Nuclear Agency
Advanced Pulsed Power Conference,
Albuquerque, NM, *July 31-August 3, 1990*

Europhysics Conference on Computational Physics,
Amsterdam, Netherlands, *Sept 10-13, 1990*

1990 Linear Accelerator Conference,
Albuquerque, NM, *September 10-14, 1990*

XIVth International Symposium on
Discharges and Electrical Insulation in Vacuum,
Santa Fe, NM, *September 17-20, 1990*

13th International Conference on
Plasma Physics and Controlled Nuclear Fusion,
Washington, D.C., *October 1-6, 1990*

Ninth Topical Meeting on
Technology of Fusion Energy,
Oak Brook, IL, *October 7-11, 1990*

SPIE Optically Activated Switching Conference,
Boston, MA, *November 5-6, 1990*

Third International Conference on
Intense Ion-Beam Interactions with Matter,
Albuquerque, NM, *November 7-8, 1990*

American Physical Society
Division of Plasma Physics Meeting,
Cincinnati, OH, *November 12-16, 1990*

Ninth Biennial CUBE Symposium,
Santa Fe, NM, *November 27-30, 1990*

1991

Physics of High Energy Density in Matter
Hirschegg, Austria, *February 3-9, 1991*

International Conference on Research Trends in
Inertial Confinement Fusion,
La Jolla, CA, *February 4-6, 1991*

Topical Mtg on Soft X-Ray Projection Lithography,
Monterey, CA, *April 10-12, 1991*

International Atomic Energy Agency Workshop on
Inertial Confinement Fusion Drivers,
Osaka, Japan, *April 15-19, 1991*

Particle Accelerator Conference,
San Francisco, CA, *May 6-9, 1991*

18th IEEE International Conf on Plasma Science,
Williamsburg, VA, *June 3-5, 1991*

Physics Computing '91 Conference,
San Jose, CA, *June 10-14, 1991*

Eighth IEEE Pulsed Power Conference,
San Diego, CA, *June 17-19, 1991*

Diagnostics for Contemporary Fusion Experiments
Course and Workshop,
Varenna, Italy, *August 27-September 6, 1991*

14th Intl Conf on Numerical Simulation of Plasmas,
Annapolis, MD, *September 3-6, 1991*

ILS-08 Interdisciplinary Laser Science Conference,
Monterey, CA, *September 22-26, 1991*

Eighth Target Fabrication Specialists' Meeting,
Albuquerque, NM, *September 23-26, 1991*

Magnetic Target Fusion Workshop,
Albuquerque, NM, *September 27, 1991*

Sixth Photonics Workshop,
Santa Barbara, CA, *October 2-4, 1991*

44th Annual Gaseous Electronics Conference,
Albuquerque, NM, *October 22-25, 1991*

American Physical Society
Division of Plasma Physics Meeting,
Tampa, FL, *November 4-8, 1991*

1992

Ninth International Workshop on
Laser Interaction and Related Plasma Phenomena,
Los Angeles, CA, *January 20-21, 1992*

Soft X-Rays in the 21st Century Conference,
Provo, Utah, *February 10-13, 1992*

Ninth Topical Conf on
High-Temperature Plasma Diagnostics,
Santa Fe, NM, *March 15-19, 1992*

Fusion Power Assoc. Annual Mtg and Symposium,
Pleasanton, CA, *April 9-10, 1992*

American Physical Society Spring Meeting,
Washington, D.C., *April 20-24, 1992*

Topical Mtg on
Electrical Performance of Electronic Packaging,
Tucson, AZ, *April 22-24, 1992*

MacNeal-Schwendler Corporation
1992 World User's Conference,
Dearborn, MI, *May 18-22, 1992*

Ninth International Conf on
High Power Particle Beams,
Washington, D.C., *May 25-29, 1992*

19th IEEE International Conf on Plasma Science,
Tampa, FL, *June 1-3, 1992*

Tenth Topical Mtg on Technology of Fusion Energy,
Boston, MA, *June 7-12, 1992*

20th IEEE Power Modulator Symposium,
Myrtle Beach, S.C., *June 23-25, 1992*

Fifth Strategic Defense Initiative Office/
Office of Naval Research Pulsed Power Meeting,
College Park, MD, *August 17-19, 1992*

Inter-Lab Magnetic Target Fusion Workshop,
Los Alamos, NM, *September 21, 1992*

European Research Conference on Nuclear Physics,
Aghia Pelaghia, Crete, *Sept 27-Oct 1, 1992*

14th International Conference on
Plasma Physics and Controlled Nuclear Fusion,
Wuerzburg, Germany, *Sept 30-Oct 7, 1992*

Russian-U.S. Technology Exchange in
Computations and Computer Science,
Livermore, CA, *October 19, 1992*

Tenth Biennial CUBE Symposium,
Pleasanton, CA, *October 27-30, 1992*

American Physical Society
Division of Plasma Physics Meeting,
Seattle, WA, *November 16-20, 1992*

International Conference on Lasers 1992,
Houston, TX, *December 7-10, 1992*

1993

Conference on Biomedical Optics,
Los Angeles, CA, *January 16-22, 1993*

Workshop on
Dynamic Response of Materials to Pulsed Heating,
Los Alamos, NM, *January 22-26, 1993*

Physics of High Energy Density in Matter,
Hirschegg, Austria, *Jan 31-Feb 5, 1993*

Topical Mtg on Soft X-Ray Projection Lithography,
Monterey, CA, *May 10-12, 1993*

1993 Particle Accelerator Conference,
Washington, D.C., *May 17-20, 1993*

Sixth Intl Symposium on Heavy Ion Fusion,
Frascati, Italy, *May 25-28, 1993*

20th IEEE International Conf on Plasma Science,
Vancouver, B.C., *June 7-9, 1993*

Ninth IEEE Pulsed Power Conference,
Albuquerque, NM, *June 21-23, 1993*

Joint AIRPT/APS Conference on
High Pressure Science and Technology,
Colorado Springs, CO, *June 28-July 2, 1993*

SPIE International Symposium on
Optical Instrumentation and Applied Science,
San Diego, CA, *July 11-16, 1993*

Ninth American Physical Society Topical Conf on
Atomic Processes in Plasmas,
San Antonio, TX, *September 19-23, 1993*

Seventh International Conference on
Emerging Nuclear Energy Systems,
Makuhari, Chiba, Japan, *September 20-24, 1993*

European Research Conference on
Prospects for Heavy Ion Inertial Fusion,
Aghia Pelaghia, Crete, *Sept 23-Oct 1, 1993*

Symposium on Near-Term Applications of
Fusion and Plasma Technology,
Oak Ridge, TN, *October 5-7, 1993*

1993 Workshop on
Status of ICF Research Programmes and
Conceptual ICF Reactor Studies,
KfK, Karlsruhe, Germany, *October 18-20, 1993*

11th International Conference on
Laser Interaction and Related Plasma Phenomena,
Monterey, CA, *October 25-29, 1993*

American Physical Society
Division of Plasma Physics Meeting,
St. Louis, MO, *November 1-5, 1993*

Sixth International Workshop on
Atomic Physics for Ion-Driven Fusion,
Santa Fe, NM, *November 8-12, 1993*

Topical Index, Arranged Chronologically

A. Reviews

J. P. VanDevender, "Light Ion Driven ICF," American Association for Advancement of Science Annual Meeting, San Francisco, CA, January 14-19, 1989 (invited talk).

J. P. Quintenz, J. E. Bailey, K. W. Bieg, D. D. Bloomquist, D. L. Cook, J. T. Crow, R. S. Coats, M. S. Derzon, M. P. Desjarlais, P. L. Dreike, R. A. Gerber, T. W. Hussey, D. J. Johnson, W. A. Johnson, R. P. Kensek, G. W. Kuswa, J. R. Lee, R. J. Leeper, T. R. Lockner, J. E. Maenchen, D. H. McDaniel, P. F. McKay, T. A. Mehlhorn, C. W. Mendel, Jr., L. P. Mix, E. L. Neau, C. L. Olson, T. D. Pointon, A. L. Pregonzer, T. J. Renk, G. E. Rochau, S. E. Rosenthal, C. L. Ruiz, L. X. Schneider, S. A. Slutz, R. W. Stinnett, W. A. Stygar, M. A. Sweeney, G. C. Tisone, B. N. Turman, J. P. VanDevender, J. R. Woodworth, "Status of the PBFA-II Light Ion Beam Fusion Program," Particle Accelerator Conference, Chicago, IL, March 20-23, 1989 (invited talk).

J. P. VanDevender, J. E. Bailey, K. W. Bieg, D. L. Cook, M. P. Desjarlais, R. A. Gerber, S. A. Goldstein, R. A. Hamil, G. T. Holman, D. J. Johnson, D. L. Johnson, P. R. Johnson, W. A. Johnson, R. J. Leeper, T. R. Lockner, T. H. Martin, P. F. McKay, J. E. Maenchen, D. H. McDaniel, T. A. Mehlhorn, C. W. Mendel, Jr., W. B. S. Moore, E. L. Neau, S. S. Payne, K. J. Penn, J. W. Poukey, A. L. Pregonzer, K. R. Prestwich, J. P. Quintenz, J. J. Ramirez, T. J. Renk, C. L. Ruiz, G. E. Rochau, S. E. Rosenthal, W. W. Simpson, S. A. Slutz, R. W. Stinnett, W. A. Stygar, M. A. Sweeney, J. T. Crow, B. N. Turman, J. M. Wilson, J. R. Woodworth, D. M. Zagar, "Progress Towards Inertial Fusion with Light Ion Beams at Sandia National Laboratories," *12th Conference Proceedings, Plasma Physics and Controlled Nuclear Fusion Research 1988* (IAEA, Vienna, 1989), vol. 3, p. 99 (invited paper).

J. P. Quintenz, J. E. Bailey, K. W. Bieg, D. D. Bloomquist, D. L. Cook, J. T. Crow, R. S. Coats, M. S. Derzon, M. P. Desjarlais, P. L. Dreike, R. A. Gerber, T. W. Hussey, D. J. Johnson, W. A. Johnson, R. P. Kensek, G. W. Kuswa, J. R. Lee, R. J. Leeper, T. R. Lockner, J. E. Maenchen, D. H. McDaniel, P. F. McKay, T. A. Mehlhorn, C. W. Mendel, L. P. Mix, E. L. Neau, C. L. Olson, T. D. Pointon, A. L. Pregonzer, W. A. Stygar, M. A. Sweeney, G. C. Tisone, B. N. Turman, J. P. VanDevender, J. R. Woodworth, "Status of the PBFA-II Light Ion Beam Fusion Program," *Proceedings 1989 IEEE Particle Accelerator Conference*, ed. by F. Bennett and J. Kopta (IEEE, New York, 1989), vol. 2, p. 752 (invited paper).

R. W. Stinnett, T. R. Lockner, D. J. Johnson, R. S. Coats, T. A. Mehlhorn, M. P. Desjarlais, K. W. Bieg, A. L. Pregonzer, J. R. Woodworth, R. J. Leeper, J. E. Maenchen, C. L. Ruiz, W. A. Stygar, J. E. Bailey, R. P. Kensek, J. P. Quintenz, S. E. Rosenthal, S. A. Slutz, D. L. Hanson, P. F. McKay, "Progress in Ion Beam Research at Sandia National Laboratories," 16th IEEE International Conference on Plasma Science, Buffalo, NY, May 22-24, 1989 (invited talk).

J. P. VanDevender, "Status of Light Ion Approach to Inertial Confinement Fusion," Fusion Power Associates Annual Meeting, Washington, D. C., June 1-2, 1989 (invited talk).

K. R. Prestwich, "Erwin Marx Lecture," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989 (invited talk).

J. P. VanDevender, "Pulsed Power Switching for Inertial Confinement Fusion with Light Ion Beams," International Workshop on Physics and Techniques of High Power Opening Switches, Novosibirsk, USSR, July 1-2, 1989 (invited talk).

J. P. VanDevender, "Pulsed Power Switching for Inertial Confinement Fusion with Light Ion Beams," *Proceedings International Workshop on Physics and Techniques of High Power Opening Switches*, ed. by V. Bystritski (Tomsk Institute of High Current Electronics, Tomsk, USSR, 1989), p. 77 (invited paper).

J. J. Ramirez, "Light Ion Beam Drivers for ICF," Ninth International Workshop on Laser Interaction and Related Plasma Phenomena, Monterey, CA, November 6-8, 1989.

D. L. Cook, J. E. Bailey, K. W. Bieg, D. D. Bloomquist, R. S. Coats, G. A. Chandler, M. E. Cuneo, M. S. Derzon, M. P. Desjarlais, P. L. Dreike, R. J. Dukart, R. A. Gerber, D. J. Johnson, R. J. Leeper, T. R. Lockner, D. H. McDaniel, J. E. Maenchen, M. K. Matzen, T. A. Mehlhorn, L. P. Mix, A. R. Moats, W. E. Nelson, T. D. Pointon, A. L. Pregoner, J. P. Quintenz, T. J. Renk, S. E. Rosenthal, C. L. Ruiz, S. A. Slutz, R. W. Stinnett, W. A. Stygar, G. C. Tisone, J. R. Woodworth, J. P. VanDevender, "Inertial Confinement Fusion Using Light Ion Beams," Topical Conference on Research Trends in Nonlinear and Relativistic Effects in Plasmas, La Jolla, CA, February 5-8, 1990.

J. P. VanDevender, "Physics and Applications of Pulsed Power Research and Accelerator Technology," 17th IEEE International Conference on Plasma Science, Oakland, CA, May 21-23, 1990 (invited talk).

D. L. Cook, "Pulsed Power Technologies for Fusion Research on PBFA II and Beyond," Advanced Pulsed Power Conference, Albuquerque, NM, July 31-August 3, 1990 (invited talk).

J. P. VanDevender, "Research Requirements for Pulsed Power Applications," XIVth International Symposium on Discharges and Electrical Insulation in Vacuum, Santa Fe, NM, September 17-20, 1990 (invited talk).

J. P. VanDevender, "Research Requirements for Pulsed Power Applications," *Proceedings XIVth International Symposium on Discharges and Electrical Insulation in Vacuum*, Sandia National Laboratories Report No. SAND90-1927C (Albuquerque, NM, September 1990), p. 644 (invited paper).

J. P. VanDevender, R. G. Adams, G. O. Allshouse, J. E. Bailey, K. W. Bieg, D. D. Bloomquist, R. S. Coats, D. L. Cook, G. E. Chandler, M. E. Cuneo, M. S. Derzon, M. P. Desjarlais, P. L. Dreike, R. A. Gerber, D. L. Hanson, W. A. Johnson, G. W. Kuswa, J. R. Lee, R. J. Leeper, T. R. Lockner, J. E. Maenchen, M. K. Matzen, D. H. McDaniel, P. F. McKay, T. A. Mehlhorn, C. W. Mendel, L. P. Mix, C. L. Olson, R. E. Olson, T. D. Pointon, A. L. Pregoner, K. R. Prestwich, J. P. Quintenz, J. J. Ramirez, T. J. Renk, J. K. Rice, G. E. Rochau, S. E. Rosenthal, C. L. Ruiz, D. B. Seidel, S. A. Slutz, R. W. Stinnett, W. A. Stygar, M. A. Sweeney, G. C. Tisone, J. R. Woodworth, "Inertial Confinement Fusion with Light Ion Beams," 13th International Conference on Plasma Physics and Controlled Nuclear Fusion Research, Washington, D.C., October 1-6, 1990.

G. W. Kuswa, "Workshop Session Summary," Third International Conference on Intense Ion-Beam Interactions with Matter, Albuquerque, NM, November 7-8, 1990.

D. L. Cook, panel member, "Forum: National Academy of Sciences Reviews of Plasma Science and ICF," American Physical Society Division of Plasma Physics Meeting, Cincinnati, OH, November 12-16, 1990.

T. A. Mehlhorn, "Progress in Ion-Driven ICF at Sandia National Laboratories," Conference on High Energy Density in Matter, Hirschegg, Klein-Walsertal, Austria, February 3-9, 1991.

J. P. Quintenz, G. O. Allshouse, L. D. Bacon, J. E. Bailey, G. A. Chandler, R. S. Coats, D. L. Cook, M. E. Cuneo, M. S. Derzon, M. P. Desjarlais, P. L. Dreike, R. J. Dukart, R. A. Gerber, T. A. Haill, D. L. Hanson, T. W. Hussey, D. J. Johnson, N. A. Krall, R. J. Leeper, T. R. Lockner, J. E. Maenchen, M. K. Matzen, D. H. McDaniel, E. J. McGuire, P. F. McKay, T. A. Mehlhorn, C. W. Mendel, Jr., L. P. Mix, A. R. Moats, T. J. Nash, W. E. Nelson, C. L. Olson, R. E. Olson, T. D. Pointon, T. J. Renk, G. E. Rochau, P. D. Rockett, S. E. Rosenthal, C. L. Ruiz, M. E. Savage, D. B. Seidel, S. A. Slutz, R. W. Stinnett, W. A. Stygar, M. A. Sweeney, G. C. Tisone, J. P. VanDevender, J. R. Woodworth, "Progress in Light Ion Fusion," International Atomic Energy Agency Workshop on Inertial Confinement Fusion Drivers, Osaka, Japan, April 15-19, 1991 (invited talk).

J. J. Ramirez, D. L. Cook, J. K. Rice, M. K. Matzen, D. L. Johnson, J. D. Boyes, C. L. Olson, K. R. Prestwich, M. J. Clauser, T. A. Mehlhorn, R. W. Stinnett, G. O. Allshouse, G. L. Kulcinski, G. A. Moses, R. R. Peterson, R. L. Engelstad, "Intense Light Ion Beams Provide a Robust, Commercial Driver Path Towards Ignition, Gain, and Commercial Fusion Energy," International Atomic Energy Agency Workshop on Inertial Confinement Fusion Drivers, Osaka, Japan, April 15-19, 1991 (invited talk).

D. L. Cook, "Progress in Light Ion Fusion," Particle Accelerator Conference, San Francisco, CA, May 6-9, 1991 (invited talk).

J. P. VanDevender, "Plasma Physics Issues for Inertial Fusion with Light Ion Beams," 44th Annual Gaseous Electronics Conference, Albuquerque, NM, October 22-25, 1991 (invited talk).

D. L. Cook, "Progress in Light Ion Fusion," American Physical Society Division of Plasma Physics Meeting, Tampa, FL, November 4-8, 1991 (invited talk).

D. L. Cook, "Progress in Light Ion Fusion," *Conference Record of the 1991 IEEE Particle Accelerator Conference* (IEEE, New York, 1991), vol. 1, p. 557 (invited paper).

J. P. VanDevender, R. G. Adams, G. O. Allshouse, J. E. Bailey, K. W. Bieg, D. D. Bloomquist, G. A. Chandler, R. S. Coats, D. L. Cook, M. E. Cuneo, M. S. Derzon, M. P. Desjarlais, P. L. Dreike, R. A. Gerber, D. L. Hanson, D. R. Humphreys, T. W. Hussey, D. J. Johnson, D. L. Johnson, W. A. Johnson, G. W. Kuswa, J. R. Lee, R. J. Leeper, T. R. Lockner, J. E. Maenchen, M. K. Matzen, D. H. McDaniel, P. F. McKay, T. A. Mehlhorn, C. W. Mendel, L. P. Mix, C. L. Olson, R. E. Olson, T. D. Pointon, A. L. Pregoner, K. R. Prestwich, J. P. Quintenz, J. J. Ramirez, T. J. Renk, J. K. Rice, G. E. Rochau, S. E. Rosenthal, C. L. Ruiz, D. B. Seidel, S. A. Slutz, R. W. Stinnett, W. A. Stygar, M. A. Sweeney, G. C. Tisone, J. R. Woodworth, "Inertial Confinement Fusion with Light Ion Beams," *13th Conference Proceedings, Plasma Physics and Controlled Nuclear Fusion Research 1990* (IAEA, Vienna, 1991), vol. 3, p. 3 (invited paper).

J. P. Quintenz, G. O. Allshouse, L. D. Bacon, J. E. Bailey, G. A. Chandler, R. S. Coats, D. L. Cook, M. E. Cuneo, M. S. Derzon, M. P. Desjarlais, P. L. Dreike, R. J. Dukart, R. A. Gerber, T. A. Haill, D. L. Hanson, T. W. Hussey, D. J. Johnson, N. A. Krall, R. J. Leeper, T. R. Lockner, J. E. Maenchen, M. K. Matzen, D. H. McDaniel, E. J. McGuire, P. F. McKay, T. A. Mehlhorn, C. W. Mendel, Jr., L. P. Mix, A. R. Moats, T. J. Nash, W. E. Nelson, C. L. Olson, R. E. Olson, T. D. Pointon, T. J. Renk, G. E. Rochau, P. D. Rockett, S. E. Rosenthal, C. L. Ruiz, M. E. Savage, D. B. Seidel, S. A. Slutz, R. W. Stinnett, W. A. Stygar, M. A. Sweeney, G. C. Tisone, J. P. VanDevender, J. R. Woodworth, "Progress in Light Ion Fusion," *Proceedings of International Atomic Energy Agency Workshop on Inertial Confinement Fusion Drivers* (IAEA, Vienna, 1992), p. 67 (invited paper).

D. L. Cook, "Future Directions in Pulsed Power Driven Inertial Confinement Fusion," Fusion Power Associates Annual Meeting and Symposium, Pleasanton, CA, April 9-10, 1992.

J. P. Quintenz, "Advances in Light Ion Fusion Research," American Physical Society Spring Meeting, Washington, D.C., April 20-24, 1992.

J. P. VanDevender, editor, "Prolog to the Special Section on Pulsed Power Technology," *Proceedings IEEE* 80, 931 (1992).

D. L. Cook, "Results from PBFA II," Tenth Topical Meeting on the Technology of Fusion Energy, Boston, MA, June 7-12, 1992.

D. L. Cook, "Results from PBFA II," *Fusion Technology* 21, 1358 (1992).

D. L. Cook, J. E. Bailey, K. W. Bieg, D. D. Bloomquist, R. S. Coats, G. A. Chandler, M. E. Cuneo, M. S. Derzon, M. P. Desjarlais, P. L. Dreike, R. J. Dukart, R. A. Gerber, D. J. Johnson, R. J. Leeper, T. R. Lockner, D. H. McDaniel, J. E. Maenchen, M. K. Matzen, T. A. Mehlhorn, L. P. Mix, A. R. Moats, W. E. Nelson, T. D. Pointon, A. L. Pregoner, J. P. Quintenz, T. J. Renk, S. E. Rosenthal, C. L. Ruiz, S. A. Slutz, R. W. Stinnett, W. A. Stygar, G. C. Tisone, J. R. Woodworth, J. P. VanDevender, "Inertial Confinement Fusion Using Light Ion Beams," *Proceedings Topical Conference on Research Trends in Nonlinear and Relativistic Effects in Plasmas*, ed. by V. Stefan (American Institute of Physics Press, New York, 1992), p. 7.

D. L. Cook, "Light Ion Fusion," European Research Conference on Nuclear Physics, Aghia Pelaghia, Crete, September 27-October 1, 1992.

D. L. Cook, R. G. Adams, J. H. Aubert, L. D. Bacon, J. E. Bailey, D. D. Bloomquist, J. D. Boyes, G. A. Chandler, R. S. Coats, J. P. Corley, J. T. Crow, M. E. Cuneo, D. K. Derzon, M. S. Derzon, M. P. Desjarlais, R. J. Dukart, D. L. Fehl, A. B. Filuk, R. A. Gerber, T. A. Haill, D. L. Hanson, D. R. Humphries, T. W. Hussey, H. L. Ives, D. J. Johnson, D. L. Johnson, R. J. Leeper, R. W. Lemke, T. R. Lockner, J. E. Maenchen, M. K. Matzen, D. H. McDaniel, P. F. McKay, E. J. McGuire, T. A. Mehlhorn, C. W. Mendel, L. P. Mix, W. E. Nelson, C. L. Olson, T. D. Pointon, J. W. Poukey, J. P. Quintenz, J. J. Ramirez, T. J. Renk, G. E. Rochau, P. D. Rockett, S. E. Rosenthal, D. C. Rovang, C. L. Ruiz, H. R. Schmitt, D. B. Seidel, S. A. Slutz, R. W. Stinnett, W. A. Stygar, M. A. Sweeney, G. C. Tisone, J. P. VanDevender, "Light Ion Driven Inertial Confinement Fusion," 14th International Conference on Plasma Physics and Controlled Nuclear Fusion Research, Wuerzburg, Germany, September 30-October 7, 1992 (invited paper).

D. L. Cook, R. G. Adams, J. H. Aubert, L. D. Bacon, J. E. Bailey, D. D. Bloomquist, J. D. Boyes, G. A. Chandler, R. S. Coats, J. P. Corley, J. T. Crow, M. E. Cuneo, D. K. Derzon, M. S. Derzon, M. P. Desjarlais, R. J. Dukart, D. L. Fehl, A. B. Filuk, R. A. Gerber, T. A. Haill, D. L. Hanson, D. R. Humphries, T. W. Hussey, H. L. Ives, D. J. Johnson, D. L. Johnson, R. J. Leeper, R. W. Lemke, T. R. Lockner, J. E. Maenchen, M. K. Matzen, D. H. McDaniel, P. F. McKay, E. J. McGuire, T. A. Mehlhorn, C. W. Mendel, L. P. Mix, W. E. Nelson, C. L. Olson, T. D. Pointon, J. W. Poukey, J. P. Quintenz, J. J. Ramirez, T. J. Renk, G. E. Rochau, P. D. Rockett, S. E. Rosenthal, D. C. Rovang, C. L. Ruiz, H. R. Schmitt, D. B. Seidel, S. A. Slutz, R. W. Stinnett, W. A. Stygar, M. A. Sweeney, G. C. Tisone, J. P. VanDevender, "Light Ion Driven Inertial Confinement Fusion," *14th Conference Proceedings, Plasma Physics and Controlled Nuclear Fusion Research 1992* (IAEA, Vienna, 1993), vol. 3, p. 63 (invited paper).

G. W. Kuswa, "Workshop Session Summary," *Proceedings Third International Conference on Intense Ion-Beam Interactions with Matter* (Sandia National Laboratories, Albuquerque, NM, March 1993), p. 95.

D. L. Cook, "Light Ion Fusion Experiments at Sandia," Sixth International Symposium on Heavy Ion Fusion, Frascati, Italy, May 25-28, 1993.

R. E. Olson, G. O. Allshouse, D. L. Cook, T. R. Lockner, M. G. Mazarakis, C. L. Olson, D. L. Smith, R. R. Peterson, D. Adler, D. Bruggink, R. L. Engelstad, H. Y. Khater, G. L. Kulcinski, E. G. Lovell, J. J. MacFarlane, E. A. Mogahed, G. A. Moses, S. Rutledge, M. E. Sawan, I. N. Sviatoslavsky, P. Wang, L. J. Wittenberg, "Light Ion Beam Approach to ICF Ignition, Gain, and Energy Production," Seventh International Conference on Emerging Nuclear Energy Systems, Makuhari, Chiba, Japan, September 20-24, 1993.

M. A. Sweeney, "Comparative Assessment Study of Aboveground Intense Soft X-Ray Technology," report to Roger Hagengruber, dated October 14, 1993.

J. P. Quintenz, "The Sandia Light Ion Approach to the Laboratory Microfusion Facility (LMF)," 1993 Workshop on Status of ICF Research Programmes and Conceptual ICF Reactor Studies, Kernforschungszentrum Karlsruhe, Karlsruhe, Germany, October 18-20, 1993 (invited talk).

J. P. Quintenz, R. G. Adams, L. D. Bacon, J. E. Bailey, D. D. Bloomquist, G. A. Chandler, R. S. Coats, D. L. Cook, M. E. Cuneo, M. S. Derzon, M. P. Desjarlais, R. J. Dukart, A. B. Filuk, R. A. Gerber, T. A. Haill, D. J. Johnson, M. L. Kiefer, R. J. Leeper, T. R. Lockner, M. K. Matzen, E. J. McGuire, T. A. Mehlhorn, C. W. Mendel, L. P. Mix, C. L. Olson, R. E. Olson, T. D. Pointon, T. J. Renk, G. E. Rochau, S. E. Rosenthal, C. L. Ruiz, D. B. Seidel, S. A. Slutz, R. W. Stinnett, W. A. Stygar, M. A. Sweeney, G. C. Tisone, "Light Ion Beam ICF Program Overview," 11th International Conference on Laser Interaction and Related Plasma Phenomena, Monterey, CA, October 25-29, 1993.

J. J. Ramirez, D. L. Cook, J. K. Rice, M. K. Matzen, D. L. Johnson, J. D. Boyes, C. L. Olson, K. R. Prestwich, M. J. Clauser, T. A. Mehlhorn, R. W. Stinnett, G. O. Allshouse, G. L. Kulcinski, G. A. Moses, R. R. Peterson, R. L. Engelstad, "Intense Light Ion Beams Provide a Robust, Commercial Driver Path Towards Ignition, Gain, and Commercial Fusion Energy," *Laser and Particle Beams* **11**, 423 (1993) (invited paper).

J. P. VanDevender, H. J. Bluhm, "Light Ion Accelerators for ICF," in *Nuclear Fusion by Inertial Confinement: A Comprehensive Treatise*, ed. by G. Verlarde, Y. Ronen, J. M. Martinez (CRC Press, Ann Arbor, MI, 1993), p. 455.

J. P. Quintenz, R. G. Adams, G. O. Allshouse, L. D. Bacon, J. E. Bailey, D. D. Bloomquist, G. A. Chandler, R. S. Coats, D. L. Cook, M. E. Cuneo, M. S. Derzon, M. P. Desjarlais, R. J. Dukart, A. B. Filuk, R. A. Gerber, T. A. Haill, D. J. Johnson, M. L. Kiefer, R. J. Leeper, T. R. Lockner, M. K. Matzen, E. J. McGuire, T. A. Mehlhorn, C. W. Mendel, L. P. Mix, A. R. Moats, C. L. Olson, R. E. Olson, T. D. Pointon, T. J. Renk, G. E. Rochau, S. E. Rosenthal, C. L. Ruiz, D. B. Seidel, S. A. Slutz, R. W. Stinnett, W. A. Stygar, M. A. Sweeney, G. C. Tisone, "Light Ion Beam ICF Overview," Sixth International Workshop on Atomic Physics for Ion-Driven Fusion, Santa Fe, NM, November 8-12, 1993.

B. Ion Sources

T. D. Raymond, C. Reiser, R. G. Adams, R. B. Mitchie, "Pulse-Train Amplification in KrF," Conference on Lasers and Electro-Optics (CLEO '89), Baltimore, MD, April 24-28, 1989.

G. C. Tisone, M. J. Hurst, B. F. Clark, "A 100-Joule, Tuned Laser for Ionization of Lithium in a PBFA-II Ion Source," 1989 Conference on Lasers and Electro-Optics, Baltimore, MD, April 24-28, 1989.

K. W. Bieg, G. C. Tisone, J. E. Bailey, R. A. Hamil, "Design of a Laser-Produced Lithium Anode Plasma Experiment on the HELIA Extraction Ion Diode," 16th IEEE International Conference on Plasma Science, Buffalo, NY, May 22-24, 1989.

P. L. Dreike, G. C. Tisone, D. B. Appel, F. P. Gerstle, K. P. Lamppa, D. M. Mattox, H. L. McCollister, R. H. Moore, T. J. Renk, "Development of the Boil Off Lithium Vapor Source (BOLVAPS)-Laser Ionization Based on Resonant Saturation (LIBORS) Lithium Ion Source for the PBFA-II Accelerator," 16th IEEE International Conference on Plasma Science, Buffalo, NY, May 22-24, 1989.

T. J. Renk, R. R. Johnston, P. L. Dreike, G. C. Tisone, J. E. Maenchen, "BOLVAPS/LIBORS Experiments on PBFA II," 16th IEEE International Conference on Plasma Science, Buffalo, NY, May 22-24, 1989.

J. R. Woodworth, A. L. Pregonzer, K. W. Bieg, T. R. Lockner, R. A. Gerber, D. J. Johnson, R. J. Leeper, J. E. Maenchen, T. A. Mehlhorn, C. L. Ruiz, W. A. Stygar, R. P. Kensek, W. H. Jaramillo, P. R. Johnson, K. J. Penn, M. Halliburton, "Lithium Ion Beam Experiments on PBFA II," 16th IEEE International Conference on Plasma Science, Buffalo, NY, May 22-24, 1989.

T. A. Green, M. E. Riley, P. M. Richards, G. M. Loubriel, D. R. Jennison, R. T. Williams, "Auger-Induced Valence Processes in Alkali Halides Following Alkali Core-Hole Creation," *Physical Review B* **39**, 5407 (1989).

T. W. Hussey, S. A. Slutz, M. P. Desjarlais, "MHD Calculations of Anode Plasmas," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.

K. W. Bieg, A. L. Pregonzer, J. R. Woodworth, T. R. Lockner, D. J. Johnson, R. A. Gerber, J. E. Bailey, R. P. Kensek, R. J. Leeper, J. E. Maenchen, T. A. Mehlhorn, R. E. Olson, C. L. Ruiz, W. A. Stygar, "Lithium Fluoride Ion Source Experiments on the Particle Beam Fusion Accelerator II," International Conference on Ion Sources, Berkeley, CA, July 10-14, 1989.

P. L. Dreike, D. B. Appel, J. S. Cap, F. P. Gerstle, K. P. Lamppa, D. M. Mattox, H. L. McCollister, R. H. Moore, M. K. Neilsen, C. R. Peebles, G. C. Tisone, "Development of the BOLVAPS Lithium Vapor Source for the PBFA-II Accelerator," International Conference on Ion Sources, Berkeley, CA, July 10-14, 1989.

- R. A. Gerber, K. W. Bieg, P. L. Dreike, P. F. McKay, A. L. Pregonzer, G. C. Tisone, J. R. Woodworth, "Ion Sources for Light Ion Fusion," International Conference on Ion Sources, Berkeley, CA, July 10-14, 1989 (invited talk).
- P. F. McKay, K. W. Bieg, R. E. Olson, A. L. Pregonzer, D. K. Wiemann, "Ion Production on the PI-110A Accelerator," International Conference on Ion Sources, Berkeley, CA, July 10-14, 1989.
- A. L. Pregonzer, "Electrohydrodynamically Driven, Large-Area Liquid Metal Ion Sources for Inertial Confinement Fusion," International Conference on Ion Sources, Berkeley, CA, July 10-14, 1989.
- G. C. Tisone, K. W. Bieg, P. L. Dreike, "Generation of Lithium Ions for Ion Sources Using the 670.8-nm Resonant Transition of Lithium," International Conference on Ion Sources, Berkeley, CA, July 10-14, 1989.
- J. A. Panitz, A. L. Pregonzer, R. A. Gerber, "Electrohydrodynamic Ion Emission from Molten Lithium-Nitrate," *Journal of Vacuum Science and Technology A* **7**, 64 (1989).
- R. A. Gerber, "Light-Ion Sources for Inertial Confinement Fusion," Chapter 18, in *The Physics and Technology of Ion Sources*, ed. by I. G. Brown (John Wiley & Sons, New York, 1989), p. 371.
- T. W. Hussey, S. A. Slutz, M. P. Desjarlais, "MHD Calculations of Anode Plasmas," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 959.
- T. A. Green, G. M. Loubriel, P. M. Richards, L. T. Hudson, P. M. Savundararaj, R. G. Albridge, A. V. Barnes, N. H. Tolk, "Hot Hole Diffusion in the Electron-Stimulated Desorption of Metal Atoms from Alkali Halides," Fourth International Workshop on Desorption Induced by Electronic Transitions (DIET IV), Vienna, Austria, October 2-4, 1989.
- B. A. Hoselton, J. R. Woodworth, W. H. Jaramillo, "Time-Resolved Density Measurements and Spectral Analysis of Resonant Laser-Produced Lithium Plasmas," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.
- A. L. Pregonzer, K. W. Bieg, T. R. Lockner, J. R. Woodworth, J. E. Bailey, R. S. Coats, M. P. Desjarlais, D. J. Johnson, R. J. Leeper, J. E. Maenchen, T. A. Mehlhorn, S. E. Rosenthal, C. L. Ruiz, W. A. Stygar, "Lithium Beam Experiments on PBFA II," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.
- J. R. Woodworth, A. L. Pregonzer, K. W. Bieg, T. R. Lockner, D. J. Johnson, R. A. Gerber, T. J. Renk, W. H. Jaramillo, "Liquid-Anode Ion Source Experiments on PBFA II," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.

R. A. Sierra, J. C. Hsia, G. C. Tisone, "Performance of a 100-MW Peak Power, 100-Joule Pulsed Dye Laser," International Conference on Lasers 1989, New Orleans, LA, December 3-8, 1989.

K. W. Bieg, A. L. Pregenzer, J. R. Woodworth, T. R. Lockner, D. J. Johnson, R. A. Gerber, J. E. Bailey, R. P. Kensek, R. J. Leeper, J. E. Maenchen, T. A. Mehlhorn, R. E. Olson, C. L. Ruiz, W. A. Stygar, "Lithium Fluoride Ion Source Experiments on the Particle Beam Fusion Accelerator II," *Review Scientific Instruments* 61, 556 (1990).

P. L. Dreike, D. B. Appel, J. S. Cap, F. P. Gerstle, K. P. Lamppa, D. M. Mattox, H. L. McCollister, R. H. Moore, M. K. Neilsen, C. R. Peebles, G. C. Tisone, "Development of the BOLVAPS Lithium Vapor Source for the PBFA-II Accelerator," *Review Scientific Instruments* 61, 532 (1990).

R. A. Gerber, K. W. Bieg, P. L. Dreike, P. F. McKay, A. L. Pregenzer, G. C. Tisone, J. R. Woodworth, "Ion Sources for Light Ion Fusion," *Review Scientific Instruments* 61, 511 (1990) (invited paper).

P. F. McKay, K. W. Bieg, R. E. Olson, A. L. Pregenzer, D. K. Wiemann, "Ion Production on the PI-110A Accelerator," *Review Scientific Instruments* 61, 559 (1990).

A. L. Pregenzer, "Electrohydrodynamically Driven, Large-Area Liquid Metal Ion Sources for Inertial Confinement Fusion," *Review Scientific Instruments* 61, 571 (1990).

G. C. Tisone, K. W. Bieg, P. L. Dreike, "Generation of Lithium Ions for Ion Sources Using the 670.8-nm Resonant Transition of Lithium," *Review Scientific Instruments* 61, 562 (1990).

A. L. Pregenzer, T. A. Mehlhorn, "Particle Simulations of Lithium Ion Beam Experiments on PBFA II," American Physical Society Spring Meeting, Washington, D.C., April 16-19, 1990.

T. J. Renk, P. L. Dreike, G. C. Tisone, "Development of the BOLVAPS/LIBORS Lithium Ion Source for the PBFA-II Accelerator," American Physical Society Spring Meeting, Washington, D.C., April 16-19, 1990.

T. A. Green, G. M. Loubriel, P. M. Richards, L. T. Hudson, P. M. Savundararaj, R. G. Albridge, A. V. Barnes, N. H. Tolk, "Hot Hole Diffusion in the Electron-Stimulated Desorption of Metal Atoms from Alkali Halides," in *Proceedings of Fourth International Workshop on Desorption Induced by Electronic Transitions* (Springer-Verlag, New York, 1990), p. 281.

A. L. Pregenzer, S. E. Rosenthal, "Theory of Electrohydrodynamic Ion Sources on PBFA II," 17th IEEE International Conference on Plasma Science, Oakland, CA, May 21-23, 1990.

T. J. Renk, P. L. Dreike, G. C. Tisone, G. A. Chandler, R. R. Johnston, K. P. Lamppa, B. F. Clark, "BOLVAPS/LIBORS Lithium Source Experiments on PBFA II," 17th IEEE International Conference on Plasma Science, Oakland, CA, May 21-23, 1990.

J. R. Woodworth, A. L. Pregonzer, R. G. Adams, T. R. Lockner, R. A. Gerber, D. J. Johnson, W. H. Jaramillo, M. M. Dillon, R. S. Coats, M. Halliburton, P. Primm, G. A. Torres, G. Ziska, T. Atwood, "Liquid-Anode Lithium Ion Source Experiments on PBFA II," 17th IEEE International Conference on Plasma Science, Oakland, CA, May 21-23, 1990.

K. W. Bieg, G. C. Tisone, T. R. Lockner, J. E. Bailey, M. E. Cuneo, B. F. Clark, J. E. Potter, L. P. Schanwald, "A Laser-Produced Lithium Ion Source for Pulsed-Power Inertial Confinement Fusion," Eighth International Conference on High-Power Particle Beams, Novosibirsk, USSR, July 2-5, 1990.

D. L. Cook, J. E. Bailey, K. W. Bieg, D. D. Bloomquist, R. S. Coats, G. A. Chandler, M. E. Cuneo, M. S. Derzon, M. P. Desjarlais, P. L. Dreike, R. J. Dukart, R. A. Gerber, D. J. Johnson, R. J. Leeper, T. R. Lockner, D. H. McDaniel, J. E. Maenchen, M. K. Matzen, T. A. Mehlhorn, L. P. Mix, A. R. Moats, W. E. Nelson, T. D. Pointon, A. L. Pregonzer, J. P. Quintenz, T. J. Renk, S. E. Rosenthal, C. L. Ruiz, S. A. Slutz, R. W. Stinnett, W. A. Stygar, G. C. Tisone, J. R. Woodworth, J. P. VanDevender, "Light Ion Sources and Target Results on PBFA II," Eighth International Conference on High-Power Particle Beams, Novosibirsk, USSR, July 2-5, 1990 (invited talk).

R. W. Stinnett, J. E. Bailey, K. W. Bieg, R. S. Coats, G. A. Chandler, M. S. Derzon, M. P. Desjarlais, P. L. Dreike, R. A. Gerber, D. J. Johnson, R. J. Leeper, T. R. Lockner, J. E. Maenchen, T. A. Mehlhorn, A. L. Pregonzer, J. P. Quintenz, T. J. Renk, S. E. Rosenthal, C. L. Ruiz, S. A. Slutz, W. A. Stygar, G. C. Tisone, J. R. Woodworth, Y. Maron, "Ion Beam Generation and Focusing on PBFA II," Eighth International Conference on High Power Particle Beams, Novosibirsk, USSR, July 2-5, 1990 (invited talk).

R. H. Moore, D. B. Appel, J. S. Cap, S. H. Spiak, B. P. J. Cason, *Fabrication and Assembly of BOLVAPS Ceramic Option Half Anode*, Sandia National Laboratories Report No. SAND89-0634 (Albuquerque, NM, 1990).

R. G. Adams, J. R. Woodworth, A. L. Pregonzer, T. R. Lockner, R. A. Gerber, D. J. Johnson, W. H. Jaramillo, M. M. Dillon, R. S. Coats, M. Halliburton, P. Primm, G. A. Torres, G. Ziska, T. Atwood, "Electrohydrodynamic Lithium Ion Source Experiments on PBFA II," XIVth International Symposium on Discharges and Electrical Insulation in Vacuum, Santa Fe, NM, September 17-20, 1990.

K. W. Bieg, G. C. Tisone, T. R. Lockner, J. E. Bailey, M. E. Cuneo, B. F. Clark, J. E. Potter, L. P. Schanwald, "A Laser Produced Lithium Ion Source for Pulsed-Power Inertial Confinement Fusion," XIVth International Symposium on Discharges and Electrical Insulation in Vacuum, Santa Fe, NM, September 17-20, 1990.

P. L. Dreike, D. B. Appel, M. E. Cuneo, T. Grasser, K. P. Lamppa, R. H. Moore, C. R. Peebles, T. J. Renk, G. C. Tisone, "Development of the BOLVAPS-LIBORS Lithium Ion Source for the Particle Beam Fusion Accelerator II (PBFA II)," XIVth International Symposium on Discharges and Electrical Insulation in Vacuum, Santa Fe, NM, September 17-20, 1990.

- A. L. Pregenzer, "High-Frequency Parametric Excitation of EHD Instabilities: Applications to Large-Area Ion Sources," XIVth International Symposium on Discharges and Electrical Insulation in Vacuum, Santa Fe, NM, September 17-20, 1990.
- T. J. Renk, P. L. Dreike, G. C. Tisone, "Development of the BOLVAPS-LIBORS Light Ion Source for the PBFA-II Accelerator," XIVth International Symposium on Discharges and Electrical Insulation in Vacuum, Santa Fe, NM, September 17-20, 1990.
- R. G. Adams, J. R. Woodworth, A. L. Pregenzer, T. R. Lockner, R. A. Gerber, D. J. Johnson, W. H. Jaramillo, M. M. Dillon, R. S. Coats, M. Halliburton, P. Primm, G. A. Torres, G. Ziska, T. Atwood, "Electrohydrodynamic Lithium Ion Source Experiments on PBFA II," *Proceedings XIVth International Symposium on Discharges and Electrical Insulation in Vacuum*, Sandia National Laboratories Report No. SAND90-1927C (Albuquerque, NM, September 1990), p. 598.
- K. W. Bieg, G. C. Tisone, T. R. Lockner, J. E. Bailey, M. E. Cuneo, B. F. Clark, J. E. Potter, L. P. Schanwald, "A Laser Produced Lithium Ion Source for Pulsed-Power Inertial Confinement Fusion," *Proceedings XIVth Symposium on Discharges and Electrical Insulation in Vacuum*, ed. by R. W. Stinnett, Sandia National Laboratories Report SAND90-1927C (Albuquerque, NM, September 1990), p. 586.
- P. L. Dreike, D. B. Appel, M. E. Cuneo, T. Grasser, K. P. Lamppa, R. H. Moore, C. R. Peebles, T. J. Renk, G. C. Tisone, "Development of the BOLVAPS-LIBORS Lithium Ion Source for the Particle Beam Fusion Accelerator II (PBFA II)," *Proceedings XIVth International Symposium on Discharges and Electrical Insulation in Vacuum*, Sandia National Laboratories Report No. SAND90-1927C (Albuquerque, NM, September 1990), p. 614.
- A. L. Pregenzer, "High-Frequency Parametric Excitation of EHD Instabilities: Applications to Large-Area Ion Sources," *Proceedings XIVth International Symposium on Discharges and Electrical Insulation in Vacuum*, Sandia National Laboratories Report No. SAND90-1927C (Albuquerque, NM, September 1990), p. 626.
- A. L. Pregenzer, K. W. Bieg, R. E. Olson, J. A. Panitz, "Ion Production from LiF-coated Field Emitter Tips," *Journal Applied Physics* 67, 7556 (1990).
- P. L. Dreike, K. W. Bieg, G. A. Chandler, R. H. Moore, T. J. Renk, G. C. Tisone, "Development of the BOLVAPS-LIBORS Lithium Ion Source for the PBFA-II Accelerator," American Physical Society Division of Plasma Physics Meeting, Cincinnati, OH, November 12-16, 1990.
- J. E. Bailey, A. L. Carlson, Y. Maron, "Spectroscopic Diagnostics of the PBFA-II Ion Source," 18th IEEE International Conference on Plasma Science, Williamsburg, VA, June 3-5, 1991 (invited talk).
- M. E. Cuneo, G. C. Tisone, B. F. Clark, J. R. Chavez, M. Lopez, "Characterization of LEVIS (Laser EVaporation Ion Source) for Light Ion Inertial Confinement Fusion," 18th IEEE International Conference on Plasma Science, Williamsburg, VA, June 3-5, 1991 (invited talk).

G. W. Kuswa, C. L. Ruiz, D. J. Johnson, T. J. Renk, T. L. Lockner, W. A. Stygar, R. J. Leeper, D. F. Wenger, C. E. Robinson, T. A. Haill, C. Struckman, "Energetic Materials as Ion Sources for Pulsed Power Diodes," 18th IEEE International Conference on Plasma Science, Williamsburg, VA, June 3-5, 1991.

C. Mayberry, E. Schamiloglu, C. W. Mendel, "Long Pulse Ion Diode for Planar Electrohydrodynamic Instability Studies," 18th IEEE International Conference on Plasma Science, Williamsburg, VA, June 3-5, 1991.

C. Struckman, G. W. Kuswa, "Energetic Materials as Ion Sources for Pulsed Power Diodes," 18th IEEE International Conference on Plasma Science, Williamsburg, VA, June 3-5, 1991.

P. L. Dreike, *Status of the BOLVAPS Lithium Vapor Source Development*, Sandia National Laboratories Report No. SAND91-0994 (Albuquerque, NM, June 1991).

K. W. Bieg, G. C. Tisone, T. R. Lockner, J. E. Bailey, M. E. Cuneo, B. F. Clark, J. E. Potter, L. P. Schanwald, "A Laser-Produced Lithium Ion Source for Pulsed-Power Inertial Confinement Fusion," *Proceedings Eighth International Conference on High-Power Particle Beams*, ed. by B. N. Breizman and B. A. Knyazev (World Scientific, NJ, 1991), vol. 2, p. 933.

D. L. Cook, J. E. Bailey, K. W. Bieg, D. D. Bloomquist, R. S. Coats, G. A. Chandler, M. E. Cuneo, M. S. Derzon, M. P. Desjarlais, P. L. Dreike, R. J. Dukart, R. A. Gerber, D. J. Johnson, R. J. Leeper, T. R. Lockner, D. H. McDaniel, J. E. Maenchen, M. K. Matzen, T. A. Mehlhorn, L. P. Mix, A. R. Moats, W. E. Nelson, T. D. Pointon, A. L. Pregoner, J. P. Quintenz, T. J. Renk, S. E. Rosenthal, C. L. Ruiz, S. A. Slutz, R. W. Stinnett, W. A. Stygar, G. C. Tisone, J. R. Woodworth, J. P. VanDevender, "Light Ion Sources and Target Results on PBFA II," *Proceedings Eighth International Conference on High-Power Particle Beams*, ed. by B. N. Breizman and B. A. Knyazev (World Scientific, NJ, 1991), vol. 1, p. 3 (invited talk).

R. W. Stinnett, J. E. Bailey, K. W. Bieg, R. S. Coats, G. A. Chandler, M. S. Derzon, M. P. Desjarlais, P. L. Dreike, R. A. Gerber, D. J. Johnson, R. J. Leeper, T. R. Lockner, J. E. Maenchen, T. A. Mehlhorn, A. L. Pregoner, J. P. Quintenz, T. J. Renk, S. E. Rosenthal, C. L. Ruiz, S. A. Slutz, W. A. Stygar, G. C. Tisone, J. R. Woodworth, Y. Maron, "Ion Beam Generation and Focusing on PBFA II," *Proceedings Eighth International Conference on High-Power Particle Beams*, ed. by B. N. Breizman and B. A. Knyazev (World Scientific, NJ, 1991), vol. 1, p. 167 (invited paper).

A. L. Pregoner, "High-Frequency Parametric Excitation of EHD Instabilities: Applications to Large-Area Ion Sources," *IEEE Transactions Plasma Science* **19**, 860 (1991).

G. C. Tisone, M. E. Cuneo, T. R. Lockner, "Laser Formation of Lithium Plasma Ion Source for High Current Ion Diodes," ILS-08 Interdisciplinary Laser Science Conference, Monterey, CA, September 22-26, 1991.

J. E. Bailey, A. L. Carlson, A. B. Filuk, T. J. Nash, Y. Maron, "Ion Source Spectroscopy on PBFA II," 44th Annual Gaseous Electronics Conference, Albuquerque, NM, October 22-25, 1991.

M. E. Cuneo, G. C. Tisone, D. L. Hanson, P. F. McKay, "Laser-Produced Lithium Ion Source for Intense Applied-B Ion Diodes," American Physical Society Division of Plasma Physics Meeting, Tampa, FL, November 4-8, 1991.

C. Mayberry, E. Schamiloglu, C. W. Mendel, "Preparation for Long Pulse Ion Diode Experiments with a Lithium Anode," American Physical Society Division of Plasma Physics Meeting, Tampa, FL, November 4-8, 1991.

T. J. Renk, G. C. Tisone, M. Lopez, B. F. Clark, J. Schroeder, "LEVIS Ion Source Experiments on PBFA II," American Physical Society Division of Plasma Physics Meeting, Tampa, FL, November 4-8, 1991.

R. W. Stinnett, T. R. Lockner, D. J. Johnson, J. E. Bailey, R. A. Gerber, T. A. Green, D. L. Hanson, R. P. Kensek, R. J. Leeper, T. J. Nash, C. L. Ruiz, J. Panitz, P. Schwoebel, "Li⁺ Production from Thin LiF Films on PBFA II," American Physical Society Division of Plasma Physics Meeting, Tampa, FL, November 4-8; 1991.

A. B. Filuk, J. E. Bailey, K. W. Bieg, A. L. Carlson, T. J. Renk, G. C. Tisone, Y. Maron, "Spectroscopic Characterization of LEVIS Active Ion Source on PBFA II," Ninth International Conference on High Power Particle Beams, Washington, D.C., May 25-29, 1992.

R. W. Stinnett, T. A. Green, D. J. Johnson, T. R. Lockner, T. A. Mehlhorn, J. E. Bailey, A. B. Filuk, L. P. Mix, J. Panitz, P. Schwoebel, "LiF Ion Source Performance on PBFA II," Ninth International Conference on High-Power Particle Beams, Washington, D.C., May 25-29, 1992.

G. C. Tisone, T. J. Renk, D. J. Johnson, R. A. Gerber, R. G. Adams, "Laser Formation of Lithium Plasma Ion Sources for Applied-B Ion Diodes on the PBFA-II Accelerator," Ninth International Conference on High Power Particle Beams, Washington, D.C., May 25-29, 1992.

A. B. Filuk, J. E. Bailey, A. L. Carlson, "LEVIS Lithium Ion Source Experiments in PBFA II," 19th IEEE International Conference on Plasma Science, Tampa, FL, June 1-3, 1992.

T. J. Renk, G. C. Tisone, R. G. Adams, M. Lopez, B. F. Clark, J. Schroeder, J. E. Bailey, A. B. Filuk, A. L. Carlson, "LEVIS Lithium Ion Source Experiments on PBFA II," 19th IEEE International Conference on Plasma Science, Tampa, FL, June 1-3, 1992.

J. E. Bailey, A. B. Filuk, A. L. Carlson, P. W. Lake, "Spectroscopic Observations of Ion Source Behavior and Diode Dynamics in a High Power Pulsed Ion Diode," American Physical Society Division of Plasma Physics Meeting, Seattle, WA, November 16-20, 1992.

T. J. Renk, G. C. Tisone, R. G. Adams, D. J. Johnson, M. Lopez, B. F. Clark, J. Schroeder, "LEVIS Ion Source Experiments on PBFA II," American Physical Society Division of Plasma Physics Meeting, Seattle, WA, November 16-20, 1992.

M. A. Sweeney, W. E. Nelson, "Simulation of Vapor Formation for the LEVIS Lithium Ion Source," American Physical Society Division of Plasma Physics Meeting, Seattle, WA, November 16-20, 1992.

G. C. Tisone, R. G. Adams, B. F. Clark, K. P. Lamppa, J. Schroeder, "Laser-Produced Ionized and Neutral Vapor Layers for Ion Sources for Applied-B Ion Diodes on the PBFA-II Accelerator," International Conference on Lasers 1992, Houston, TX, December 7-10, 1992.

M. A. Sweeney, W. E. Nelson, "Simulation of Vapor Formation for the LEVIS Lithium Ion Source," Workshop on Dynamic Response of Materials to Pulsed Heating, Los Alamos National Laboratories, NM, January 22-26, 1993.

M. E. Cuneo, D. L. Hanson, J. R. Smith, S. E. Rosenthal, R. S. Coats, M. A. Bernard, "Operation of Passive Wax Flashover and LiF Ion Sources on Extraction Applied-B Ion Diodes on SABRE," 20th IEEE International Conference on Plasma Science, Vancouver, B.C., June 7-9, 1993.

T. J. Renk, G. C. Tisone, R. G. Adams, B. F. Clark, F. V. Reyes, J. E. Bailey, A. B. Filuk, M. P. Desjarlais, D. J. Johnson, A. L. Carlson, P. W. Lake, "LEVIS Active Anode Lithium Ion Source Development on PBFA II," 20th IEEE International Conference on Plasma Science, Vancouver, B. C., June 7-9, 1993.

M. A. Sweeney, W. E. Nelson, "Simulation of Vapor Formation for the LEVIS Lithium Ion Source," 20th IEEE International Conference on Plasma Science, Vancouver, B.C., June 7-9, 1993.

A. B. Filuk, J. E. Bailey, K. W. Bieg, A. L. Carlson, T. J. Renk, G. C. Tisone, Y. Maron, "Spectroscopic Characterization of LEVIS Active Ion Source on PBFA II," *Proceedings Ninth International Conference on High-Power Particle Beams*, ed. by D. Mosher and G. Cooperstein (National Technical Information Service, Springfield, VA, 1993), vol. 2, p. 794.

R. W. Stinnett, T. A. Green, D. J. Johnson, T. R. Lockner, T. A. Mehlhorn, J. E. Bailey, A. B. Filuk, L. P. Mix, J. Panitz, P. Schwoebel, "LiF Ion Source Performance on PBFA II," *Proceedings Ninth International Conference on High-Power Particle Beams*, ed. by D. Mosher and G. Cooperstein (National Technical Information Service, Springfield, VA, 1993), vol. 2, p. 788.

G. C. Tisone, T. J. Renk, D. J. Johnson, R. A. Gerber, R. G. Adams, "Laser Formation of Lithium Plasma Ion Sources for Applied-B Ion Diodes on the PBFA-II Accelerator," *Proceedings Ninth International Conference on High-Power Particle Beams*, ed. by D. Mosher and G. Cooperstein (National Technical Information Service, Springfield, VA, 1993), vol. 2, p. 800.

G. C. Tisone, R. G. Adams, B. F. Clark, K. P. Lamppa, J. Schroeder, "Laser-Produced Ionized and Neutral Vapor Layers for Ion Sources for Applied-B Ion Diodes on the PBFA-II Accelerator," *Proceedings International Conference on Lasers 92*, ed. by C. P. Wang (STS Press, McLean, VA, 1993), p. 662.

A. B. Filuk, J. E. Bailey, A. L. Carlson, B. F. Clark, T. A. Green, P. W. Lake, T. J. Renk, G. C. Tisone, Y. Maron, "High-Power Ion Beam Source Divergence from Observations of Charge-Exchange Neutrals," Ninth American Physical Society Topical Conference on Atomic Processes in Plasmas, San Antonio, TX, September 19-23, 1993.

T. J. Renk, G. C. Tisone, R. G. Adams, B. F. Clark, F. V. Reyes, J. E. Bailey, A. B. Filuk, M. P. Desjarlais, D. J. Johnson, A. L. Carlson, P. W. Lake, "LEVIS Ion Source Experiments on PBFA-II," American Physical Society Division of Plasma Physics, St. Louis, MO, November 1-5, 1993.

C. Ion Diodes

- M. P. Desjarlais, "Theory of Applied-B Ion Diodes," *Physics Fluids B* 1, 1709 (1989).
- J. E. Maenchen, J. R. Woodworth, T. A. Mehlhorn, T. J. Renk, C. L. Ruiz, B. W. Foltz, W. H. Jaramillo, D. F. Wenger, F. V. Reyes, K. Guidotti, "XUV Illumination Effects in Magnetically Insulated Ion Diodes," *Journal of Applied Physics* 65, 448 (1989).
- M. E. Cuneo, R. M. Gilgenbach, M. L. Brake, C. L. Enloe, J. D. Miller, T. E. Repetti, "Characteristics of the Time Evolution of a Microsecond Electron Beam Diode with Anode Effects," 16th IEEE International Conference on Plasma Science, Buffalo, NY, May 22-24, 1989.
- M. P. Desjarlais, "Theory of Voltage Decay in Applied-B Ion Diodes," 16th IEEE International Conference on Plasma Science, Buffalo, NY, May 22-24, 1989 (invited talk).
- T. R. Lockner, D. J. Johnson, T. A. Mehlhorn, R. J. Leeper, J. E. Maenchen, W.A. Stygar, R. S. Coats, R. P. Kensek, M. P. Desjarlais, C. W. Mendel, G. E. Rochau, S. E. Rosenthal, J. P. Quintenz, R. W. Stinnett, "Beam Transport and Focusing on PBFA II," 16th IEEE International Conference on Plasma Science, Buffalo, NY, May 22-24, 1989.
- A. L. Pregoner, J. R. Woodworth, T. R. Lockner, S. E. Rosenthal, K. W. Bieg, M. P. Desjarlais, R. S. Coats, "Changes in Diode Operating Characteristics as a Function of Applied Magnetic Field Geometry," 16th IEEE International Conference on Plasma Science, Buffalo, NY, May 22-24, 1989.
- M. P. Desjarlais, "The Effect of Charge Exchange Processes on Ion Diode Impedance," *Journal Applied Physics* 66, 2888 (1989).
- T. D. Pointon, "Charge Exchange Effects in Ion Diodes," *Journal of Applied Physics* 66, 2879 (1989).
- J. P. Quintenz, R. W. Stinnett, "PBFA-II Applied-B-Field Ion Diode Proton Beam Characteristics," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.
- A. R. Moats, T. A. Mehlhorn, "Ion Contamination of X-Ray Pinhole Camera Images on PBFA II," *Review Scientific Instruments* 61, 2792 (1990).
- R. W. Stinnett, T. R. Lockner, D. J. Johnson, R. S. Coats, T. A. Mehlhorn, M. P. Desjarlais, K. W. Bieg, A. L. Pregoner, J. R. Woodworth, R. J. Leeper, J. E. Maenchen, C. L. Ruiz, W. A. Stygar, J. E. Bailey, R. P. Kensek, J. P. Quintenz, S. E. Rosenthal, "Ion Diode Experiments on PBFA II," International Workshop on Physics and Techniques of High Power Opening Switches, Novosibirsk, USSR, July 1-2, 1989 (invited talk).
- C. W. Mendel, J. P. Quintenz, S. E. Rosenthal, "Experiments on Insulation of Relativistic Electron Flow in Oblique Magnetic Fields," *IEEE Transactions on Plasma Science* 17, 797 (1989).
- T. D. Pointon, "Effect of Anode Plasma Processes on Applied-B Ion Diode Performance," 13th Conference on Numerical Simulation of Plasmas, Santa Fe, NM, September 17-20, 1989.

J. E. Maenchen, "Generation and Focusing of Intense Ion Beams with Magnetically Insulated Ion Diodes," Kernforschungszentrum Karlsruhe, Karlsruhe, Germany, October 12, 1989.

D. J. Johnson, T. R. Lockner, R. J. Leeper, J. E. Maenchen, C. W. Mendel, G. E. Rochau, W. A. Stygar, R. S. Coats, M. P. Desjarlais, R. P. Kensek, T. A. Mehlhorn, W. E. Nelson, S. E. Rosenthal, J. P. Quintenz, R. W. Stinnett, "PBFA-II Applied-B-Field Ion Diode Proton Beam Characteristics," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 944.

R. W. Stinnett, T. R. Lockner, D. J. Johnson, R. S. Coats, T. A. Mehlhorn, M. P. Desjarlais, K. W. Bieg, A. L. Pregoner, J. R. Woodworth, R. J. Leeper, J. E. Maenchen, C. L. Ruiz, W. A. Stygar, J. E. Bailey, R. P. Kensek, J. P. Quintenz, S. E. Rosenthal, "Ion Diode Experiments on PBFA II," *Proceedings International Workshop on Physics and Techniques of High Power Opening Switches*, ed. by V. Bystritski (Tomsk Institute of High Current Electronics, Tomsk, USSR, 1989), p. 35 (invited paper).

J. E. Bailey, A. L. Carlson, M. P. Desjarlais, D. J. Johnson, T. R. Lockner, R. L. Morrison, "Time-Resolved Visible Spectroscopy of PBFA-II Ion Diode," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.

T. R. Lockner, "Ion Beam Focusing Experiments in PBFA II," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989 (invited talk),

C. W. Mendel, S. E. Rosenthal, "Relativistic Electron Flow in Charge Cells," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.

A. L. Pregoner, K. W. Bieg, T. R. Lockner, J. R. Woodworth, J. E. Bailey, R. S. Coats, M. P. Desjarlais, D. J. Johnson, R. J. Leeper, J. E. Maenchen, T. A. Mehlhorn, S. E. Rosenthal, C. L. Ruiz, W. A. Stygar, "Lithium Beam Experiments on PBFA II," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.

S. E. Rosenthal, C. W. Mendel, "Characterization of Electron Flow in Positive Polarity Linear-Induction Accelerators," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.

D. B. Seidel, T. D. Pointon, M. P. Desjarlais, R. S. Coats, M. L. Kiefer, J. P. Quintenz, W. A. Johnson, "3-D Particle Simulations of Applied-B Ion Diodes," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.

S. A. Slutz, "Electron Loss, Ion Energy Spread, and Ion Divergence in Magnetically-Insulated Diodes," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.

C. W. Mendel, M. P. Desjarlais, T. D. Pointon, J. P. Quintenz, D. B. Seidel, S. E. Rosenthal, S. A. Slutz, "Impedance Characteristics of Terawatt Ion Diodes," Topical Conference on Research Trends in Nonlinear and Relativistic Effects in Plasmas, La Jolla, CA, February 5-8, 1990.

- M. P. Desjarlais, "Analytic Modeling of High Power Applied-B Ion Diodes," American Physical Society Spring Meeting, Washington, D.C., April 16-19, 1990.
- A. L. Pregonzer, T. A. Mehlhorn, "Particle Simulations of Lithium Ion Beam Experiments on PBFA II," American Physical Society Spring Meeting, Washington, D.C., April 16-19, 1990.
- J. E. Bailey, A. L. Carlson, R. L. Morrison, Y. Maron, "Visible Spectroscopy Measurements in the PBFA-II Ion Diode," Eighth Topical Conference on High-Temperature Plasma Diagnostics, Hyannis, MA, May 6-10, 1990 (invited talk).
- M. S. Derzon, J. E. Bailey, G. A. Chandler, D. J. Johnson, J. E. Maenchen, M. K. Matzen, E. J. McGuire, T. A. Mehlhorn, W. E. Nelson, J. A. Pantuso, P. D. Rockett, C. L. Ruiz, F. A. Schmidlapp, T. Smith, W. A. Stygar, J. A. Torres, D. K. Wiemann, "Results of Beam Characterization Measurements on PBFA II," Eighth Topical Conference on High-Temperature Plasma Diagnostics," Hyannis, MA, May 6-10, 1990.
- S. A. Slutz, M. P. Desjarlais, "Theory of Multi-Stage Intense Ion Beam Acceleration," *Journal Applied Physics* 67, 6705 (1990).
- M. E. Cuneo, D. L. Hanson, P. F. McKay, R. S. Coats, W. G. Adams, C. W. Heath, W. F. Stearns, J. R. Chavez, "Extraction Applied-B Ion Diode Experiments on HELIA," 17th IEEE International Conference on Plasma Science, Oakland, CA, May 21-23, 1990.
- D. J. Johnson, "PBFA II Applied-B Ion Diode Beam Characteristics at High Voltages," 17th IEEE International Conference on Plasma Science, Oakland, CA, May 21-23, 1990 (invited talk).
- L. P. Mix, W. A. Stygar, M. P. Desjarlais, "Analysis of Ion Focusing Parameters on PBFA II," 17th IEEE Conference on Plasma Science, Oakland, CA, May 21-23, 1990.
- T. D. Pointon, D. B. Seidel, M. P. Desjarlais, "3-D Particle Simulations of Applied-B Ion Diodes," 17th IEEE International Conference on Plasma Science, Oakland, CA, May 21-23, 1990.
- S. E. Rosenthal, "Simulation Study of Applied-B Ion Diodes with Plasma Prefill," 17th IEEE International Conference on Plasma Science, Oakland, CA, May 21-23, 1990.
- S. A. Slutz, D. J. Johnson, J. T. Crow, "The Operation of a Uniformly Insulated Extraction Applied-B Ion Diode," *Journal Applied Physics* 68, 2555 (1990).
- J. P. Quintenz, M. P. Desjarlais, N. A. Krall, T. A. Mehlhorn, C. W. Mendel, C. L. Olson, T. D. Pointon, S. E. Rosenthal, D. B. Seidel, S. A. Slutz, J. E. Bailey, R. S. Coats, D. L. Cook, D. J. Johnson, M. L. Kiefer, R. J. Leeper, T. R. Lockner, J. E. Maenchen, L. P. Mix, A. L. Pregonzer, R. W. Stinnett, W. A. Stygar, J. P. VanDevender, "Theory of Applied-B Ion Diodes," Eighth International Conference on High-Power Particle Beams, Novosibirsk, USSR, July 2-5, 1990 (invited talk).
- S. A. Slutz, "Ion Divergence and the Stability of Magnetically-Insulated Diodes," Eighth International Conference on High-Power Particle Beams, Novosibirsk, USSR, July 2-5, 1990.

R. W. Stinnett, J. E. Bailey, K. W. Bieg, R. S. Coats, G. A. Chandler, M. S. Derzon, M. P. Desjarlais, P. L. Dreike, R. A. Gerber, D. J. Johnson, R. J. Leeper, T. R. Lockner, J. E. Maenchen, T. A. Mehlhorn, A. L. Pregonzer, J. P. Quintenz, T. J. Renk, S. E. Rosenthal, C. L. Ruiz, S. A. Slutz, W. A. Stygar, G. C. Tisone, J. R. Woodworth, Y. Maron, "Ion Beam Generation and Focusing on PBFA II," Eighth International Conference on High Power Particle Beams, Novosibirsk, USSR, July 2-5, 1990 (invited talk).

D. L. Hanson, M. E. Cuneo, P. F. McKay, R. S. Coats, S. E. Rosenthal, J. R. Chavez, W. F. Stearns, C. E. Heath, W. G. Adams, J. Ruscetti, "Ion Coupling Efficiency for an Extraction Applied-B Ion Diode Experiments in the HELIA Linear Induction Adder in Positive Polarity," XIVth International Symposium on Discharges and Electrical Insulation in Vacuum, Santa Fe, NM, September 17-20, 1990.

D. J. Johnson, T. R. Lockner, R. S. Coats, T. A. Mehlhorn, W. E. Nelson, G. A. Chandler, M. P. Desjarlais, M. S. Derzon, R. J. Leeper, J. E. Maenchen, C. R. Mattson, A. L. Pregonzer, S. E. Rosenthal, C. L. Ruiz, R. W. Stinnett, W. A. Stygar, D. F. Wenger, "PBFA-II Applied-B Ion Diode Beam Characterization at High Voltages," XIVth International Symposium on Discharges and Electrical Insulation in Vacuum, Santa Fe, NM, September 17-20, 1990.

S. E. Rosenthal, "Characterization of Electron Flow in Negative and Positive Polarity Linear Induction Accelerators," XIVth International Symposium on Discharges and Electrical Insulation in Vacuum, Santa Fe, NM, September 17-20, 1990.

S. E. Rosenthal, C. W. Mendel, "Characterization of Electron Flow in Positive Polarity Linear Induction Accelerators," XIVth Symposium on Discharges and Electrical Insulation in Vacuum, Santa Fe, NM, September 17-20, 1990.

J. E. Bailey, A. L. Carlson, R. L. Morrison, Y. Maron, "Visible Spectroscopy Measurements in the PBFA-II Ion Diode," *Review Scientific Instruments* 61, 3075 (1990) (invited paper).

M. S. Derzon, J. E. Bailey, G. A. Chandler, D. J. Johnson, J. E. Maenchen, M. K. Matzen, E. J. McGuire, T. A. Mehlhorn, W. E. Nelson, J. A. Pantuso, P. D. Rockett, C. L. Ruiz, F. A. Schmidlapp, T. Smith, W. A. Stygar, J. A. Torres, D. K. Wiemann, "Results of Beam Characterization Measurements on PBFA II," *Review Scientific Instruments* 61, 3144 (1990).

D. L. Hanson, M. E. Cuneo, P. F. McKay, R. S. Coats, S. E. Rosenthal, J. R. Chavez, W. F. Stearns, C. E. Heath, R. G. Adams, J. Ruscetti, "Ion Coupling Efficiency for an Extraction Applied-B Ion Diode in the HELIA Linear Induction Adder in Positive Polarity," *Proceedings XIVth Symposium on Discharges and Electrical Insulation in Vacuum*, ed. by R. W. Stinnett, Sandia National Laboratories Report SAND90-1927C (Albuquerque, NM, September 1990), p. 708.

D. J. Johnson, T. R. Lockner, R. S. Coats, T. A. Mehlhorn, W. E. Nelson, G. A. Chandler, M. P. Desjarlais, M. S. Derzon, R. J. Leeper, J. E. Maenchen, C. R. Mattson, A. L. Pregoner, S. E. Rosenthal, C. L. Ruiz, R. W. Stinnett, W. A. Stygar, D. F. Wenger, "PBFA-II Applied-B Ion Diode Beam Characterization at High Voltages," *Proceedings XIVth International Symposium on Discharges and Electrical Insulation in Vacuum*, Sandia National Laboratories Report No. SAND90-1927C (Albuquerque, NM, September 1990), p. 659.

S. E. Rosenthal, C. W. Mendel, "Characterization of Electron Flow in Positive Polarity Linear Induction Accelerators," *Proceedings XIVth Symposium on Discharges and Electrical Insulation in Vacuum*, Sandia National Laboratories Report No. SAND90-1927C (Albuquerque, NM, September 1990), p. 589.

M. S. Derzon, J. E. Bailey, G. A. Chandler, D. J. Johnson, J. E. Maenchen, M. K. Matzen, E. J. McGuire, T. A. Mehlhorn, W. E. Nelson, J. A. Pantuso, P. D. Rockett, C. L. Ruiz, F. A. Schmidlapp, T. Smith, W. A. Stygar, J. A. Torres, D. K. Wiemann, "Results of Beam Characterization Measurements on PBFA II," Third International Conference on Intense Ion-Beam Interactions with Matter, Albuquerque, NM, November 7-8, 1990.

R. W. Stinnett, "Ion Diode and Accelerator Status at Sandia National Laboratories," Third International Conference on Intense Ion-Beam Interactions with Matter, Albuquerque, NM, November 7-8, 1990.

M. P. Desjarlais, T. D. Pointon, D. B. Seidel, "Linear, Nonlinear, and Turbulent Behavior of 3-D Ion Diode Simulations," American Physical Society Division of Plasma Physics, Cincinnati, OH, November 12-16, 1990.

C. W. Mendel, "Moving Wavefronts in Magnetically Insulated Electron Flows," American Physical Society Division of Plasma Physics, Cincinnati, OH, November 12-16, 1990.

D. B. Seidel, "QUICKSILVER--A 3-D Particle Simulation Code and Its Applications to the Study of Applied-B Ion Diodes," American Physical Society Division of Plasma Physics Meeting, Cincinnati, OH, November 12-16, 1990 (invited talk).

M. P. Desjarlais, "Linear and Nonlinear Evolution of Instabilities in Applied-B Ion Diodes," International Conference on Research Trends in Inertial Confinement Fusion, La Jolla, CA, February 4-6, 1991.

J. P. Quintenz, D. B. Seidel, "Diodes and Magnetic Insulation," Chapter 3 in *Computer Applications in Plasma Science and Engineering*, ed. by A. D. Drobot (Springer-Verlag, New York, 1991), p. 42.

D. L. Hanson, M. E. Cuneo, P. F. McKay, R. S. Coats, S. E. Rosenthal, "Ion Coupling Efficiency for an Extraction Applied-B Ion Diode on the HELIA Linear Induction Adder in Positive Polarity," *IEEE Transactions on Plasma Science* 19, 831 (1991).

S. E. Rosenthal, "Characterization of Electron Flow in Negative and Positive Polarity Linear Induction Accelerators," *IEEE Transactions on Plasma Science* 19, 822 (1991).

- E. Schamiloglu and R. W. Stinnett, "Guest Editorial" (for special issue on vacuum discharge plasmas), *IEEE Transactions Plasma Science* 19, 681 (1991).
- W. A. Stygar, L. P. Mix, R. J. Leeper, "Optimized Rutherford-Scattering Geometries for Intense Ion Beam Diagnostics," *Review Scientific Instruments* 62, 1527 (1991).
- N. A. Krall, S. E. Rosenthal, "Simulating Electron Flow in the Applied-B Diode," *Journal of Applied Physics* 70, 2542 (1991).
- D. L. Hanson, J. L. Porter, R. R. Williams, "High Purity Ion Beam Production at High Current Densities with a Liquid Helium Cooled Series Field Coil Extraction Ion Diode," *Journal of Applied Physics* 70, 2926 (1991).
- G. W. Kuswa, T. A. Haill, D. J. Johnson, S. E. Rosenthal, T. J. Renk, C. Struckman, "Negative Ions and Molecular Ions Observed in Ion Diodes," 18th IEEE International Conference on Plasma Science, Williamsburg, VA, June 3-5, 1991.
- T. R. Lockner, "Results of Recent Ion Diode Experiments on the PBFA II Accelerator," 18th IEEE International Conference on Plasma Science, Williamsburg, VA, June 3-5, 1991 (invited talk).
- C. Mayberry, E. Schamiloglu, C. W. Mendel, "Long Pulse Ion Diode for Planar Electrohydrodynamic Instability Studies," 18th IEEE International Conference on Plasma Science, Williamsburg, VA, June 3-5, 1991.
- T. D. Pointon, M. P. Desjarlais, "Recent Developments in 3-D Particle Simulations of Applied-B Ion Diodes," 18th IEEE International Conference on Plasma Science, Williamsburg, VA, June 3-5, 1991.
- T. J. Renk, R. R. Johnston, G. E. Rochau, M. P. Desjarlais, S. E. Rosenthal, T. R. Lockner, "Plasma-Filled Ion Diode Experiments on PBFA II," 18th IEEE International Conference on Plasma Science, Williamsburg, VA, June 3-5, 1991.
- J. E. Bailey, A. L. Carlson, A. B. Filuk, T. J. Nash, Y. Maron, "Spectroscopic Results from PBFA II," Eighth American Physical Society Topical Conference on Atomic Processes in Plasmas, Portland, ME, August 25-29, 1991.
- J. P. Quintenz, M. P. Desjarlais, N. A. Krall, T. A. Mehlhorn, C. W. Mendel, C. L. Olson, T. D. Pointon, S. E. Rosenthal, D. B. Seidel, S. A. Slutz, J. E. Bailey, R. S. Coats, D. L. Cook, D. J. Johnson, M. L. Kiefer, R. J. Leeper, T. R. Lockner, J. E. Maenchen, L. P. Mix, A. L. Pregoner, R. W. Stinnett, W. A. Stygar, J. P. VanDevender, "Theory of Applied-B Ion Diodes," *Proceedings Eighth International Conference on High-Power Particle Beams*, ed. by B. N. Breizman and B. A. Knyazev (World Scientific, NJ, 1991), p. 116 (invited paper).
- S. A. Slutz, "Ion Divergence and the Stability of Magnetically-Insulated Diodes," *Proceedings Eighth International Conference on High-Power Particle Beams*, ed. by B. N. Breizman and B. A. Knyazev (World Scientific, NJ, 1991), vol. 1, p. 511.

R. W. Stinnett, J. E. Bailey, K. W. Bieg, R. S. Coats, G. A. Chandler, M. S. Derzon, M. P. Desjarlais, P. L. Dreike, R. A. Gerber, D. J. Johnson, R. J. Leeper, T. R. Lockner, J. E. Maenchen, T. A. Mehlhorn, A. L. Pregoner, J. P. Quintenz, T. J. Renk, S. E. Rosenthal, C. L. Ruiz, S. A. Slutz, W. A. Stygar, G. C. Tisone, J. R. Woodworth, Y. Maron, "Ion Beam Generation and Focusing on PBFA II," *Proceedings Eighth International Conference on High-Power Particle Beams*, ed. by B.N. Breizman and B. A. Knyazev (World Scientific, NJ, 1991), vol. 1, p. 167 (invited paper).

M. P. Desjarlais, T. D. Pointon, D. B. Seidel, R. S. Coats, M. L. Kiefer, J. P. Quintenz, S. A. Slutz, "Evolution and Control of Ion Beam Divergence in Applied-B Ion Diodes," *Physical Review Letters* **67**, 3094 (1991).

M. P. Desjarlais, "The Evolution and Control of Ion Beam Divergence in Ion Diodes," American Physical Society Division of Plasma Physics Meeting, Tampa, FL, November 4-8, 1991 (invited talk).

D. L. Hanson, M. E. Cuneo, P. F. McKay, J. E. Maenchen, R. S. Coats, J. W. Poukey, S. E. Rosenthal, W. E. Fowler, D. F. Wenger, J. R. Chavez, W. F. Stearns, "Extraction Applied-B Ion Diode Experiments on the SABRE Positive Polarity Linear Induction Accelerator," American Physical Society Division of Plasma Physics Meeting, Tampa, FL, November 4-8, 1991.

C. Mayberry, E. Schamiloglu, C. W. Mendel, "Preparation for Long Pulse Ion Diode Experiments with a Lithium Anode," American Physical Society Division of Plasma Physics Meeting, Tampa, FL, November 4-8, 1991.

S. A. Slutz, W. A. Johnson, "Electromagnetic Stability of High-Power Ion Diode Equilibria and Ion Divergence," American Physical Society Division of Plasma Physics Meeting, Tampa, FL, November 4-8, 1991.

T. A. Mehlhorn, D. J. Johnson, J. E. Bailey, D. L. Cook, G. A. Chandler, M. S. Derzon, M. P. Desjarlais, T. A. Haill, T. W. Hussey, R. J. Leeper, T. R. Lockner, M. K. Matzen, D. H. McDaniel, L. P. Mix, R. E. Olson, J. P. Quintenz, G. E. Rochau, C. L. Ruiz, S. A. Slutz, R. W. Stinnett, W. A. Stygar, "Status and Prospects for Ion Beam Coupling and Target Physics Experiments at Sandia," Tenth International Workshop on Laser Interaction and Related Plasma Phenomena, Monterey, CA, November 11-15, 1991 (invited talk).

T. A. Haill, D. J. Johnson, J. E. Bailey, R. J. Leeper, D. Hebron, W. A. Stygar, "Divergence Measurements of Light Ion Beams Using Ultra-Compact Ion Pinhole Camera on PBFA II," Ninth Topical Conference on High-Temperature Plasma Diagnostics, Santa Fe, NM, March 15-19, 1992.

L. P. Mix, W. A. Stygar, R. J. Leeper, J. E. Maenchen, D. F. Wenger, "Time-Resolved Measurements of the Focused Ion Beams on PBFA II," Ninth Topical Conference on High-Temperature Plasma Diagnostics, Santa Fe, NM, March 15-19, 1992.

S. A. Slutz, W. A. Johnson, "The Effect of a Virtual Cathode on the Electromagnetic Stability of High-Power Ion Diodes," *Physics of Fluids B* **4**, 1349 (1992).

S. A. Slutz, "Ion Divergence Generated by Nonuniform Current Density of Intense Ion Beams," *Physics of Fluids B* 4, 2645 (1992).

J. E. Bailey, A. L. Carlson, D. J. Johnson, E. J. McGuire, T. J. Nash, C. L. Olson, J. J. MacFarlane, P. Wang, "Spectroscopic Studies of Intense Ion Beam Propagation in the PBFA-II Gas Cell," Ninth International Conference on High-Power Particle Beams, Washington, D.C., May 25-29, 1992.

M. P. Desjarlais, T. D. Pointon, "QUICKSILVER Simulations of Applied-B Extraction Diodes," Ninth International Conference on High Power Particle Beams, Washington, D.C., May 25-29, 1992.

D. L. Hanson, M. E. Cuneo, P. F. McKay, J. E. Maenchen, R. S. Coats, J. W. Poukey, S. E. Rosenthal, W. E. Fowler, D. F. Wenger, M. A. Bernard, J. R. Chavez, W. F. Stearns, "Operation of a High Impedance Applied-B Extraction Ion Diode on the SABRE Positive Polarity Linear Induction Accelerator," Ninth International Conference on High Power Particle Beams, Washington, D.C., May 22-25, 1992.

T. A. Mehlhorn, L. D. Bacon, J. E. Bailey, D. D. Bloomquist, G. A. Chandler, R. S. Coats, D. L. Cook, M. E. Cuneo, M. S. Derzon, M. P. Desjarlais, R. J. Dukart, A. B. Filuk, T. A. Haill, D. L. Hanson, D. J. Johnson, R. J. Leeper, T. R. Lockner, C. W. Mendel, L. P. Mix, A. R. Moats, J. P. Quintenz, T. D. Pointon, T. J. Renk, G. E. Rochau, S. E. Rosenthal, C. L. Ruiz, D. B. Seidel, S. A. Slutz, R. W. Stinnett, W. A. Stygar, G. C. Tisone, R. E. Olson, J. P. VanDevender, D. F. Wenger, "Progress in Lithium Beam Focusing and Beam-Target Interaction Experiments at SNL," Ninth International Conference on High-Power Particle Beams, Washington, D.C., May 25-29, 1992 (invited talk).

S. A. Slutz, J. W. Poukey, "Simulations of Multistage Intense Ion Beam Acceleration," Ninth International Conference on High Power Particle Beams, Washington, D.C., May 25-29, 1992.

P. Wang, J. J. McFarlane, G. A. Moses, J. E. Bailey, "Theoretical Spectroscopic Analysis of Intense Ion Beam-Plasma Interaction in the PBFA-II Gas Cell," Ninth International Conference on High Power Particle Beams, Washington, D.C., May 25-29, 1992.

M. E. Cuneo, D. L. Hanson, P. F. McKay, J. E. Maenchen, G. C. Tisone, R. G. Adams, T. J. Nash, M. A. Bernard, C. Boney, J. R. Chavez, W. F. Fowler, J. Ruscetti, W. F. Stearns, D. D. Noack, D. F. Wenger, "SABRE (Sandia Accelerator and Beam Research Experiment): A Test Bed for the Light Ion Fusion Program," 19th IEEE International Conference on Plasma Science, Tampa, FL, June 1-3, 1992 (invited talk).

D. J. Johnson, J. E. Bailey, T. A. Haill, D. F. Wenger, "Divergence Measurements of the Beams from an Applied-B Ion Diode on PBFA II," 19th IEEE International Conference on Plasma Science, Tampa, FL, June 1-3, 1992.

T. D. Pointon, M. P. Desjarlais, "Controlling Beam Divergence in Applied-B Ion Diodes," 19th IEEE International Conference on Plasma Science, Tampa, FL, June 1-3, 1992.

- S. E. Rosenthal, "Simulation Study of Magnetically Insulated Power Coupling to the Applied-B Ion Diode," 19th IEEE International Conference on Plasma Science, Tampa, FL, June 1-3, 1992.
- L. P. Mix, W. A. Stygar, R. J. Leeper, J. E. Maenchen, D. F. Wenger, "Time-Resolved Measurements of the Focused Ion Beams on PBFA II," *Review Scientific Instruments* **63**, 4863 (1992).
- J. P. Quintenz, M. P. Desjarlais, T. D. Pointon, S. A. Slutz, D. B. Seidel, T. A. Mehlhorn, R. S. Coats, M. L. Kiefer, N. A. Krall, L. D. Bacon, "Theory of Instability Generated Divergence of Intense Ion Beams from Applied-B Ion Diodes," *Proceedings IEEE* **80**, 971 (1992).
- C. W. Mendel, M. P. Desjarlais, T. D. Pointon, J. P. Quintenz, D. B. Seidel, S. E. Rosenthal, S. A. Slutz, "Impedance Characteristics of Terawatt Ion Diodes," *Proceedings Topical Conference on Research Trends in Physics: Nonlinear and Relativistic Effects in Plasmas*, ed. by V. Stefan (American Institute of Physics Press, New York, 1992), p. 18.
- C. W. Mendel, S. E. Rosenthal, D. B. Seidel, "Low Pressure Relativistic Electron Flow," *Physical Review A* **45**, 5854 (1992).
- T. A. Mehlhorn, "Status and Prospects for Ion Beam Coupling and Target Physics Experiments at Sandia National Laboratories," in *Laser Interaction and Related Plasma Phenomena* (Plenum Press, New York, 1992), ed. by G. Miley and H. Hora, vol. 10, p. 553.
- J. P. Quintenz, R. S. Coats, M. P. Desjarlais, "Applications of the QUICKSILVER 3-D Electromagnetic Particle-in-Cell Code for the Simulation of Intense Particle Beam Diodes and Pulsed Power Devices," Russian-U.S. Technology Exchange in Computations and Computer Science, Livermore, CA, October 19, 1992.
- A. R. Moats, "Imaging the Particle Beam Fusion Accelerator (PBFA II) Ion Beam at SNLA," Physics Department, NM State University, Las Cruces, NM, November 5, 1992.
- J. E. Bailey, A. B. Filuk, A. L. Carlson, P. W. Lake, "Spectroscopic Observations of Ion Source Behavior and Diode Dynamics in a High Power Pulsed Ion Diode," American Physical Society Division of Plasma Physics Meeting, Seattle, WA, November 16-20, 1992.
- M. P. Desjarlais, "Impedance Collapse in Applied-B Ion Diodes," American Physical Society Division of Plasma Physics, Seattle, WA, November 16-20, 1992.
- A. R. Moats, M. S. Derzon, D. J. Johnson, C. L. Ruiz, W. E. Nelson, "Beam Symmetry Measurements Using Time-Integrated X-Ray Pinhole Cameras on PBFA-II Target Shots," American Physical Society Division of Plasma Physics Meeting, Seattle, WA, November 16-20, 1992.
- T. D. Pointon, "The Effect of Neutrals on Applied-B Ion Diode Performance," American Physical Society Division of Plasma Physics Meeting, Seattle, WA, November 16-20, 1992.

J. P. Quintenz, L. D. Bacon, J. E. Bailey, M. P. Desjarlais, A. B. Filuk, T. A. Haill, D. L. Hanson, D. J. Johnson, R. W. Lemke, L. P. Mix, T. D. Pointon, S. A. Slutz, "Reducing Beam Divergence in Applied-B Ion Diodes," American Physical Society Division of Plasma Physics Meeting, Seattle, WA, November 16-20, 1992.

R. W. Stinnett, E. L. Neau, J. Greenly, "Surface Treatment with Pulsed Ion Beams," American Physical Society Division of Plasma Physics Meeting, Seattle, WA, November 16-20, 1992.

F. C. Young, J. M. Neri, S. J. Stephanakis, J. E. Maenchen, "Ion Species Measurements for Pinch-Reflex Ion Diodes," American Physical Society Division of Plasma Physics Meeting, Seattle, WA, November 16-20, 1992.

S. A. Slutz, "Theory of High Current Density Multistage Ion Acceleration," Physics of High Energy Density in Matter, Hirschegg, Klein-Walsertal, Austria, January 31-February 5, 1993.

M. S. Derzon, J. E. Bailey, G. A. Chandler, D. J. Johnson, J. E. Maenchen, M. K. Matzen, E. J. McGuire, T. A. Mehlhorn, W. E. Nelson, J. A. Pantuso, P. D. Rockett, C. L. Ruiz, F. A. Schmidlapp, T. Smith, W. A. Stygar, J. A. Torres, D. K. Wiemann, "Results of Beam Characterization Measurements on PBFA II," *Proceedings Third International Conference on Intense Ion-Beam Interactions with Matter* (Sandia National Laboratories, Albuquerque, NM, March 1993), p. 32.

R. W. Stinnett, "Ion Diode and Accelerator Status at Sandia National Laboratories," *Proceedings Third International Conference on Intense Ion-Beam Interactions with Matter* (Sandia National Laboratories, Albuquerque, NM, March 1993), p. 63.

A. R. Moats, "Ion Beam Azimuthal Symmetry and Focusing on PBFA II," Particle Accelerator Conference, Washington, D. C., May 17-20, 1993.

J. R. Smith, J. W. Poukey, M. E. Cuneo, D. L. Hanson, S. E. Rosenthal, M. A. Bernard, "Electron Flow in the SABRE Linear Induction Adder in Positive Polarity," 1993 Particle Accelerator Conference, Washington, D.C., May 17-20, 1993.

J. P. Quintenz, M. P. Desjarlais, T. D. Pointon, S. A. Slutz, D. B. Seidel, T. A. Mehlhorn, R. S. Coats, M. L. Kiefer, N. A. Krall, L. D. Bacon, "Correction to Theory of Instability Generated Divergence of Intense Ion Beams from Applied-B Ion Diodes," *Proceedings IEEE* **81**, 308 (1993).

S. A. Slutz, "Ion Emission from Anode Foils During Multistage Acceleration of Intense Ion Beams," *Physics of Fluids B* **5**, 209 (1993).

J. E. Bailey, A. L. Carlson, A. B. Filuk, D. J. Johnson, P. W. Lake, E. J. McGuire, T. A. Mehlhorn, T. D. Pointon, S. E. Rosenthal, Y. Maron, E. Stambulchik, "Time-Dependent Measurements and Calculations of the Electric Field Profile in the PBFA-II Ion Diode," 20th IEEE International Conference on Plasma Science, Vancouver, B. C., June 7-9, 1993.

- H. A. Davis, D. J. Rej, W. J. Waganaar, C. L. Ruiz, "Intense Ion Beam Characterization Including a New Method to Measure Beam Areal Energy Density," 20th IEEE International Conference on Plasma Science, Vancouver, B.C., June 7-9, 1993.
- M. P. Desjarlais, T. D. Pointon, "Numerical Study of Ion Mode Saturation in Applied-B Ion Diodes," 20th IEEE International Conference on Plasma Science, Vancouver, B.C., June 7-9, 1993.
- A. B. Filuk, J. E. Bailey, A. L. Carlson, B. F. Clark, P. W. Lake, G. C. Tisone, Y. Maron, "Spectroscopic Measurements of Ion Source Divergence in a High-Power Applied-B Ion Diode," 20th IEEE International Conference on Plasma Science, Vancouver, B. C., June 7-9, 1993.
- J. B. Greenly, S. C. Glidden, R. W. Stinnett, "Ion Diode Design for IBEST," 20th IEEE International Conference on Plasma Science, Vancouver, B. C., June 7-9, 1993.
- D. L. Hanson, M. E. Cuneo, S. E. Rosenthal, M. P. Desjarlais, C. L. Olson, J. P. Quintenz, D. R. Welch, A. B. Filuk, T. J. Nash, D. D. Noack, L. D. Bacon, M. S. Derzon, R. S. Coats, J. R. Smith, M. A. Bernard, "Divergence Control Experiments on the SABRE Extraction Ion Diode," 20th IEEE International Conference on Plasma Science, Vancouver, B.C., June 7-9, 1993.
- D. J. Johnson, M. P. Desjarlais, D. F. Wenger, T. A. Haill, T. A. Mehlhorn, "Lithium Beam Energy-Momentum Correlation on PBFA II," 20th IEEE International Conference on Plasma Science, Vancouver, B.C., June 7-9, 1993.
- T. R. Lockner, S. A. Slutz, J. W. Poukey, "Theoretical and Experimental Results from Two-Stage Light Ion Diodes," 20th IEEE International Conference on Plasma Science, Vancouver, B.C., June 7-9, 1993.
- D. C. McIntyre, R. W. Stinnett, J. B. Greenly, D. Rej, "Evaluation of the Microstructure and Physical Properties of Metallic Materials Treated with Pulsed, Intense Ion Beams," 20th IEEE International Conference on Plasma Science, Vancouver, B.C., June 7-9, 1993.
- T. A. Mehlhorn, D. J. Johnson, M. P. Desjarlais, J. E. Bailey, R. S. Coats, A. B. Filuk, T. A. Haill, R. P. Kensek, C. W. Mendel, L. P. Mix, A. R. Moats, S. E. Rosenthal, C. L. Ruiz, D. F. Wenger, "Optimal Power-Coupling and Beam Focusing Using a LiF Applied-B Ion Diode on PBFA II," 20th IEEE International Conference on Plasma Science, Vancouver, B. C., June 7-9, 1993 (invited talk).
- L. P. Mix, J. P. Quintenz, R. J. Leeper, W. A. Stygar, D. F. Wenger, "Time-Resolved Intensity and Divergence Measurements of a Focused Ion Beam in a Magnetically Insulated Ion Diode," 20th IEEE International Conference on Plasma Science, Vancouver, B.C., June 7-9, 1993.
- T. D. Pointon, M. P. Desjarlais, "Three-Dimensional Particle-in-Cell Simulation of Ion Diodes on PBFA II," 20th IEEE International Conference on Plasma Science, Vancouver, B.C., June 7-9, 1993.

S. E. Rosenthal, "Improving Power Flow in Multiple-Cathode Magnetically Insulated Transmission Lines," 20th IEEE International Conference on Plasma Science, Vancouver, B.C., June 7-9, 1993.

R. W. Stinnett, D. C. McIntyre, J. B. Greenly, "The Use of Pulsed, Intense Ion Beams for Thermal Surface Treatment," 20th IEEE International Conference on Plasma Science, Vancouver, B. C., June 7-9, 1993 (invited talk).

M. Tuszewski, W. Waganaar, D. Rej, M. P. Desjarlais, "Plasma Density Measurements in a Magnetically Insulated Ion Diode," 20th IEEE International Conference on Plasma Science, Vancouver, BC, June 7-9, 1993.

J. E. Bailey, A. L. Carlson, D. J. Johnson, E. J. McGuire, T. J. Nash, C. L. Olson, J. J. MacFarlane, P. Wang, "Spectroscopic Studies of Intense Ion Beam Propagation in the PBFA-II Gas Cell," *Proceedings Ninth International Conference on High-Power Particle Beams*, ed. by D. Mosher and G. Cooperstein (National Technical Information Service, Springfield, VA, 1993), vol. 2, p. 903.

M. P. Desjarlais, T. D. Pointon, "QUICKSILVER Simulations of Applied-B Extraction Diodes," *Proceedings Ninth International Conference on High-Power Particle Beams*, ed. by D. Mosher and G. Cooperstein (National Technical Information Service, Springfield, VA, 1993), vol. 2, p. 775.

D. L. Hanson, M. E. Cuneo, P. F. McKay, J. E. Maenchen, R. S. Coats, J. W. Poukey, S. E. Rosenthal, W. E. Fowler, D. F. Wenger, M. A. Bernard, J. R. Chavez, W. F. Stearns, "Operation of a High Impedance Applied-B Extraction Ion Diode on the SABRE Positive Polarity Linear Induction Accelerator," *Proceedings Ninth International Conference on High-Power Particle Beams*, ed. by D. Mosher and G. Cooperstein (National Technical Information Service, Springfield, VA, 1993), vol. 2, p. 781.

T. A. Mehlhorn, L. D. Bacon, J. E. Bailey, D. D. Bloomquist, G. A. Chandler, R. S. Coats, D. L. Cook, M. E. Cuneo, M. S. Derzon, M. P. Desjarlais, R. J. Dukart, A. B. Filuk, T. A. Haill, D. L. Hanson, D. J. Johnson, R. J. Leeper, T. R. Lockner, C. W. Mendel, L. P. Mix, A. R. Moats, J. P. Quintenz, T. D. Pointon, T. J. Renk, G. E. Rochau, S. E. Rosenthal, C. L. Ruiz, D. B. Seidel, S. A. Slutz, R. W. Stinnett, W. A. Stygar, G. C. Tisone, R. E. Olson, J. P. VanDevender, D. F. Wenger, "Progress in Lithium Beam Focusing and Beam-Target Interaction Experiments at SNL," *Proceedings Ninth International Conference on High-Power Particle Beams*, ed. by D. Mosher and G. Cooperstein (National Technical Information Service, Springfield, VA, 1993), vol. 1, p. 31 (invited paper).

S. A. Slutz, J. W. Poukey, "Simulations of Multistage Intense Ion Beam Acceleration," *Proceedings Ninth International Conference on High-Power Particle Beams*, ed. by D. Mosher and G. Cooperstein (National Technical Information Service, Springfield, VA, 1993), vol. 3, p. 1801.

P. Wang, J. J. McFarlane, G. A. Moses, J. E. Bailey, "Theoretical Spectroscopic Analysis of Intense Ion Beam-Plasma Interaction in the PBFA-II Gas Cell," *Proceedings Ninth International Conference on High-Power Particle Beams*, ed. by D. Mosher and G. Cooperstein (National Technical Information Service, Springfield, VA, 1993), vol. 2, p. 1397.

T. R. Lockner, S. A. Slutz, J. W. Poukey, W. A. Stygar, "Theoretical and Experimental Studies of the Two-Stage Ion Diode," Ninth IEEE Pulsed Power Conference, Albuquerque, NM, June 21-23, 1993.

J. E. Bailey, A. L. Carlson, A. B. Filuk, D. J. Johnson, P. W. Lake, E. J. McGuire, T. A. Mehlhorn, T. D. Pointon, T. J. Renk, S. E. Rosenthal, Y. Maron, E. Stambulchik, "LiI Emission Spectroscopy in High Electric and Magnetic Fields," Ninth American Physical Society Topical Conference on Atomic Processes in Plasmas, San Antonio, TX, September 19-23, 1993.

T. R. Lockner, S. A. Slutz, "Recent Results in Two-Stage Diodes at Sandia National Laboratories," 11th International Workshop on Laser Interaction and Related Plasma Phenomena, Monterey, CA, October 25-29, 1993.

T. J. Nash, D. D. Noack, A. B. Filuk, "Nanosecond Time-Resolved Vacuum Ultraviolet Spectrometer for Ion Diode Spectroscopy," *Review Scientific Instruments* **64**, 2493 (1993).

J. R. Smith, J. W. Poukey, M. E. Cuneo, D. L. Hanson, S. E. Rosenthal, M. A. Bernard, "Electron Flow in the SABRE Linear Induction Adder in Positive Polarity," *Proceedings 1993 Particle Accelerator Conference*, ed. by S. T. Corneliussen (IEEE, New York, 1993), vol. 1, p. 694.

H. A. Davis, G. P. Johnston, D. J. Rej, W. J. Wagenaar, C. L. Ruiz, "Intense Ion Beam Characteristics for Beam Materials Processing," American Physical Society Division of Plasma Physics Meeting, St. Louis, MO, November 1-5, 1993.

M. G. Mazarakis, D. L. Smith, L. Bennett, J. W. Poukey, R. E. Olson, T. R. Lockner, J. J. Ramirez, "PBFA-II Modification for High-Power Two-Stage Extraction Diode Experiments," American Physical Society Division of Plasma Physics, St. Louis, MO, November 1-5, 1993.

J. P. Quintenz, "Recent Developments in Ion Beam Divergence Reduction and Focusing on Applied-B Ion Diodes," American Physical Society Division of Plasma Physics Meeting, St. Louis, MO, November 1-5, 1993 (invited talk).

A. B. Filuk, J. E. Bailey, A. L. Carlson, P. W. Lake, Y. Maron, "Charge Exchange Neutral Production in a High-Power Ion Diode," Sixth International Workshop on Atomic Physics for Ion-Driven Fusion, Santa Fe, NM, November 8-12, 1993.

A. B. Filuk, J. E. Bailey, A. L. Carlson, P. W. Lake, Y. Maron, "Continuum Emission in the Anode-Cathode Gap of PBFA II," Sixth International Workshop on Atomic Physics for Ion-Driven Fusion, Santa Fe, NM, November 8-12, 1993.

V. L. Jacobs, A. B. Filuk, "Polarization of Atomic Radiative Transitions in Crossed Electric and Magnetic Fields," Sixth International Workshop on Atomic Physics for Ion-Driven Fusion, Santa Fe, NM, November 8-12, 1993.

L. P. Mix, J. E. Bailey, A. L. Carlson, G. A. Chandler, G. W. Cooper, M. S. Derzon, D. L. Fehl, A. B. Filuk, T. A. Haill, D. E. Hebron, D. J. Johnson, R. P. Kensek, J.R. Lee, R. J. Leeper, D. J. Muron, W. E. Nelson, F. V. Reyes, C. L. Ruiz, W. A. Stygar, D. F. Wenger, "Diagnostics for Intense Ion Beam Experiments," Sixth International Workshop on Atomic Physics for Ion-Driven Fusion, Santa Fe, NM, November 8-12, 1993.

R. W. Stinnett, D. C. McIntyre, R. Buchleit, J. B. Greenly, M. O. Thompson, "IBEST: Ion Beam Surface Treatment for Enhanced Materials Properties," Sixth International Workshop on Atomic Physics for Ion-Driven Fusion, Santa Fe, NM, November 8-12, 1993.

T. R. Lockner, S. A. Slutz, J. W. Poukey, W. A. Stygar, "Theoretical and Experimental Studies of the Two-Stage Ion Diode," *Digest of Technical Papers, Ninth IEEE Pulsed Power Conference*, ed. by W. L. Baker and K. R. Prestwich (IEEE, New York, 1993), vol. 2, p. 714.

D. Plasma Opening Switches

M. A. Sweeney, D. H. McDaniel, C. W. Mendel, G. E. Rochau, W. B. S. Moore, G. R. Mowrer, W. W. Simpson, D. M. Zagar, T. Grasser, C. D. McDougal, "Plasma Opening Switch Experiments on PBFA II," 16th IEEE International Conference on Plasma Science, Buffalo, NY, May 22-24, 1989 (invited talk).

W. B. S. Moore, D. H. McDaniel, G. R. Mowrer, G. E. Rochau, "Numerical Analysis of Experimental Data to Infer Plasma Motion in Plasma Opening Switches," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.

G. E. Rochau, D. H. McDaniel, C. W. Mendel, M. A. Sweeney, W. B. S. Moore, G. R. Mowrer, W. W. Simpson, D. M. Zagar, T. Grasser, C. D. McDougal, "Performance of Plasma Opening Switches for the Particle Beam Fusion Accelerator II (PBFA II)," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.

H. N. Woodall, D. H. McDaniel, C. W. Mendel, G. E. Rochau, D. M. Zagar, W. W. Simpson, N. P. Zuchowski, "MITE-Plasma Opening Switches (POS) Experiments," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.

D. H. McDaniel, C. W. Mendel, W. B. S. Moore, G. R. Mowrer, G. E. Rochau, W. W. Simpson, M. A. Sweeney, J. P. Quintenz, D. M. Zagar, "Plasma Opening Switch Research on the Particle Beam Fusion Accelerator II at Sandia National Laboratories," International Workshop on Physics and Techniques of High Power Opening Switches, Novosibirsk, USSR, July 1-2, 1989.

C. W. Mendel, G. E. Rochau, M. A. Sweeney, D. H. McDaniel, J. P. Quintenz, E. L. Lindman, J. M. Kindel, "Launched Electron Dynamics in Opening Switches," International Workshop on Physics and Techniques of High Power Opening Switches, Novosibirsk, USSR, July 1-2, 1989.

N. F. Roderick, S. S. Payne, R. E. Peterkin, M. H. Frese, T. W. Hussey, "Two-Dimensional Single Fluid MHD Simulations of Plasma Opening Switches," International Workshop on Physics and Techniques of High Power Opening Switches, Novosibirsk, USSR, July 1-2, 1989.

T. J. Renk, "Flashboards as a Plasma Source for Plasma Opening Switch Applications," *Journal Applied Physics* **65**, 2652 (1989).

J. E. Bailey, "Spectroscopic Analysis of POS Plasma in PBFA II," Sixth Plasma Opening Switch Workshop, Albuquerque, NM, August 24-25, 1989.

D. H. McDaniel, "Circuit Model for Coupling POS to Ion Diode; New and Old Full Energy Tests on PBFA II Compared," Sixth Plasma Opening Switch Workshop, Albuquerque, NM, August 24-25, 1989.

D. H. McDaniel, "Information about Soviet POS from Novosibirsk Workshop on High Power Switches," Sixth Plasma Opening Switch Workshop, Albuquerque, NM, August 24-25, 1989.

C. W. Mendel, G. E. Rochau, M. A. Sweeney, D. H. McDaniel, J. P. Quintenz, "Launched Electron Dynamics in Plasma Opening Switches," Sixth Plasma Opening Switch Workshop, Sandia National Laboratories, August 24-25, 1989.

J. P. Quintenz, C. W. Mendel, D. H. McDaniel, W. W. Simpson, D. M. Zagar, "A Simple Model of the Current-Toggling Plasma Opening Switch for Circuit Codes," Sixth Plasma Opening Switch Workshop, Albuquerque, NM, August 24-25, 1989.

G. E. Rochau, "Review of PBFA II Opening Switch Experiments Delta-2 and Epsilon-1 Test Series," Sixth Plasma Opening Switch Workshop, Albuquerque, NM, August 24-25, 1989.

G. E. Rochau, "Future Experimental Plans on PBFA II," Sixth Plasma Opening Switch Workshop, Albuquerque, NM, August 24-25, 1989.

S. E. Rosenthal, "Consequences to an Ion Diode of a Partially Opened POS," Sixth Plasma Opening Switch Workshop, Albuquerque, NM, August 24-25, 1989.

M. E. Savage, C. W. Mendel, J. P. Quintenz, G. W. Cooper, W. W. Simpson, T. W. Grasser, D. M. Zagar, "The Electron Launching Voltage Monitor," Sixth Plasma Opening Switch Workshop, Albuquerque, NM, August 24-25, 1989.

M. A. Sweeney, "Future Theoretical Plans," Sixth Plasma Opening Switch Workshop, Albuquerque, NM, August 24-25, 1989.

M. A. Sweeney, "Summary of Sixth POS Workshop," Sixth Plasma Opening Switch Workshop, Albuquerque, NM, August 24-25, 1989.

H. N. Woodall, N. P. Zuchowski, B. Monroe, M. Usher, "POS Experiments on MITE," Sixth Plasma Opening Switch Workshop, Albuquerque, NM, August 24-25, 1989.

J. R. Woodworth, B. Hoselton, G. Mowrer, C. D. McDougal, W. H. Jaramillo, "Laboratory Spectroscopy of Plasma from MIP Plasma Boards," Sixth Plasma Opening Switch Workshop, Albuquerque, NM, August 24-25, 1989.

M. A. Sweeney, D. H. McDaniel, C. W. Mendel, G. E. Rochau, W. B. S. Moore, G. R. Mowrer, W. W. Simpson, D. M. Zagar, "Plasma Opening Switch Research at Sandia National Laboratories," Annual Meeting, New Mexico Academy of Science, September 22-23, 1989 (invited talk).

M. A. Sweeney, D. H. McDaniel, C. W. Mendel, G. E. Rochau, W. B. S. Moore, G. R. Mowrer, W. W. Simpson, D. M. Zagar, "Plasma Opening Switch Research at Sandia National Laboratories," *New Mexico Journal of Science* 29, p. 126 (New Mexico Academy of Science, NM, 1989).

W. B. S. Moore, D. H. McDaniel, G. R. Mowrer, G. E. Rochau, "Numerical Analysis of Experimental Data to Infer Plasma Motion in Plasma Opening Switches," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by B. H. Bernstein and R. White (IEEE, New York, 1989), p. 703.

G. E. Rochau, D. H. McDaniel, C. W. Mendel, M. A. Sweeney, W. B. S. Moore, G. R. Mowrer, W. W. Simpson, D. M. Zagar, T. Grasser, C. D. McDougal, "Performance of Plasma Opening Switches for the Particle Beam Fusion Accelerator II (PBFA II)," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 251.

D. H. McDaniel, C. W. Mendel, W. B. S. Moore, G. R. Mowrer, G. E. Rochau, W. W. Simpson, M. A. Sweeney, J. P. Quintenz, D. M. Zagar, "Plasma Opening Switch Research on the Particle Beam Fusion Accelerator II at Sandia National Laboratories," *Proceedings International Workshop on Physics and Techniques of High Power Opening Switches*, ed. by V. Bystritski (Tomsk Institute of High Current Electronics, Tomsk, USSR, 1989), p. 25.

C. W. Mendel, G. E. Rochau, M. A. Sweeney, D. H. McDaniel, J. P. Quintenz, E. L. Lindman, J. M. Kindel, "Launched Electron Dynamics in Opening Switches," *Proceedings International Workshop on Physics and Techniques of High Power Opening Switches*, ed. by V. Bystritski (Tomsk Institute of High Current Electronics, Tomsk, USSR, 1989), p. 11.

N. F. Roderick, S. S. Payne, R. E. Peterkin, M. H. Frese, T. W. Hussey, "Two-Dimensional Single Fluid MHD Simulations of Plasma Opening Switches," *Proceedings International Workshop on Physics and Techniques of High Power Opening Switches*, ed. by V. Bystritski (Tomsk Institute of High Current Electronics, Tomsk, USSR, 1989), p. 12.

T. J. Renk, *Analysis of Data from a Test of PBFA-II Plasma Opening Switch Geometries on Blackjack 5*, Sandia National Laboratories Report No. SAND89-1538 (Albuquerque, NM, March 1990).

J. E. Bailey, "Spectroscopic Measurements in the Switch Region on PBFA II," Seventh Plasma Opening Switch Workshop, Albuquerque, NM, April 24-25, 1990.

M. P. Desjarlais, "Coupling of a POS to an Ion Diode Load," Seventh Plasma Opening Switch Workshop, Albuquerque, NM, April 24-25, 1990.

C. W. Mendel, "Analysis of SuperMite Data: Plasma Prefill," Seventh Plasma Opening Switch Workshop, Albuquerque, NM, April 24-25, 1990.

W. B. S. Moore, D. H. McDaniel, "PBFA II SCREAMER Simulations Using a Zflow POS Model," Seventh Plasma Opening Switch Workshop, Albuquerque, NM, April 24-25, 1990.

G. E. Rochau, "MIP Source Configuration and Performance Without Loads on PBFA II," Seventh Plasma Opening Switch Workshop, Albuquerque, NM, April 24-25, 1990.

G. E. Rochau, "MIP Performance with Blade Loads and Ion Diodes," Seventh Plasma Opening Switch Workshop, Albuquerque, NM, April 24-25, 1990.

G. E. Rochau, "Performance of the Current Toggle POS on PBFA II," Seventh Plasma Opening Switch Workshop, Albuquerque, NM, April 24-25, 1990.

- G. E. Rochau, "Future Experimental Plans on PBFA II," Seventh Plasma Opening Switch Workshop, Albuquerque, NM, April 24-25, 1990.
- D. C. Rovang, "3.5 Tesla Field Coil Design for PBFA II to Open at 3 MA," Seventh Plasma Opening Switch Workshop, Albuquerque, NM, April 24-25, 1990.
- M. E. Savage, "SuperMite Triggered POS Experiments," Seventh Plasma Opening Switch Workshop, Albuquerque, NM, April 24-25, 1990.
- M. E. Savage, C. W. Mendel, G. W. Cooper, W. W. Simpson, D. M. Zagar, "Future Plans for MITE," Seventh Plasma Opening Switch Workshop, Albuquerque, NM, April 24-25, 1990.
- M. A. Sweeney, "Future Theoretical Plans," Seventh Plasma Opening Switch Workshop, Albuquerque, NM, April 24-25, 1990.
- M. A. Sweeney, "Summary of Seventh POS Workshop," Seventh Plasma Opening Switch Workshop, Albuquerque, NM, April 24-25, 1990.
- C. W. Mendel, M. E. Savage, D. M. Zagar, W. W. Simpson, "Carbon 4 Plus Plasma Source," 17th IEEE Conference on Plasma Science, Oakland, CA, May 21-23, 1990.
- G. E. Rochau, D. H. McDaniel, C. W. Mendel, M. A. Sweeney, W. B. S. Moore, G. R. Mowrer, D. M. Zagar, "Performance of Magnetically-Injected-Plasma Opening Switches on the Particle Beam Fusion Accelerator II (PBFA II)," 17th IEEE Conference on Plasma Science, Oakland, CA, May 21-23, 1990.
- B. V. Weber, D. H. McDaniel, G. E. Rochau, "Plasma Density Measurements in PBFA-II Opening Switch Configurations," 17th IEEE International Conference on Plasma Science, Oakland, CA, May 21-23, 1990.
- H. N. Woodall, D. H. McDaniel, C. W. Mendel, G. E. Rochau, D. M. Zagar, W. W. Simpson, N. P. Zuchowski, "Long Conduction Time Plasma Opening Switch Experiments on MITE," 17th IEEE International Conference on Plasma Science, Oakland, CA, May 21-23, 1990.
- T. J. Renk, *Plasma-Filled Applied- B_z Ion Diode Experiments on LION Using a Plasma Opening Switch*, Sandia National Laboratories Report No. SAND89-2901 (Albuquerque, NM, July 1990).
- G. E. Rochau, D. H. McDaniel, C. W. Mendel, M. A. Sweeney, W. B. S. Moore, G. R. Mowrer, W. W. Simpson, D. M. Zagar, "Performance of Magnetically-Injected-Plasma Opening Switches for the Particle Beam Fusion Accelerator II (PBFA II)," Eighth International Conference on High-Power Particle Beams, Novosibirsk, USSR, July 2-5, 1990.
- D. H. McDaniel, "Sandia National Laboratories Research in PEOS," Defense Nuclear Agency Advanced Pulsed Power Conference, Albuquerque, NM, July 31-August 3, 1990.

P. A. Steen and D. H. McDaniel, "2 1/2-D, Particle-in-Cell Simulations for the Magnetically Injected Plasma Switch in PBFA II," Defense Nuclear Agency Advanced Pulsed Power Conference, Albuquerque, NM, July 31-August 3, 1990.

P. A. Steen, D. H. McDaniel, "2 1/2-D, Particle-in-Cell Simulations for the Magnetically Injected Plasma Switch in PBFA II," *Proceedings Advanced Pulsed Power Conference*, DNA Technical Report No. DASIAC TR-90-006 (Defense Nuclear Agency, Alexandria, VA, 1990), p. 5-88.

M. A. Sweeney, G. E. Rochau, M. H. Frese, "Numerical Study of Plasma Injection in the Magnetically-Injected-Plasma Opening Switch," American Physical Society Division of Plasma Physics Meeting, Cincinnati, OH, November 12-16, 1990.

C. W. Mendel, "Current-Toggled Plasma Opening Switch," 18th IEEE International Conference on Plasma Science, Williamsburg, VA, June 3-5, 1991.

M. A. Sweeney, G. E. Rochau, G. R. Mowrer, M. H. Frese, B. V. Weber, "Study of Plasma Injection in the PBFA II Opening Switch and Analysis of Microwave Measurements," 18th IEEE International Conference on Plasma Science, Williamsburg, VA, June 3-5, 1991.

M. E. Savage, C. W. Mendel, W. W. Simpson, "Long Conduction Time Plasma Opening Switch Research at Sandia National Laboratories," Eighth IEEE Pulsed Power Conference, San Diego, CA, June 17-19, 1991.

G. E. Rochau, D. H. McDaniel, C. W. Mendel, M. A. Sweeney, W. B. S. Moore, G. R. Mowrer, W. W. Simpson, D. M. Zagar, "Performance of Magnetically-Injected-Plasma Opening Switches for the Particle Beam Fusion Accelerator II (PBFA II)," *Proceedings Eighth International Conference on High-Power Particle Beams*, ed. by B. N. Breizman and B. A. Knyazev (World Scientific, NJ, 1991), vol. 1, p. 386.

M. A. Sweeney, G. E. Rochau, M. H. Frese, B. V. Weber, P. Steen, "Study of Plasma Distribution from a Magnetically-Injected Plasma Source," American Physical Society Division of Plasma Physics Meeting, Tampa, FL, November 4-8, 1991.

M. E. Savage, W. W. Simpson, G. W. Cooper, M. A. Usher, "Long Conduction Time Plasma Opening Switch Experiments at Sandia National Laboratories," Ninth International Conference on High Power Particle Beams, Washington, D.C., May 25-29, 1992.

M. E. Savage, W. W. Simpson, M. A. Usher, "Operation of Sandia's Long Conduction Time Plasma Opening Switch into High Impedance Loads," 19th IEEE International Conference on Plasma Science, Tampa, FL, June 1-3, 1992.

C. W. Mendel, M. E. Savage, D. M. Zagar, W. W. Simpson, T. W. Grassier, J. P. Quintenz, "Experiments on a Current Toggled Plasma Opening Switch," *Journal Applied Physics* 71, 3731 (1992).

M. E. Savage, G. W. Cooper, W. W. Simpson, "Ion Time-of-Flight Spectroscopy of a Plasma Opening Switch Operating at 250 Nanosecond Conduction Time," American Physical Society Division of Plasma Physics, Seattle, WA, November 16-20, 1992.

C. L. Ruiz, "Nuclear Activation Diagnostics for Plasma Opening Switches," 20th IEEE International Conference on Plasma Science, Vancouver, B.C., June 7-9, 1993.

M. A. Sweeney, M. H. Frese, J. J. Watrous, "Dynamics of the Magnetically-Injected-Plasma Source on the Particle Beam Fusion Accelerator PBFA II," 20th IEEE International Conference on Plasma Science, Vancouver, B.C., June 7-9, 1993.

M. E. Savage, W. W. Simpson, G. W. Cooper, M. A. Usher, "Long Conduction Time Plasma Opening Switch Experiments at Sandia National Laboratories," *Proceedings Ninth International Conference on High-Power Particle Beams*, ed. by D. Mosher and G. Cooperstein (National Technical Information Service, Springfield, VA, 1993), vol. 1, p. 621.

M. E. Savage, W. W. Simpson, M. A. Usher, "Results from Long Conduction Time Plasma Opening Switch Experiments at Sandia National Laboratories," Ninth IEEE Pulsed Power Conference, Albuquerque, NM, June 21-23, 1993.

M. E. Savage, W. W. Simpson, M. A. Usher, "Results from Long Conduction Time Plasma Opening Switch Experiments at Sandia National Laboratories," *Digest of Technical Papers, Ninth IEEE Pulsed Power Conference*, ed. by W. L. Baker and K. R. Prestwich (IEEE, New York, 1993), vol. 1, p. 110.

E. Ion Beam Transport

C. L. Olson, "Collective Ion Acceleration," in *1989 McGraw-Hill Yearbook of Science and Technology* (McGraw-Hill, New York, 1988), p. 278.

T. A. Mehlhorn, C. L. Olson, J. P. Quintenz, D. L. Johnson, K. R. Prestwich, "Achromatic Solenoidal Focusing of LMF," Particle Accelerator Conference, Chicago, IL, March 20-23, 1989.

T. A. Mehlhorn, J. P. Quintenz, "Particle-in-Cell Simulations of an Achromatic Solenoidal Focusing System for the Laboratory Microfusion Facility (LMF)," Particle Accelerator Conference, Chicago, IL, March 20-23, 1989.

C. L. Olson, "Phase Space Acceptance of Laboratory Microfusion Facility (LMF) Transport Scheme," Particle Accelerator Conference, Chicago, IL, March 20-23, 1989.

C. L. Olson, "Achromatic Magnetic Lens Systems for High Current Ion Beams," *Proceedings of 1988 Linear Accelerator Conference*, ed. by C. Leeman, Continuous Electron Beam Accelerator Facility Report No. 89-001 (June 1989), p. 34.

G. A. Moses, G. L. Kulcinski, D. Bruggink, R. L. Engelstad, E. G. Lovell, J. J. MacFarlane, Z. Musicki, R. R. Peterson, M. E. Sawan, I. N. Sviatoslavsky, L. J. Wittenberg, G. Kessler, U. VonMollendorff, E. Stein, I. Smith, P. Corcoran, H. Nishimoto, J. Fockler, D. L. Cook, R. E. Olson, "LIBRA--A Light Ion Inertial Confinement Fusion Reactor Conceptual Design," *Laser and Particle Beams* 7, 721 (1989).

G. A. Moses, G. L. Kulcinski, D. Bruggink, R. L. Engelstad, E. G. Lovell, J. J. MacFarlane, Z. Musicki, R. R. Peterson, M. E. Sawan, I. N. Sviatoslavsky, L. J. Wittenberg, G. Kessler, U. VonMollendorff, E. Stein, D. L. Cook, R. E. Olson, I. Smith, P. Corcoran, H. Nishimoto, J. Fockler, "Overview of the LIBRA Light Ion Beam Fusion Concept Design," *Fusion Technology* 15, Part 2A, 756 (1989).

J. J. Ramirez, R. W. Stinnett, D. L. Johnson, C. L. Olson, T. A. Mehlhorn, J. T. Crow, J. P. Quintenz, K. R. Prestwich, M. P. Desjarlais, R. E. Olson, G. O. Allshouse, T. H. Martin, J. P. VanDevender, D. L. Cook, S. A. Slutz, K. B. Coachman, T. R. Lockner, B. N. Turman, S. A. Goldstein, J. N. Olsen, R. R. Peterson, R. L. Engelstad, "Design Issues for a Light Ion Beam LMF Driver," *Fusion Technology* 15, 350 (1989).

T. A. Mehlhorn, J. P. Quintenz, "Particle-in-Cell Simulations of an Achromatic Solenoidal Focusing System for the Laboratory Microfusion Facility (LMF)," *Proceedings 1989 IEEE Particle Accelerator Conference*, ed. by F. Bennett and J. Kopta (IEEE, New York, 1989), vol. 2, p. 1014.

C. L. Olson, "Phase Space Acceptance of LMF Transport Schemes," *Proceedings 1989 IEEE Particle Accelerator Conference*, ed. by F. Bennett and J. Kopta (IEEE, New York, 1989), vol. 2, p. 1011.

C. L. Olson, "Beam Transport," National Academy of Sciences Review of ICF, Laboratory for Laser Energetics, University of Rochester, NY, October 23-25, 1989.

C. L. Olson, "LMF Beam Transport," LMF Design Concept Review, DOE Headquarters, Germantown, MD, January 16-19, 1990.

B. Badger, G. A. Moses, R. L. Engelstad, G. L. Kulcinski, E. G. Lovell, J. J. MacFarlane, R. R. Peterson, M. E. Sawan, I. N. Sviatoslavsky, L. J. Wittenberg, I. Smith, R. Altes, P. Corcoran, R. Kuenning, D. Fellow, D. Wake, J. Ehrhardt, G. Kessler, E. Stein, D. L. Cook, R. E. Olson, R. W. Stinnett, "LIBRA: A Light Ion Beam Fusion Conceptual Reactor Design," University of Wisconsin Report No. UWFD-800, July 1989 (revised February 1990).

C. L. Olson, "Ion Beam Transport and Focus for LMF Using an Achromatic Solenoidal Lens System," 17th IEEE International Conference on Plasma Science, Oakland, CA, May 21-23, 1990.

D. Mosher, D. D. Hinshelwood, J. M. Neri, P. F. Ottinger, J. J. Watrous, C. L. Olson, T. A. Mehlhorn, "Ion Transport for LMF," Eighth International Conference on High-Power Particle Beams, Novosibirsk, USSR, July 2-5, 1990 (invited talk).

C. L. Olson, "Intense Ion Beam Transport in Neutral Gas," 1990 Linear Accelerator Conference, Albuquerque, NM, September 10-14, 1990.

R. B. Miller, C. L. Olson, "Beam Transport," Chapter 3, *Pulsed Power Produced Tritium*, Sandia National Laboratories Report No. SAND89-1451 (Albuquerque, NM, 1990).

D. N. Bixler, S. A. Goldstein, "A Laboratory Microfusion Capability for the U. S. ICF Program," Ninth Topical Meeting on Technology of Fusion Energy, Oak Brook, IL, October 7-11, 1990.

J. J. Ramirez, K. R. Prestwich, R. W. Stinnett, D. L. Johnson, C. L. Olson, G. O. Allshouse, M. J. Clauser, V. Harper-Slaboszewicz, T. W. L. Sanford, J. D. Boyes, T. A. Mehlhorn, L. J. Lorence, D. L. Hanson, M. E. Cuneo, R. R. Peterson, R. L. Engelstad, J. W. Power, H. Y. Khater, M. E. Sawan, E. G. Lovell, G. A. Moses, "A Light Ion Beam Driver for the Laboratory Microfusion Facility," Ninth Topical Conference on the Technology of Fusion Energy, Oak Brook, IL, October 7-11, 1990.

C. L. Olson, "Ion Beam Transport and Focusing for ICF," Third International Conference on Intense Ion-Beam Interactions with Matter, Albuquerque, NM, November 7-8, 1990.

C. L. Olson, "Ion Beam Transport and Focusing," American Physical Society Division of Plasma Physics, Cincinnati, OH, November 12-16, 1990 (invited talk).

C. L. Olson, "Intense Ion Beam Transport in Neutral Gas," *Proceedings 1990 Linear Accelerator Conference*, Los Alamos National Laboratory Report No. LA-12004-C (Los Alamos, NM, March 1991), p. 396.

J. J. Watrous, D. Mosher, J. M. Neri, P. F. Ottinger, C. L. Olson, J. T. Crow, R. R. Peterson, "Wire-Guided Transport of Intense Ion Beams," *Journal Applied Physics* **69**, 639 (1991).

C. L. Olson, "Intense Ion Beam Transport and Focusing for ICF," 18th IEEE International Conference on Plasma Science, Williamsburg, VA, June 3-5, 1991 (invited talk).

- D. Mosher, D. D. Hinshelwood, J. M. Neri, P. F. Ottinger, J. J. Watrous, C. L. Olson, T. A. Mehlhorn, "Ion Transport for LMF," *Proceedings Eighth International Conference on High-Power Particle Beams*, ed. by B. N. Breizman and B. A. Knyazev (World Scientific, NJ, 1991) vol. 1, p. 26 (invited paper).
- K. R. Prestwich, J. J. Ramirez, R. W. Stinnett, D. L. Johnson, C. L. Olson, M. J. Clauser, T. A. Mehlhorn, M. P. Desjarlais, G. O. Allshouse, J. P. Corley, D. L. Hanson, M. E. Cuneo, P. F. McKay, J. W. Poukey, S. E. Rosenthal, S. A. Slutz, J. P. Quintenz, D. L. Cook, J. P. VanDevender, R. R. Peterson, R. Engelstad, J. W. Powers, "Design of a Light Ion Beam Driver for Laboratory Microfusion Facility," *Proceedings Eighth International Conference on High-Power Particle Beams*, ed. by B. N. Breizman and B. A. Knyazev (World Scientific, NJ, 1991), vol. 1, p. 143 (invited talk).
- D. N. Bixler, S. A. Goldstein, "A Laboratory Microfusion Capability for the U. S. ICF Program," *Fusion Technology* 19, Part 2A, p. 646 (1991).
- S. Humphries, C. L. Olson, "Simulations of Longitudinal Stability in Linear Induction Ion Accelerators," American Physical Society Division of Plasma Physics Meeting, Tampa, FL, November 4-8, 1991.
- C. L. Olson, J. W. Poukey, "Microdivergence in Intense Ion Beams Caused by Incomplete Charge Neutralization," American Physical Society Division of Plasma Physics Meeting, Tampa, FL, November 4-8, 1991.
- C. L. Olson, J. W. Poukey, "Divergence in Intense Ion Beams Caused by Incomplete Charge Neutralization," Ninth International Conference on High Power Particle Beams, Washington, D.C., May 23-25, 1992.
- P. F. Ottinger, D. Mosher, J. M. Neri, D. V. Rose, C. L. Olson, "Transport and Focusing Considerations for Light Ion ICF Systems," Ninth International Conference on High-Power Particle Beams, Washington, D. C., May 23-25, 1992 (invited talk).
- P. F. Ottinger, D. V. Rose, J. M. Neri, C. L. Olson, "Ballistic Transport and Solenoidal Focusing of Intense Ion Beams for Inertial Confinement Fusion," *Journal Applied Physics* 72, 395 (1992).
- C. L. Olson, "Gradient B Drift Magnetically Limiting Current," American Physical Society Division of Plasma Physics, Seattle, WA, November 16-20, 1992.
- C. L. Olson, "Ion Beam Transport and Focusing for ICF," *Proceedings Third International Conference on Intense Ion-Beam Interactions with Matter* (Sandia National Laboratories, Albuquerque, NM, March 1993), p. 6.
- C. L. Olson, D. D. Hinshelwood, R. F. Hubbard, M. Lampe, J. M. Neri, P. F. Ottinger, J. W. Poukey, D. V. Rose, S. P. Slinker, S. J. Stephanakis, D. R. Welch, F. C. Young, "Physics of Gas Breakdown for Ion Beam Transport in Gases," Sixth International Symposium on Heavy Ion Inertial Fusion, Frascati, Italy, May 24-29, 1993.

C. L. Olson, J. W. Poukey, "Divergence in Intense Ion Beams Caused by Incomplete Charge Neutralization," *Proceedings Ninth International Conference on High-Power Particle Beams*, ed. by D. Mosher and G. Cooperstein (National Technical Information Service, Springfield, VA, 1993), vol. 2, p. 897.

P. F. Ottinger, D. Mosher, J. M. Neri, D. V. Rose, C. L. Olson, "Transport and Focusing Considerations for Light Ion ICF Systems," *Proceedings Ninth International Conference on High-Power Particle Beams*, ed. by D. Mosher and G. Cooperstein (National Technical Information Service, Springfield, VA, 1993), vol. 1, p. 60 (invited paper).

C. L. Olson, "Beam Propagation in the Reactor Chamber," European Research Conference on Prospects for Heavy Ion Inertial Fusion, Aghia Pelaghia, Crete, September 23-October 1, 1993.

C. L. Olson, M. E. Cuneo, M. P. Desjarlais, D. L. Hanson, D. D. Hinshelwood, R. F. Hubbard, G. L. Kulcinski, M. Lampe, T. R. Lockner, J. E. Maenchen, M. G. Mazarakis, J. M. Neri, B. V. Oliver, J. C. Olson, R. E. Olson, P. F. Ottinger, R. R. Peterson, T. D. Pointon, J. W. Poukey, D. V. Rose, T. W. L. Sanford, S. P. Slinker, S. A. Slutz, S. J. Stephanakis, D. R. Welch, F. C. Young, "Beam Transport," 1993 Workshop on Status of ICF Research Programmes and Conceptual ICF Reactor Studies, Kernforschungszentrum Karlsruhe, Karlsruhe, Germany, October 18-20, 1993.

C. L. Olson, M. E. Cuneo, M. P. Desjarlais, D. L. Hanson, D. D. Hinshelwood, R. F. Hubbard, G. L. Kulcinski, M. Lampe, T. R. Lockner, J. E. Maenchen, M. G. Mazarakis, J. M. Neri, B. V. Oliver, J. C. Olson, R. E. Olson, P. F. Ottinger, R. R. Peterson, T. D. Pointon, J. W. Poukey, D. V. Rose, T. W. L. Sanford, S. P. Slinker, S. A. Slutz, S. J. Stephanakis, D. R. Welch, F. C. Young, "Beam Transport," 11th International Workshop on Laser Interaction and Related Plasma Phenomena, Monterey, CA, October 25-29, 1993.

C. L. Olson, T. W. L. Sanford, "Simulation of Charged-Particle Beam Transport in a Gas Using a Hybrid Particle-Fluid Plasma Model," *Physics of Fluids B* 5, 4144 (1993).

F. C. Young, D. D. Hinshelwood, R. F. Hubbard, M. Lampe, J. M. Neri, C. L. Olson, P. F. Ottinger, D. V. Rose, S. P. Slinker, S. J. Stephanakis, D. R. Welch, "Current Neutralization of Intense MeV Proton Beam Transport in Laboratory Plasmas," *Physical Review Letters* 70, 2573 (1993).

C. L. Olson, D. D. Hinshelwood, R. F. Hubbard, M. Lampe, J. M. Neri, P. F. Ottinger, J. W. Poukey, D. V. Rose, S. P. Slinker, S. J. Stephanakis, D. R. Welch, F. C. Young, "Physics of Gas Breakdown for Ion Beam Transport in Gases," *Nuovo Cimento A* 106, 1705 (1993).

D. V. Rose, D. D. Hinshelwood, P. F. Ottinger, J. M. Neri, C. L. Olson, "Power Efficiency Tuning for Light-Ion-Beam ICF Transport," American Physical Society Division of Plasma Physics Meeting, St. Louis, MO, November 1-5, 1993.

F. Targets and Deposition Physics

R. J. Dukart, "Ion Beam Effects on Thermal K-Shell Emission from High-Temperature Plasmas on PBFA II," 16th IEEE International Conference on Plasma Science, Buffalo, New York, May 22-24, 1989.

J. E. Bailey, A. L. Carlson, G. A. Chandler, M. S. Derzon, R. J. Dukart, B. A. Hammel, D. J. Johnson, T. R. Lockner, J. E. Maenchen, E. J. McGuire, T. A. Mehlhorn, W. E. Nelson, L. E. Ruggles, D. F. Wenger, B. A. Hammel, "Observation of K-Alpha X-Ray Satellites from an Ion Beam Heated Target," Seventh American Physical Society Topical Conference on Atomic Processes in Plasmas, Gaithersburg, MD, October 2-5, 1989.

R. J. Dukart, "Ion Beam Effects on Thermal K-Shell Emission from High-Temperature Plasmas on PBFA II," Seventh American Physical Society Topical Conference on Atomic Processes in Plasmas, Gaithersburg, MD, October 2-5, 1989.

G. A. Chandler, M. S. Derzon, R. J. Dukart, P. D. Grandon, T. R. Lockner, E. J. McGuire, "A Grazing Incidence Spectrum from an On-Axis Teflon Cone Target Has Been Obtained on PBFA II," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.

J. E. Bailey, A. L. Carlson, G. A. Chandler, M. S. Desjarlais, R. J. Dukart, B. A. Hammel, D. J. Johnson, T. R. Lockner, J. E. Maenchen, E. J. McGuire, T. A. Mehlhorn, W. E. Nelson, L. E. Ruggles, W. A. Stygar, D. F. Wenger, "Diagnosis of an Ion Beam Heated Target Using K-Alpha X-Ray Satellites," Fifth International Workshop on Atomic Physics for Ion Driven Fusion, Schliersee, Germany, January 29-February 2, 1990.

T. A. Mehlhorn, R. J. Dukart, E. J. McGuire, J. E. Bailey, W. E. Nelson, "Simulation of K-Alpha X-Ray Satellites from Ion Beam Heated Targets," Fifth International Workshop on Atomic Physics for Ion Driven Fusion, Schliersee, Germany, January 29-February 2, 1990.

J. E. Bailey, A. L. Carlson, G. A. Chandler, M. S. Derzon, R. J. Dukart, B. A. Hammel, D. J. Johnson, T. R. Lockner, J. E. Maenchen, E. J. McGuire, T. A. Mehlhorn, W. E. Nelson, L. E. Ruggles, W. A. Stygar, D. F. Wenger, "Observation of K-Alpha X-Ray Satellites from a Target Heated by an Intense Ion Beam," *Laser and Particle Beams* **8**, 555 (1990).

R. J. Dukart, T. A. Mehlhorn, "Ion Impact Ionization Effects in a 1-D Radiation Hydrodynamics Code," Eighth Topical Conference on High-Temperature Plasma Diagnostics, Hyannis, MA, May 6-10, 1990.

F. C. Perry, D. D. Noack, "Energy Dependence and Hydrodynamic Response of PBFA-II Targets," Eighth Topical Conference on High-Temperature Plasma Diagnostics, Hyannis, MA, May 6-10, 1990.

D. L. Cook, J. E. Bailey, K. W. Bieg, D. D. Bloomquist, R. S. Coats, G. A. Chandler, M. E. Cuneo, M. S. Derzon, M. P. Desjarlais, P. L. Dreike, R. J. Dukart, R. A. Gerber, D. J. Johnson, R. J. Leeper, T. R. Lockner, D. H. McDaniel, J. E. Maenchen, M. K. Matzen, T. A. Mehlhorn, L. P. Mix, A. R. Moats, W. E. Nelson, T. D. Pointon, A. L. Pregonzer, J. P. Quintenz, T. J. Renk, S. E. Rosenthal, C. L. Ruiz, S. A. Slutz, R. W. Stinnett, W. A. Stygar, G. C. Tisone, J. R. Woodworth, J. P. VanDevender, "Light Ion Sources and Target Results on PBFA II," Eighth International Conference on High-Power Particle Beams, Novosibirsk, USSR, July 2-5, 1990 (invited talk).

F. C. Perry, D. D. Noack, "Energy Dependence and Hydrodynamic Response of PBFA-II Targets," *Review Scientific Instruments* 61, 3149 (1990).

J. E. Bailey, A. L. Carlson, G. A. Chandler, M. S. Derzon, R. J. Dukart, B. A. Hammel, D. J. Johnson, T. R. Lockner, J. E. Maenchen, E. J. McGuire, T. A. Mehlhorn, W. E. Nelson, L. E. Ruggles, W. A. Stygar, D. F. Wenger, R. Mancini, J. J. MacFarlane, P. Wang, "Diagnosis of an Ion Beam Heated Target Using K-Alpha X-Ray Satellites," Third International Conference on Intense Ion-Beam Interactions with Matter, Albuquerque, NM, November 7-8, 1990.

R. J. Leeper, J. E. Maenchen, J. E. Bailey, R. P. Kensek, W. A. Stygar, D. F. Wenger, "Proposed Enhanced dE/dx Measurements on PBFA II," Third International Conference on Intense Ion-Beam Interactions with Matter, Albuquerque, NM, November 7-8, 1990.

E. J. McGuire, "Precision Calculations of Proton Stopping Power," Third International Conference on Intense Ion-Beam Interactions with Matter, Albuquerque, NM, November 7-8, 1990.

T. A. Mehlhorn, "Considerations for Combining Ion-Energy Deposition and Hydrodynamics," Third International Conference on Intense Ion-Beam Interactions with Matter, Albuquerque, NM, November 7-8, 1990.

P. D. Rockett, "Plans and Bases for Future Ion Beam-Matter Interaction Experiments," Third International Conference on Intense Ion-Beam Interactions with Matter, Albuquerque, NM, November 7-8, 1990.

E. J. McGuire, "The Proton Stopping Powers of Aluminum and Nickel Ions," *Journal of Applied Physics* 70, 7213 (1991).

R. J. Dukart, T. A. Mehlhorn, "Ion Impact Ionization Effects in a 1-D Radiation Hydrodynamics Code," *Review Scientific Instruments* 61, 3148 (1990).

J. J. MacFarlane, P. Wang, T. A. Mehlhorn, R. J. Dukart, J. E. Bailey, "Numerical Simulations of Time-Dependent K-Alpha Line Emission Spectra from Aluminum Targets Heated by Intense Proton Beams," Eighth American Physical Society Topical Conference on Atomic Processes in Plasmas, Portland, ME, August 25-29, 1991.

R. E. Olson, "Overview of Target Requirements for PBFA II," Eighth Target Fabrication Specialists' Meeting, Albuquerque, NM, September 23-26, 1991.

D. A. Schneider, J. H. Aubert, R. A. Assink, "Determination of Deuterium Gas Pressure in Plastic Targets by Nuclear Magnetic Resonance," Eighth Target Fabrication Specialists' Meeting, Albuquerque, NM, September 23-26, 1991.

D. R. Humphreys, "Magnetized Fuel Targets for PBFA II," Magnetic Target Fusion Workshop, Phillips Laboratory, Albuquerque, NM, September 27, 1991 (invited talk).

M. A. Sweeney, "The Phi Target Can Produce Detectable Neutrons at Low Beam Power," Magnetic Target Fusion Workshop, Phillips Laboratory, Albuquerque, NM, September 27, 1991 (invited talk).

D. L. Cook, J. E. Bailey, K. W. Bieg, D. D. Bloomquist, R. S. Coats, G. A. Chandler, M. E. Cuneo, M. S. Derzon, M. P. Desjarlais, P. L. Dreike, R. J. Dukart, R. A. Gerber, D. J. Johnson, R. J. Leeper, T. R. Lockner, D. H. McDaniel, J. E. Maenchen, M. K. Matzen, T. A. Mehlhorn, L. P. Mix, A. R. Moats, W. E. Nelson, T. D. Pointon, A. L. Pregoner, J. P. Quintenz, T. J. Renk, S. E. Rosenthal, C. L. Ruiz, S. A. Slutz, R. W. Stinnett, W. A. Stygar, G. C. Tisone, J. R. Woodworth, J. P. VanDevender, "Light Ion Sources and Target Results on PBFA II," *Proceedings Eighth International Conference on High-Power Particle Beams*, ed. by B. N. Breizman and B. A. Knyazev (World Scientific, NJ, 1991), vol. 1, p. 3 (invited talk).

T. A. Mehlhorn, D. J. Johnson, J. E. Bailey, D. L. Cook, G. A. Chandler, M. S. Derzon, M. P. Desjarlais, T. A. Haill, T. W. Hussey, R. J. Leeper, T. R. Lockner, M. K. Matzen, D. H. McDaniel, L. P. Mix, R. E. Olson, J. P. Quintenz, G. E. Rochau, C. L. Ruiz, S. A. Slutz, R. W. Stinnett, W. A. Stygar, "Status and Prospects for Ion Beam Coupling and Target Physics Experiments at Sandia," Tenth International Workshop on Laser Interaction and Related Plasma Phenomena, Monterey, CA, November 11-15, 1991 (invited talk).

G. A. Chandler, J. H. Aubert, J. E. Bailey, A. L. Carlson, D. K. Derzon, M. S. Derzon, R. J. Dukart, D. R. Humphreys, J. Hunter, D. J. Johnson, M. K. Matzen, A. R. Moats, R. E. Olson, J. G. Pantuso, P. D. Rockett, C. L. Ruiz, P. S. Sawyer, J. A. Torres, T. W. Hussey, "ICF Target Diagnostics on PBFA II," Ninth Topical Conference on High-Temperature Plasma Diagnostics, Santa Fe, NM, March 15-19, 1992 (invited talk).

D. K. Derzon, J. H. Aubert, D. H. Schneider, R. A. Assink, P. S. Sawyer, F. W. McNamara, "Proton Beam Targets Shot on PBFA II," Ninth Topical Conference on High-Temperature Plasma Diagnostics, Santa Fe, NM, March 15-19, 1992.

R. J. Dukart, R. E. Olson, J. E. Bailey, G. A. Chandler, M. S. Derzon, "Analysis of a Proton Driven, Imploding Pusher Target on PBFA II," Ninth Topical Conference on High-Temperature Plasma Diagnostics, Santa Fe, NM, March 15-19, 1992.

J. J. MacFarlane, P. Wang, T. A. Mehlhorn, J. E. Bailey, R. J. Dukart, "Aluminum K-Shell Line Emission as a Diagnostic in Light Ion Beam Fusion Experiments," Ninth Topical Conference on High-Temperature Plasma Diagnostics, Santa Fe, NM, March 15-19, 1992.

A. R. Moats, M. S. Derzon, D. J. Johnson, W. E. Nelson, J. G. Pantuso, C. L. Ruiz, D. F. Wenger, "Measurement of Beam Properties and Reproducibility on Recent PBFA-II Target Shots," Ninth Topical Conference on High-Temperature Plasma Diagnostics, Santa Fe, NM, March 15-19, 1992.

G. A. Chandler, J. H. Aubert, J. E. Bailey, A. L. Carlson, D. K. Derzon, M. S. Derzon, R. J. Dukart, D. R. Humphreys, J. Hunter, D. J. Johnson, M. K. Matzen, A. R. Moats, R. E. Olson, J. G. Pantuso, P. D. Rockett, C. L. Ruiz, P. S. Sawyer, J. A. Torres, T. W. Hussey, "ICF Target Diagnostics on PBFA II," *Review Scientific Instruments* **63**, 4828 (1992) (invited paper).

D. K. Derzon, J. H. Aubert, D. H. Schneider, R. A. Assink, P. S. Sawyer, F. W. McNamara, "Proton Beam Targets Shot on PBFA II," *Review Scientific Instruments* **63**, 4779 (1992).

J. J. MacFarlane, P. Wang, T. A. Mehlhorn, J. E. Bailey, R. J. Dukart, "Aluminum K-Shell Line Emission as a Diagnostic in Light Ion Beam Fusion Experiments," *Review Scientific Instruments* **63**, 5062 (1992).

A. R. Moats, M. S. Derzon, D. J. Johnson, W. E. Nelson, J. G. Pantuso, C. L. Ruiz, D. F. Wenger, "Measurement of Beam Properties and Reproducibility on Recent PBFA-II Target Shots," *Review Scientific Instruments* **63**, 5065 (1992).

R. J. Dukart, R. E. Olson, "Analysis of PBFA-II Target Experiments," Ninth International Conference on High Power Particle Beams, Washington, D.C., May 25-29, 1992.

T. A. Mehlhorn, L. D. Bacon, J. E. Bailey, D. D. Bloomquist, G. A. Chandler, R. S. Coats, D. L. Cook, M. E. Cuneo, M. S. Derzon, M. P. Desjarlais, R. J. Dukart, A. B. Filuk, T. A. Haill, D. L. Hanson, D. J. Johnson, R. J. Leeper, T. R. Lockner, C. W. Mendel, L. P. Mix, A. R. Moats, J. P. Quintenz, T. D. Pointon, T. J. Renk, G. E. Rochau, S. E. Rosenthal, C. L. Ruiz, D. B. Seidel, S. A. Slutz, R. W. Stinnett, W. A. Stygar, G. C. Tisone, R. E. Olson, J. P. VanDevender, D. F. Wenger, "Progress in Lithium Beam Focusing and Beam-Target Interaction Experiments at SNL," Ninth International Conference on High-Power Particle Beams, Washington, D.C., May 25-29, 1992 (invited talk).

D. R. Humphreys, "Current Cooling," Inter-Lab Magnetic Target Fusion Workshop, Los Alamos National Laboratory, Los Alamos, NM, September 21, 1992 (invited talk).

M. K. Matzen, "Sandia Status," Inter-Lab Magnetic Target Fusion Workshop, Los Alamos National Laboratory, Los Alamos, NM, September 21, 1992 (invited talk).

T. A. Mehlhorn, "Status and Prospects for Ion Beam Coupling and Target Physics Experiments at Sandia National Laboratories," in *Laser Interaction and Related Plasma Phenomena* (Plenum Press, New York, 1992), ed. by G. Miley and H. Hora, vol. 10, p. 553.

A. R. Moats, M. S. Derzon, D. J. Johnson, C. L. Ruiz, W. E. Nelson, "Beam Symmetry Measurements Using Time-Integrated X-Ray Pinhole Cameras on PBFA-II Target Shots," American Physical Society Division of Plasma Physics Meeting, Seattle, WA, November 16-20, 1992.

- F. C. Perry, "Determination of Absorbed Energy from Hydrodynamic Response," American Physical Society Division of Plasma Physics Meeting, Seattle, WA, November 16-20, 1992.
- F. C. Perry, "Energy Deposition and Hydrodynamic Response of Materials," Conference on Biomedical Optics, Los Angeles, CA, January 16-22, 1993.
- T. A. Mehlhorn, "Target Experiments at the Petawatt/g Level at Sandia National Laboratories," Physics of High Energy Density in Matter, Hirschegg, Klein-Walsertal, Austria, January 31-February 5, 1993 (invited talk).
- J. E. Bailey, A. L. Carlson, G. A. Chandler, M. S. Derzon, R. J. Dukart, B. A. Hammel, D. J. Johnson, T. R. Lockner, J. E. Maenchen, E. J. McGuire, T. A. Mehlhorn, W. E. Nelson, L. E. Ruggles, W. A. Stygar, D. F. Wenger, "Diagnosis of an Ion Beam Heated Target Using K-Alpha X-Ray Satellites," *Proceedings Third International Conference on Intense Ion-Beam Interactions with Matter* (Sandia National Laboratories, Albuquerque, NM, March 1993), p. 61.
- R. J. Leeper, J. E. Maenchen, J. E. Bailey, R. P. Kensek, W. A. Stygar, D. F. Wenger, "Proposed Enhanced dE/dx Measurements on PBFA II," *Proceedings Third International Conference on Intense Ion-Beam Interactions with Matter* (Sandia National Laboratories, Albuquerque, NM, March 1993), p. 27.
- E. J. McGuire, "Precision Calculations of Proton Stopping Power," *Proceedings Third International Conference on Intense Ion-Beam Interactions with Matter* (Sandia National Laboratories, Albuquerque, NM, March 1993), p. 21.
- P. D. Rockett, "Plans and Bases for Future Ion Beam-Matter Interaction Experiments," *Proceedings Third International Conference on Intense Ion-Beam Interactions with Matter* (Sandia National Laboratories, Albuquerque, NM, March 1993), p. 45.
- J. H. Aubert, P. Baca, "Lithium Thermal Targets Shot on PBFA II," Ninth Target Fabrication Specialists' Meeting, Monterey, CA, July 5-8, 1993.
- F. W. McNamara, J. H. Aubert, "Techniques for Producing Free-Standing Thin Films on Frames," Ninth Target Fabrication Specialists' Meeting, Monterey, CA, July 5-8, 1993.
- T. A. Mehlhorn, L. D. Bacon, J. E. Bailey, D. D. Bloomquist, G. A. Chandler, R. S. Coats, D. L. Cook, M. E. Cuneo, M. S. Derzon, M. P. Desjarlais, R. J. Dukart, A. B. Filuk, T. A. Haill, D. L. Hanson, D. J. Johnson, R. J. Leeper, T. R. Lockner, C. W. Mendel, L. P. Mix, A. R. Moats, J. P. Quintenz, T. D. Pointon, T. J. Renk, G. E. Rochau, S. E. Rosenthal, C. L. Ruiz, D. B. Seidel, S. A. Slutz, R. W. Stinnett, W. A. Stygar, G. C. Tisone, R. E. Olson, J. P. VanDevender, D. F. Wenger, "Progress in Lithium Beam Focusing and Beam-Target Interaction Experiments at SNL," *Proceedings Ninth International Conference on High-Power Particle Beams*, ed. by D. Mosher and G. Cooperstein (National Technical Information Service, Springfield, VA, 1993), vol. 1, p. 31 (invited paper).

F. C. Perry, "Energy Deposition and Hydrodynamic Response of Materials," *Progress in Biomedical Optics, Proceedings of Laser Tissue Interaction IV*, ed. by S. L. Jacques, A. Katzir (Society of Photo-Optical Instrumentation Engineers, Bellingham, WA, 1993), vol. 1882, p. 132.

T. A. Mehlhorn, J. E. Bailey, G. A. Chandler, R. S. Coats, D. L. Cook, M. S. Derzon, M. P. Desjarlais, R. J. Dukart, R. A. Gerber, T. A. Haill, D. J. Johnson, R. J. Leeper, T. R. Lockner, M. G. Mazarakis, C. W. Mendel, L. P. Mix, A. R. Moats, T. J. Renk, G. E. Rochau, S. E. Rosenthal, C. L. Ruiz, G. C. Tisone, R. E. Olson, D. F. Wenger, "Lithium Beam Driven Target Experiments at 10^{15} W/g on PBFA II," 11th International Workshop on Laser Interaction and Related Plasma Phenomena, Monterey, CA, October 25-29, 1993.

J. J. MacFarlane, P. Wang, J. E. Bailey, T. A. Mehlhorn, R. J. Dukart, "Plasma Diagnostics Using K-Alpha Satellite Line Emission in Light Ion Beam Fusion Experiments," Sixth International Workshop on Atomic Physics for Ion-Driven Fusion, Santa Fe, NM, November 8-12, 1993.

M. K. Matzen, "Overview of Light Ion Target Physics," Sixth International Workshop on Atomic Physics for Ion-Driven Fusion, Santa Fe, NM, November 8-12, 1993.

E. J. McGuire, "Systematic Ion-Atom Interaction Cross Sections and Stopping Powers in the Plane Wave Born Approximation," Sixth International Workshop on Atomic Physics for Ion-Driven Fusion, Santa Fe, NM, November 8-12, 1993.

A. R. Moats, M. S. Derzon, G. A. Chandler, M. K. Matzen, R. J. Dukart, "Lithium Beam Characteristics Using Inner-Shell X-Ray Images on PBFA-II Targets," Sixth International Workshop on Atomic Physics for Ion-Driven Fusion, Santa Fe, NM, November 8-12, 1993.

S. A. Slutz, "Analytic Optimization of Ion Driven Hohlraums," Sixth International Workshop on Atomic Physics for Ion-Driven Fusion, Santa Fe, NM, November 8-12, 1993.

G. Advanced Driver and Pulsed Power Technology Development

D. L. Johnson, J. J. Ramirez, R. W. Stinnett, K. B. Coachman, "A Conceptual Design for an LMF Accelerator Module," Particle Accelerator Conference, Chicago, IL, March 20-23, 1989.

J. J. Ramirez, "Very High Pulse Energy Accelerators," Particle Accelerator Conference, Chicago, IL, March 20-23, 1989.

C. L. Olson, "Collective Accelerators," *Encyclopedias/Science* (McGraw-Hill, New York, 1989).

D. J. Sharp, H. C. Harjes, G. A. Mann, "Electrophoretically Applied Dielectrics for Amorphous Metal Foils in Pulsed Power Saturable Reactors," Materials Research Society Symposium, San Diego, CA, April 25-26, 1989.

J. A. Alexander, J. P. Corley, D. L. Johnson, G. J. Denison, K. Hodge, P. Pankuch, J. J. Ramirez, "Performance of the Hermes-III Pulse Forming Lines," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.

J. P. Corley, C. E. Heath, D. L. Johnson, S. E. Rosenthal, J. W. Poukey, R. G. Adams, J. J. Ramirez, I. D. Smith, P. W. Spence, J. Fockler, "Positive Polarity Voltage Adder Magnetically Insulated Transmission Line (MITL) Experiments on HELIA," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.

G. J. Denison, J. A. Alexander, J. P. Corley, D. L. Johnson, K. C. Hodge, M. M. Manzanarez, G. Weber, R. A. Hamil, L. P. Schanwald, J. J. Ramirez, "Performance of the Hermes-III Laser Triggered Gas Switches," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.

H. C. Harjes, G. A. Mann, E. L. Neau, F. A. Morgan, "Improved Core Insulating Schemes for Multi-Terawatt Magnetic Switches," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.

D. L. Johnson, J. A. Alexander, J. J. Ramirez, J. P. Corley, G. J. Denison, J. W. Poukey, T. R. Lockner, S. E. Rosenthal, C. L. Ruiz, "Hermes-III Positive Polarity Experiment," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.

W. A. Johnson, L. X. Schneider, E. L. Neau, "Theory, Simulation, and Experiments of a Single Module Coax to Parallel Plate Transmission for the Transport Section of PBFA II," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.

G. M. Loubriel, F. J. Zuvatern, H. P. Hjalmarson, M. W. O'Malley, "Closing Photoconductive Semiconductor Switches," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.

T. H. Martin, "Empirical Formula for Gas Switch Breakdown Delay," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989 (invited talk).

J. J. Ramirez, K. R. Prestwich, D. L. Johnson, J. P. Corley, G. J. Denison, J. A. Alexander, T. L. Franklin, P. J. Pankuch, T. W. L. Sanford, T. J. Sheridan, L. L. Torrison, G. A. Zawadzkas, "Performance of the Hermes-III Gamma Ray Simulator," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.

L. X. Schneider, S. R. Babcock, G. E. Laderach, "Lifetime Testing of Commercially Available 3 μ F, 100 kV Pulsed-Power Capacitors," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.

L. X. Schneider, W. A. Johnson, E. L. Neau, S. R. Babcock, "A Pulsed-Power Upgrade Study of PBFA II Based on a Closed Disk Transmission System," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.

B. N. Turman, D. R. Humphreys, C. N. Richards, "Interstage Closure Times for the Rimfire Multistage Gas Switch," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.

J. M. Wilson, G. L. Donovan, "Improvement in Synchronization of the PBFA-II Accelerator with Laser-Triggered Gas Switches," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.

F. J. Zuvatern, G. M. Loubriel, B. B. McKenzie, M. W. O'Malley, R. A. Hamil, L. P. Schanwald, H. P. Hjarlmarson, "Photoconductive Semiconductor Switch Recovery," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989 (invited talk).

A. A. Hauer, D. W. Forslund, C. J. McKinstrie, J. S. Wark, P. J. Hargis, R. A. Hamil, J. M. Kindel, "Current New Applications of Laser Plasmas," in *Laser-Induced Plasmas and Applications*, ed. by L. J. Raziemski and D. A. Cremers (Marcel Dekker, New York, 1989), p. 385.

J. A. Alexander, J. P. Corley, D. L. Johnson, G. J. Denison, K. Hodge, P. Pankuch, J. J. Ramirez, "Performance of the Hermes-III Pulse Forming Lines," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 575.

J. P. Corley, C. E. Heath, D. L. Johnson, S. E. Rosenthal, J. W. Poukey, R. G. Adams, J. J. Ramirez, I. D. Smith, P. W. Spence, J. Fockler, "Positive Polarity Voltage Adder Magnetically Insulated Transmission Line (MITL) Experiments on HELIA," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 571.

G. J. Denison, J. A. Alexander, J. P. Corley, D. L. Johnson, K. C. Hodge, M. M. Manzanares, G. Weber, R. A. Hamil, L. P. Schanwald, J. J. Ramirez, "Performance of the Hermes-III Laser Triggered Gas Switches," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 579.

H. C. Harjes, G. A. Mann, E. L. Neau, F. A. Morgan, "Improved Core Insulating Schemes for Multi-Terawatt Magnetic Switches," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 684.

D. L. Johnson, J. A. Alexander, J. J. Ramirez, J. P. Corley, G. J. Denison, J. W. Poukey, T. R. Lockner, S. E. Rosenthal, C. L. Ruiz, "Hermes-III Positive Polarity Experiment," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 32.

W. A. Johnson, L. X. Schneider, E. L. Neau, "Theory, Simulation, and Experiments of a Single Module Coax to Parallel Plate Transmission for the Transport Section of PBFA II," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 54.

G. M. Loubriel, F. J. Zuvatern, H. P. Hjalmarson, M. W. O'Malley, "Closing Photoconductive Semiconductor Switches," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 365.

T. H. Martin, "Empirical Formula for Gas Switch Breakdown Delay," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 73 (invited paper).

J. J. Ramirez, K. R. Prestwich, D. L. Johnson, J. P. Corley, G. J. Denison, J. A. Alexander, T. L. Franklin, P. J. Pankuch, T. W. L. Sanford, T. J. Sheridan, L. L. Torrison, G. A. Zawadzka, "Performance of the Hermes-III Gamma Ray Simulator," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 26.

L. X. Schneider, S. R. Babcock, G. E. Laderach, "Lifetime Testing of Commercially Available 3 μ F, 100 kV Pulsed-Power Capacitors," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 902.

L. X. Schneider, W. A. Johnson, E. L. Neau, S. R. Babcock, "A Pulsed-Power Upgrade Study of PBFA II Based on a Closed Disk Transmission System," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by B. H. Bernstein and (IEEE, New York, 1989), p. 214.

B. N. Turman, D. R. Humphreys, C. N. Richards, "Interstage Closure Times for the Rimfire Multistage Gas Switch," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 555.

J. M. Wilson, G. L. Donovan, "Improvement in Synchronization of the PBFA-II Accelerator with Laser-Triggered Gas Switches," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 197.

F. J. Zuvatern, G. M. Loubriel, B. B. McKenzie, M. W. O'Malley, R. A. Hamil, L. P. Schanwald, H. P. Hjalmarson, "Photoconductive Semiconductor Switch Recovery," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 412 (invited paper).

D. L. Johnson, J. J. Ramirez, R. W. Stinnett, K. B. Coachman, "A Conceptual Design for an LMF Accelerator Module," *Proceedings 1989 IEEE Particle Accelerator Conference*, ed. by F. Bennett and J. Kopta (IEEE, New York, 1989), vol. 2, p. 1017.

- J. J. Ramirez, "Very High Pulse Energy Accelerators," *Proceedings 1989 IEEE Particle Accelerator Conference*, ed. by F. Bennett and J. Kopta (IEEE, New York, 1989), vol. 3, 1446.
- D. L. Johnson, J. P. Corley, J. J. Ramirez, J. W. Poukey, "SABRE, Sandia Accelerator and Beam Research Experiments," American Physical Society Spring Meeting, Washington, D.C., April 16-19, 1990.
- R. G. Adams, "Tuned Ultraviolet Laser Triggering of Lightning Channels," The Lightning Environmental Working Group, Albuquerque, NM, May 16, 1990.
- M. A. Sweeney, E. L. Patterson, G. E. Samlin, "Measured and Calculated Calorimeter Deposition in a Long Pulse Electron-Beam-Pumped Laser Facility," 17th IEEE International Conference on Plasma Science, Oakland, CA, May 21-23, 1990.
- H. C. Harjes, D. J. Sharp, G. A. Mann, F. A. Morgan, W. G. Yelton, "Investigations into the Use of Dielectric Coatings in Magnetic Switches," 19th IEEE Power Modulator Symposium, San Diego, CA, June 26-28, 1990.
- H. C. Harjes, K. W. Reed, M. T. Buttram, B. N. Turman, E. L. Neau, L. E. Martinez, J. L. Adcock, E. A. Weinbrecht, G. E. Laderach, G. E. Pena, M. E. Butler, L. X. Schneider, R. W. Wavrik, K. J. Penn, G. J. Weber, "The Repetitive High Energy Pulsed Power Module," 19th IEEE Power Modulator Symposium, San Diego, CA, June 26-28, 1990.
- G. M. Loubriel, F. J. Zuvatern, D. L. McLaughlin, W. D. Helgeson, M. W. O'Malley, "Triggering GaAs Lock-On Switches with Laser Diodes," 19th IEEE Power Modulator Symposium, San Diego, CA, June 26-28, 1990.
- K. W. Reed, S. N. Kempka, G. J. Weber, R. W. Wavrik, H. C. Harjes, M. T. Buttram, B. N. Turman, E. L. Neau, L. E. Martinez, J. L. Adcock, G. E. Laderach, M. E. Butler, J. G. Stewart, "Channel Cooling Techniques for Repetitively Pulsed Magnetic Switches," 19th IEEE Power Modulator Symposium, San Diego, CA, June 26-28, 1990.
- C. H. Smith, B. N. Turman, H. C. Harjes, "Insulations for Metallic Glasses in Pulsed Power Systems," 19th IEEE Power Modulator Symposium, San Diego, CA, June 26-28, 1990.
- F. J. Zuvatern, G. M. Loubriel, M. W. O'Malley, L. P. Schanwald, D. L. McLaughlin, "Recovery of High Field GaAs Photoconductive Semiconductor Switches," 19th IEEE Power Modulator Symposium, San Diego, CA, June 26-28, 1990.
- K. R. Prestwich, J. J. Ramirez, R. W. Stinnett, D. L. Johnson, C. L. Olson, M. J. Clauser, T. A. Mehlhorn, M. P. Desjarlais, G. O. Allshouse, J. P. Corley, D. L. Hanson, M. E. Cuneo, P. F. McKay, J. W. Poukey, S. E. Rosenthal, S. A. Slutz, J. P. Quintenz, D. L. Cook, J. P. VanDevender, R. R. Peterson, R. Engelstad, J. W. Powers, "Design of a Light Ion Beam Driver for Laboratory Microfusion Facility," Eighth International Conference on High-Power Particle Beams, Novosibirsk, USSR, July 2-5, 1990 (invited talk).

- A. Rosen, P. J. Stabile, F. J. Zuvatern, G. M. Loubriel, W. D. Helgeson, M. W. O'Malley, D. L. McLaughlin, "8.5MW GaAs Pulsed Biased Switch Optically Controlled by 2-D Laser Diode Array," *Photonics Technology Letters* **2**, 525 (1990).
- W. A. Johnson, L. K. Warne, *Analytical and Numerical Modeling of a Nonlinear Closing Switch*, Sandia National Laboratories Report No. SAND90-1061 (Albuquerque, NM, August 1990).
- W. A. Johnson, L. K. Warne, "TEM Analysis of Multi-module Effects on Coax-Parallel-Plate Transitions for PBFA II," *Laser and Particle Beams* **8**, 371 (1990).
- H. C. Harjes, D. J. Sharp, G. A. Mann, F. A. Morgan, W. G. Yelton, "Investigations into the Use of Dielectric Coatings in Magnetic Switches," *Conference Record of the 19th IEEE Power Modulator Symposium*, ed. by L. Luessen (IEEE, New York, 1990), p. 181.
- H. C. Harjes, K. W. Reed, M. T. Buttram, B. N. Turman, E. L. Neau, L. E. Martinez, J. L. Adcock, E. A. Weinbrecht, G. E. Laderach, G. E. Pena, M. E. Butler, L. X. Schneider, R. W. Wavrik, K. J. Penn, G. J. Weber, "The Repetitive High Energy Pulsed Power Module," *Conference Record of the 19th IEEE Power Modulator Symposium*, ed. by L. Luessen (IEEE, New York, 1990), p. 168.
- G. M. Loubriel, F. J. Zuvatern, D. L. McLaughlin, W. D. Helgeson, M. W. O'Malley, "Triggering GaAs Lock-On Switches with Laser Diodes," *Conference Record of the 19th IEEE Power Modulator Symposium*, ed. by L. Luessen (IEEE, New York, 1990), p. 352.
- K. W. Reed, S. N. Kempka, G. J. Weber, R. W. Wavrik, H. C. Harjes, M. T. Buttram, B. N. Turman, E. L. Neau, L. E. Martinez, J. L. Adcock, G. E. Laderach, M. E. Butler, J. G. Stewart, "Channel Cooling Techniques for Repetitively Pulsed Magnetic Switches," *Conference Record of the 19th IEEE Power Modulator Symposium*, ed. by L. Luessen (IEEE, New York, 1990), p. 192.
- C. H. Smith, B. N. Turman, H. C. Harjes, "Insulations for Metallic Glasses in Pulsed Power Systems," *Conference Record of the 19th IEEE Power Modulator Symposium*, ed. by L. Luessen (IEEE, New York, 1990), p. 174.
- F. J. Zuvatern, G. M. Loubriel, M. W. O'Malley, L. P. Schanwald, D. L. McLaughlin, "Recovery of High Field GaAs Photoconductive Semiconductor Switches," *Conference Record of the 19th IEEE Power Modulator Symposium*, ed. by L. Luessen (IEEE, New York, 1990), p. 385.
- G. M. Loubriel, M. T. Buttram, W. D. Helgeson, D. L. McLaughlin, M. W. O'Malley, F. J. Zuvatern, "Triggering GaAs Lock-On Switches with Laser Diode Arrays," SPIE Optically Activated Switching Conference, Boston, MA, November 5-6, 1990.
- F. J. Zuvatern, G. M. Loubriel, M. W. O'Malley, D. L. McLaughlin, W. D. Helgeson, "Rise Time and Recovery of GaAs Photoconductive Semiconductor Switches," SPIE Optically Activated Switching Conference, Boston, MA, November 5-6, 1990.
- M. A. Sweeney, E. L. Patterson, G. E. Samlin, "Study of Energy Deposition in the Electron-Beam-Pumped Laser Facility HAWK," *Journal of Applied Physics* **68**, 2577 (1990).

- M. A. Sweeney, E. L. Patterson, G. E. Samlin, "Study of Energy Deposition in an Electron-Beam-Pumped Laser Facility," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.
- F. J. Zuvatern, G. M. Loubriel, M. W. O'Malley, L. P. Schanwald, W. D. Helgeson, D. L. McLaughlin, B. B. McKenzie, "Photoconductive Semiconductor Switch Experiments for Pulsed Power Applications," *IEEE Trans. Elect. Devices* 37, 2472 (1990).
- M. T. Buttram, J. F. Aurand, R. S. Clark, G. M. Loubriel, L. F. Rinehart, F. J. Zuvatern, "Compact, High-Power, High Repetition Rate Impulse Generators," 1991 High Voltage Workshop, Port Heuneme, CA, March 19-21, 1991.
- P. D. Rockett, J. A. Hunter, R. P. Kensek, R. E. Olson, G. D. Kubiak, K. W. Berger, "XUV Conversion Efficiency in a Low-Intensity KrF Laser Plasma for Projection Lithography," Topical Meeting on Soft X-Ray Projection Lithography, Monterey, CA, April 10-12, 1991.
- E. L. Neau, H. C. Harjes, K. Penn, K. Reed, C. McClenahan, G. Laderach, R. W. Wavrik, J. L. Adcock, M. E. Butler, G. A. Mann, L. E. Martinez, G. Weber, G. E. Pena, "The Development of High Average Pulsed Power Accelerators for Environmental Applications," 18th IEEE International Conference on Plasma Science, Williamsburg, VA, June 3-5, 1991.
- R. M. Calfo, D. J. Scott, D. W. Scherbarth, M. T. Buttram, H. C. Harjes, "Design and Test of a Continuous Duty Pulsed AC Generator," Eighth IEEE Pulsed Power Conference, San Diego, CA, June 17-19, 1991.
- J. P. Corley, J. A. Alexander, P. J. Pankuch, C. E. Heath, D. L. Johnson, J. J. Ramirez, G. J. Denison, "SABRE, a 10-MV Linear Induction Accelerator," Eighth IEEE Pulsed Power Conference, San Diego, CA, June 17-19, 1991.
- D. J. Hall, D. Pavlik, J. F. Roach, H. C. Harjes, "Conceptual Design and System Studies for a 600 kW Repetitive Pulse Transformer," Eighth IEEE Pulsed Power Conference, San Diego, CA, June 17-19, 1991.
- H. C. Harjes, G. A. Mann, D. J. Sharp, "Electrophoretic Coatings for Magnetic Switches," Eighth IEEE Pulsed Power Conference, San Diego, CA, June 17-19, 1991.
- H. C. Harjes, K. J. Penn, K. W. Reed, C. R. McClenahan, G. E. Laderach, R. W. Wavrik, J. L. Adcock, M. E. Butler, G. A. Mann, L. E. Martinez, F. A. Morgan, G. J. Weber, E. L. Neau, "Status of the Repetitive High Energy Pulsed Power Project," Eighth IEEE Pulsed Power Conference, San Diego, CA, June 17-19, 1991.
- G. M. Loubriel, F. J. Zuvatern, W. D. Helgeson, D. L. McLaughlin, M. W. O'Malley, T. Burke, "Physics and Applications of the Lock-On Effect," Eighth IEEE Pulsed Power Conference, San Diego, CA, June 17-19, 1991.
- B. N. Turman, A. E. Rodriguez, K. J. Touryan, "Experimental and Analytical Study of Laser Triggering in the Rimfire Switch," Eighth IEEE Pulsed Power Conference, San Diego, CA, June 17-19, 1991.

F. J. Zuvatern, G. M. Loubriel, M. W. O'Malley, W. D. Helgeson, D. L. McLaughlin, "High Gain Photoconductive Semiconductor Switching," Eighth IEEE Pulsed Power Conference, San Diego, CA, June 17-19, 1991 (invited talk).

G. M. Loubriel, W. D. Helgeson, D. L. McLaughlin, M. W. O'Malley, F. J. Zuvatern, A. Rosen, P. J. Stabile, "Triggering GaAs Lock-On Switches with Laser Diode Arrays," *IEEE Trans. Elect. Devices* **38**, 692 (1991).

J. J. Ramirez, K. R. Prestwich, R. W. Stinnett, D. L. Johnson, C. L. Olson, G. O. Allshouse, M. J. Clauser, V. Harper-Slaboszewicz, T. W. L. Sanford, J. D. Boyes, T. A. Mehlhorn, L. J. Lorence, D. L. Hanson, M. E. Cuneo, R. R. Peterson, R. L. Engelstad, J. W. Power, H. Y. Khater, M. E. Sawan, E. G. Lovell, G. A. Moses, "A Light Ion Beam Driver for the Laboratory Microfusion Facility," *Fusion Technology* **19**, Part 2A, 664 (1991).

E. Schamiloglu, R. W. Stinnett, "Guest Editorial" (for special issue on vacuum discharge plasmas), *IEEE Transactions Plasma Science* **19**, 681 (1991).

G. M. Loubriel, M. T. Buttram, W. D. Helgeson, D. L. McLaughlin, M. W. O'Malley, F. J. Zuvatern, "Triggering GaAs Lock-On Switches with Laser Diode Arrays," *Optically Activated Switching*, SPIE Proc. Series vol. 1378, ed. by F. J. Zuvatern (Society of Photo-Optical Instrumentation Engineers, Bellingham, WA, 1991), p. 179.

F. J. Zuvatern, G. M. Loubriel, M. W. O'Malley, D. L. McLaughlin, W. D. Helgeson, "Rise Time and Recovery of GaAs Photoconductive Semiconductor Switches," *Optically Activated Switching*, SPIE Proc. Series vol. 1378, ed. by F. J. Zuvatern (Society of Photo-Optical Instrumentation Engineers, Bellingham, WA, 1991), p. 271.

R. M. Calfo, D. J. Scott, D. W. Scherbarth, M. T. Buttram, H. C. Harjes, "Design and Test of a Continuous Duty Pulsed AC Generator," *Digest of Technical Papers, Eighth IEEE Pulsed Power Conference*, ed. by K. R. Prestwich and R. White (IEEE, New York, 1991), p. 715.

J. P. Corley, J. A. Alexander, P. J. Pankuch, C. E. Heath, D. L. Johnson, J. J. Ramirez, G. J. Denison, "SABRE, a 10-MV Linear Induction Accelerator," *Digest of Technical Papers, Eighth IEEE Pulsed Power Conference*, ed. by K. R. Prestwich and R. White (IEEE, New York, 1991), p. 920.

D. J. Hall, D. Pavlik, J. F. Roach, H. C. Harjes, "Conceptual Design and System Studies for a 600 kW Repetitive Pulse Transformer," *Digest of Technical Papers, Eighth IEEE Pulsed Power Conference*, ed. by K. R. Prestwich and R. White (IEEE, New York, 1991), p. 241.

H. C. Harjes, G. A. Mann, D. J. Sharp, "Electrophoretic Coatings for Magnetic Switches," *Digest of Technical Papers, Eighth IEEE Pulsed Power Conference*, ed. by K. R. Prestwich and R. White (IEEE, New York, 1991), p. 723.

H. C. Harjes, K. J. Penn, K. W. Reed, C. R. McClenahan, G. E. Laderach, R. W. Wavrik, J. L. Adcock, M. E. Butler, G. A. Mann, L. E. Martinez, F. A. Morgan, G. J. Weber, E. L. Neau, "Status of the Repetitive High Energy Pulsed Power Project," *Digest of Technical Papers, Eighth IEEE Pulsed Power Conference*, ed. by K. R. Prestwich and R. White (IEEE, New York, 1991), p. 543.

G. M. Loubriel, F. J. Zuvatern, W. D. Helgeson, D. L. McLaughlin, M. W. O'Malley, T. Burke, "Physics and Applications of the Lock-On Effect," *Digest of Technical Papers, Eighth IEEE Pulsed Power Conference*, ed. by K. R. Prestwich and R. White (IEEE, New York, 1991), p. 33.

B. N. Turman, A. E. Rodriguez, K. J. Touryan, "Experimental and Analytical Study of Laser Triggering in the Rimfire Switch," *Digest of Technical Papers, Eighth IEEE Pulsed Power Conference*, ed. by K. R. Prestwich and R. White (IEEE, New York, 1991), p. 319.

F. J. Zuvatern, G. M. Loubriel, M. W. O'Malley, W. D. Helgeson, D. L. McLaughlin, "High Gain Photoconductive Semiconductor Switching," *Digest of Technical Papers, Eighth IEEE Pulsed Power Conference*, ed. by K. R. Prestwich and R. White (IEEE, New York, 1991), p. 23 (invited talk).

A. E. Rodriguez, W. L. Morgan, K. J. Touryan, M. W. Moeny, T. H. Martin, "An Air Breakdown Kinetic Model," *Journal of Applied Physics* 70, 2015 (1991).

F. J. Zuvatern, G. M. Loubriel, D. L. McLaughlin, W. D. Helgeson, M. W. O'Malley, "Electrical and Optical Properties of High Gain GaAs Switches," SPIE Optically Activated Switching II Conference, Los Angeles, CA, January 20-21, 1992.

W. A. Johnson, L. K. Warne, "Simple Circuit Models for the Terminal Properties of a Nonlinear Closing Switch," *Laser and Particle Beams* 10, 373 (1992).

D. C. Rovang, "Pulsed Magnetic Field Coil Engineering at Sandia National Laboratories using MSC-EMAS and MSC-NASTRAN," MacNeal-Schwendler Corporation 1992 World User's Conference, Dearborn, MI, May 18-22, 1992.

C. W. Mendel, D. B. Seidel, W. A. Johnson, S. E. Rosenthal, "Modeling Pulsed Power Transmission Lines," Ninth International Conference on High Power Particle Beams, Washington, D.C., May 25-29, 1992.

K. R. Prestwich, "Electron and Ion Beam Accelerators," in *The Physics of Particle Accelerators--Based in Part on U. S. Particle School Seminars and Courses in 1989 and 1990*, ed. by M. Month, M. Dienes (American Institute of Physics Press, New York, 1992), vol. 2, p. 1725.

J. J. Ramirez, K. R. Prestwich, I. D. Smith, "High-Power, Short-Pulse Generators Based on Induction Voltage Adders," *Proceedings IEEE* 80, 946 (1992).

D. C. Rovang, "Advances in the Engineering of High Field Applied-B Ion Diodes for ICF," Tenth Topical Meeting on the Technology of Fusion Energy, Boston, MA, June 7-12, 1992.

H. C. Harjes, K. J. Penn, K. W. Reed, C. R. McClenahan, G. E. Laderach, R. W. Wavrik, J. L. Adcock, M. E. Butler, G. A. Mann, G. E. Pena, G. J. Weber, D. VanDeValde, L. E. Martinez, D. Muirhead, P. D. Kiekel, D. L. Johnson, E. L. Neau, "Initial Results from the Unipolar Operation of the RHEPP Module," 20th Power Modulator Symposium, Myrtle Beach, SC, June 23-25, 1992.

F. J. Zuvatern, G. M. Loubriel, M. W. O'Malley, W. D. Helgeson, D. L. McLaughlin, G. J. Denison, "Characteristics of Current Filamentation in High Gain Photoconductive Semiconductor Switching," 20th IEEE Power Modulator Symposium, Myrtle Beach, S.C., June 23-25, 1992.

W. A. Johnson, C. W. Mendel, D. B. Seidel, TE_r Azimuthal Modes for a Biconic Transmission Line in the Small Gap Limit," *Journal of Applied Physics* 71, 4034 (1992).

W. A. Johnson, L. K. Warne, "Simple Circuit Models for the Terminal Properties of a Nonlinear Closing Switch," *Laser and Particle Beams* 10, 373 (1992).

D. C. Rovang, "Advances in the Engineering of High Field Applied-B Ion Diodes for ICF," *Fusion Technology* 21, 1571 (1992).

G. M. Loubriel, F. J. Zuvatern, "Silicon and Gallium Arsenide Photoconductive Switches," Fifth Strategic Defense Initiative Office/Office of Naval Research Pulsed Power Meeting, College Park, MD, August 17-19, 1992.

G. M. Loubriel, F. J. Zuvatern, "Silicon and Gallium Arsenide Photoconductive Switches," *Proceedings Fifth Strategic Defense Initiative Office/Office of Naval Research Pulsed Power Meeting*, ed. by G. D. Roy (1992), p. 1.

C. W. Mendel, "Analysis of Reflected Waves in Magnetically Insulated Transmission Lines," American Physical Society Division of Plasma Physics, Seattle, WA, November 16-20, 1992.

R. W. Stinnett, E. L. Neau, J. Greenly, "Surface Treatment with Pulsed Ion Beams," American Physical Society Division of Plasma Physics Meeting, Seattle, WA, November 16-20, 1992.

E. L. Patterson, N. E. Brown, G. E. Samlin, *Experiments on the Electron-Beam Radiolysis of Simulated Hanford Waste*, Sandia National Laboratories Report No. SAND92-1969 (December 1992).

E. L. Patterson, N. B. Jackson, S. M. Thornberg, G. E. Samlin, *Electron-Beam Radiolysis for Oil Spill Cleanup*, Sandia National Laboratories Report No. SAND92-1970 (December 1992).

F. J. Zuvatern, G. M. Loubriel, D. L. McLaughlin, W. D. Helgeson, M. W. O'Malley, "Electrical and Optical Properties of High Gain GaAs Switches," *Optically Activated Switching II*, SPIE Series vol. 1632, ed. by G. M. Loubriel (Society of Photo-Optical Instrumentation Engineers, Bellingham, WA, 1992), p. 152.

H. C. Harjes, K. J. Penn, K. W. Reed, C. R. McClenahan, G. E. Laderach, R. W. Wavrik, J. L. Adcock, M. E. Butler, G. A. Mann, G. E. Pena, G. J. Weber, D. VanDeValde, L. E. Martinez, D. Muirhead, P. D. Kiekel, D. L. Johnson, E. L. Neau, "Initial Results from the Unipolar Operation of the RHEPP Module," *Conference Record of the 20th Power Modulator Symposium*, ed. by B. Gray (IEEE, New York, 1992), p. 83.

F. J. Zuvatern, G. M. Loubriel, M. W. O'Malley, W. D. Helgeson, D. L. McLaughlin, G. J. Denison, "Characteristics of Current Filamentation in High Gain Photoconductive Semiconductor Switching," *Conference Record of the 20th Power Modulator Symposium*, ed. by B. Gray (IEEE, New York, 1992), p. 305.

M. G. Mazarakis, D. L. Smith, L. F. Bennett, T. R. Lockner, R. E. Olson, J. W. Poukey, J. D. Boyes, "The Light-Ion Pulsed Power Induction Accelerator for the Laboratory Microfusion Facility (LMF)," Particle Accelerator Conference, Washington, May 17-20, 1993.

E. L. Neau, "Environmental and Industrial Applications of Pulsed Power Systems," 20th IEEE International Conference on Plasma Science, Vancouver, B. C., June 7-9, 1993 (invited talk).

D. Rej, H. Davis, R. Fehl, G. Johnston, R. Muenchausen, W. Waganaar, F. C. Perry, W. E. Nelson, "Thin Film Deposition with Intense Ion Beams," 20th IEEE International Conference on Plasma Science, Vancouver, B. C., June 7-9, 1993.

S. E. Rosenthal, "Improving Power Flow in Multiple-Cathode Magnetically Insulated Transmission Lines," Twentieth IEEE International Conference on Plasma Science, Vancouver, B. C., June 7-9, 1993.

R. W. Stinnett, D. C. McIntyre, J. B. Greenly, "The Use of Pulsed, Intense Ion Beams for Thermal Surface Treatment," 20th IEEE International Conference on Plasma Science, Vancouver, B. C., June 7-9, 1993 (invited talk).

R. W. Stinnett, D. C. McIntyre, J. B. Greenly, M. O. Thomson, *The Use of Pulsed, Intense Ion Beams for Material Surface Treatment*, Sandia National Laboratories Report No. SAND93-1638 (Albuquerque, NM, July 1993).

M. E. Cuneo, J. W. Poukey, C. W. Mendel, S. E. Rosenthal, D. L. Hanson, J. R. Smith, J. E. Maenchen, D. F. Wenger, M. A. Bernard, "Observation of Reflected Waves on the SABRE Positive Polarity Inductive Adder MITL," Ninth IEEE Pulsed Power Conference, Albuquerque, NM, June 21-23, 1993.

C. A. Frost, T. H. Martin, P. E. Patterson, L. F. Rinehart, G. J. Rohwein, L. D. Roose, J. F. Aurand, M. T. Buttram, "Ultrafast Gas Switching Experiments," Ninth IEEE Pulsed Power Conference, Albuquerque, NM, June 21-23, 1993.

D. L. Johnson, K. W. Reed, H. C. Harjes, C. R. McClenahan, K. J. Penn, G. E. Laderach, G. J. Weber, P. D. Kiekel, L. E. Martinez, G. A. Mann, R. W. Wavrik, D. Muirhead, D. VanDeValde, J. L. Adcock, M. E. Butler, G. E. Pena, J. Flores, E. L. Neau, "Results of Initial Testing of the Four Stage RHEPP Accelerator," Ninth IEEE Pulsed Power Conference, Albuquerque, NM, June 21-23, 1993.

G. M. Loubriel, F. J. Zuvatern, G. J. Denison, W. D. Helgeson, D. L. McLaughlin, M. W. O'Malley, M. T. Buttram, "Photoconductive Semiconductor Switches for Pulsed Power Applications," Ninth IEEE Pulsed Power Conference, Albuquerque, NM, June 21-23, 1993.

T. H. Martin, J. F. Seaman, D. O. Jobe, "Energy Losses in Switches," Ninth IEEE Pulsed Power Conference, Albuquerque, NM, June 21-23, 1993.

M. G. Mazarakis, D. L. Smith, L. F. Bennett, T. R. Lockner, R. E. Olson, J. W. Poukey, "The LMF Triaxial MITL Voltage Adder System," Ninth IEEE Pulsed Power Conference, Albuquerque, NM, June 21-23, 1993.

E. L. Neau, B. N. Turman, E. L. Patterson, "New Applications for High Average Power Beams," Ninth IEEE Pulsed Power Conference, Albuquerque, NM, June 21-23, 1993.

D. L. Smith, M. G. Mazarakis, L. F. Bennett, T. R. Lockner, R. E. Olson, G. O. Allshouse, J. D. Boyes, "A Pulsed Power Design for the Linear Inductive Accelerator Modules for the Laboratory Microfusion Facility," Ninth IEEE Pulsed Power Conference, Albuquerque, NM, June 21-23, 1993.

C. W. Mendel, D. B. Seidel, W. A. Johnson, S. E. Rosenthal, "Modeling Pulsed Power Transmission Lines," *Proceedings Ninth International Conference on High-Power Particle Beams*, ed. by D. Mosher and G. Cooperstein (National Technical Information Service, Springfield, VA, 1993), vol. 1, p. 499.

D. L. Cook, "Economically Viable Applications of Repetitive Pulsed Power Technologies," Symposium on Near-Term Applications of Fusion and Plasma Technology, Oak Ridge, TN, October 5-7, 1993.

D. L. Cook, "Economically Viable Applications of Repetitive Pulsed Power Technologies," *Journal of Fusion Energy* **12**, 361 (1993).

A. Rosen, F. J. Zuvatern, editors, *High-Power Optically-Activated Solid State Switches* (Artech House, Boston, 1993).

R. E. Olson, G. O. Allshouse, D. L. Cook, T. R. Lockner, M. G. Mazaraks, C. L. Olson, D. L. Smith, "The Light Ion LMF and Its Relevance to IFE," 15th IEEE Symposium on Fusion Engineering, Hyannis, MA, October 11-15, 1993.

R. E. Olson, G. O. Allshouse, D. L. Cook, T. R. Lockner, M. G. Mazarakis, C. L. Olson, D. L. Smith, "The Light Ion LMF and Its Relevance to IFE," *Proceedings 15th IEEE Symposium on Fusion Engineering* (IEEE, New York, 1993), vol. 1, p. 189.

R. W. Stinnett, D. C. McIntyre, R. Buchleit, J. B. Greenly, M. O. Thompson, "IBEST: Ion Beam Surface Treatment for Enhanced Materials Properties," Sixth International Workshop on Atomic Physics for Ion-Driven Fusion, Santa Fe, NM, November 8-12, 1993.

M. G. Mazarakis, D. L. Smith, L. F. Bennett, T. R. Lockner, R. E. Olson, J. W. Poukey, J. D. Boyes, "The Light-Ion Pulsed Power Induction Accelerator for the Laboratory Microfusion Facility (LMF)," *Proceedings 1993 Particle Accelerator Conference*, ed. by S. T. Corneliussen (IEEE, New York, 1993), vol. 1, p. 667.

M. E. Cuneo, J. W. Poukey, C. W. Mendel, S. E. Rosenthal, D. L. Hanson, J. R. Smith, J. E. Maenchen, D. F. Wenger, M. A. Bernard, "Observation of Reflected Waves on the SABRE Positive Polarity Inductive Adder MITL," *Digest of Technical Papers, Ninth IEEE Pulsed Power Conference*, ed. by W. L. Baker and K. R. Prestwich (IEEE, New York, 1993), vol. 1, p. 423.

C. A. Frost, T. H. Martin, P. E. Patterson, L. F. Rinehart, G. J. Rohwein, L. D. Roose, J. F. Aurand, M. T. Buttram, "Ultrafast Gas Switching Experiments," *Digest of Technical Papers, Ninth IEEE Pulsed Power Conference*, ed. by W. L. Baker and K. R. Prestwich (IEEE, New York, 1993), vol. 1, p. 491.

D. L. Johnson, K. W. Reed, H. C. Harjes, C. R. McClenahan, K. J. Penn, G. E. Laderach, G. J. Weber, P. D. Kiekel, L. E. Martinez, G. A. Mann, R. W. Wavrik, D. Muirhead, D. VanDeValde, J. L. Adcock, M. E. Butler, G. E. Pena, J. Flores, E. L. Neau, "Results of Initial Testing of the Four Stage RHEPP Accelerator," *Digest of Technical Papers, Ninth IEEE Pulsed Power Conference*, ed. by W. L. Baker and K. R. Prestwich (IEEE, New York, 1993), vol. 1, p. 437.

G. M. Loubriel, F. J. Zuvatern, G. J. Denison, W. D. Helgeson, D. L. McLaughlin, M. W. O'Malley, M. T. Buttram, "Photoconductive Semiconductor Switches for Pulsed Power Applications," *Digest of Technical Papers, Ninth IEEE Pulsed Power Conference*, ed. by W. L. Baker and K. R. Prestwich (IEEE, New York, 1993), vol. 1, p. 76.

T. H. Martin, J. F. Seaman, D. O. Jobe, "Energy Losses in Switches," *Digest of Technical Papers, Ninth IEEE Pulsed Power Conference*, ed. by W. L. Baker and K. R. Prestwich (IEEE, New York, 1993), vol. 1, p. 463.

M. G. Mazarakis, D. L. Smith, L. F. Bennett, T. R. Lockner, R. E. Olson, J. W. Poukey, "The LMF Triaxial MITL Voltage Adder System," *Digest of Technical Papers, Ninth IEEE Pulsed Power Conference*, ed. by W. L. Baker and K. R. Prestwich (IEEE, New York, 1993), vol. 1, p. 427.

E. L. Neau, B. N. Turman, E. L. Patterson, "New Applications for High Average Power Beams," *Digest of Technical Papers, Ninth IEEE Pulsed Power Conference*, ed. by W. L. Baker and K. R. Prestwich (IEEE, New York, 1993), vol. 1, p. 253.

D. L. Smith, M. G. Mazarakis, L. F. Bennett, T. R. Lockner, R. E. Olson, G. O. Allshouse, J. D. Boyes, "A Pulsed Power Design for the Linear Inductive Accelerator Modules for the Laboratory Microfusion Facility," *Digest of Technical Papers, Ninth IEEE Pulsed Power Conference*, ed. by W. L. Baker and K. R. Prestwich (IEEE, New York, 1993), vol. 1, p. 419.

H. Diagnostics

S. N. Lapin, G. W. Cooper, L. Davis, J. E. Bailey, W. A. Stygar, A. L. Carlson, F. V. Reyes, "Range and Straggling Effects on CR-39/Range-Filter Ion Beam Measurements," Ninth Topical Conference on High-Temperature Plasma Diagnostics, Santa Fe, NM, March 15-19, 1989.

F. C. Perry, "Development of a Laser Diagnostic System on PBFA II for Light Ion Beam Research," 16th IEEE International Conference on Plasma Science, Buffalo, NY, May 22-24, 1989.

W. A. Stygar, L. P. Mix, R. J. Leeper, T. A. Mehlhorn, J. E. Maenchen, E. R. Brock, D. E. Hebron, D. J. Johnson, T. R. Lockner, W. E. Nelson, F. V. Reyes, "Energy-Resolved Imaging of the PBFA-II Ion Beam," 16th IEEE International Conference on Plasma Science, Buffalo, NY, May 22-24, 1989.

W. A. Stygar, H. C. Ives, R. P. Kensek, E. R. Brock, D. L. Fehl, D. G. Ghiglia, J. A. Halbleib, V. Harper-Slaboszewicz, M. A. Hedemann, G. A. Mastin, M. A. Palmer, B. Peyton, R. Reyes, K. Allen, J. Cuny, C. R. McClenahan, P. Teytor, "Saturn X-Ray Framing Camera," Defense Nuclear Agency Instrumentation for Nuclear Weapons Effects Testing Conference, Monterey, CA, June 5-8, 1989.

R. J. Leeper, "New Diagnostic Developments for Intense Ion Beam Experiments," *Laser and Particle Beams* 7, 649 (1989).

B. A. Hammel, L. E. Ruggles, "An Elliptical Spectrograph/Fiber Array/Streak Camera System for Remote Time-Resolved Spectral Measurements in the X-Ray Region," *Review Scientific Instruments* 60, 2861 (1989).

R. J. Leeper, W. A. Stygar, J. E. Maenchen, C. L. Ruiz, R. P. Kensek, J. E. Bailey, G. W. Cooper, D. J. Johnson, J. R. Lee, T. R. Lockner, "An Integrated Diagnostics Package for Intense Proton and Lithium Beam Measurements on Sandia National Laboratories PBFA-II Accelerator," *Nuclear Instruments and Methods* 40, 973 (1989).

R. J. Dukart, "Ion Beam Effects on Thermal K-Shell Emission from High-Temperature Plasmas on PBFA II," Seventh American Physical Society Topical Conference on Atomic Processes in Plasmas, Gaithersburg, MD, October 2-5, 1989.

G. W. Cooper, P. Carpenter, J. VanDenburg, B. Hunt, M. E. Savage, C. L. Ruiz, "Nuclear Activation Diagnostics for Plasma Opening Switches," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.

R. J. Leeper, J. L. Porter, D. E. Hebron, G. W. Cooper, C. L. Ruiz, "Total Yield Measurements of a Pulsed DD Neutron Source in an Intense X-Ray Bremsstrahlung Background Using the Pb Activation Technique," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.

J. P. Quintenz, C. W. Mendel, M. E. Savage, "A Numerical Investigation of the Electron Launcher Voltage Probe," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.

- M. E. Savage, C. W. Mendel, J. P. Quintenz, "Time-Resolved Voltage Measurements in Magnetically Insulated Transmission Lines," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.
- T. A. Haill, T. A. Mehlhorn, K. W. Bieg, M. E. Cuneo, "Simulation of Ion Beam Diagnostics on Extraction Geometry Ion Diodes," Eighth Topical Conference on High-Temperature Plasma Diagnostics," Hyannis, MA, May 6-10, 1990.
- R. P. Kensek, J. R. Lee, R. J. Leeper, D. J. Johnson, T. R. Lockner, J. E. Maenchen, L. P. Mix, W. A. Stygar, D. E. Hebron, D. F. Wenger, "Data Analysis for the Rutherford Magnetic Spectrograph on PBFA II," Eighth Topical Conference on High-Temperature Plasma Diagnostics, Hyannis, MA, May 6-10, 1990.
- T. A. Mehlhorn, R. J. Dukart, T. A. Haill, W. E. Nelson, "Transport/Hydrodynamics Simulations of Intense Ion Beam Diagnostics," Eighth Topical Conference on High-Temperature Plasma Diagnostics, Hyannis, MA, May 6-10, 1990.
- A. R. Moats, T. A. Mehlhorn, "Ion Contamination of X-Ray Pinhole Camera Images in PBFA II," Eighth Topical Conference on High-Temperature Plasma Diagnostics," Hyannis, MA, May 6-10, 1990.
- D. D. Noack, F. C. Perry, "Development of Holographic Interferometry Techniques for Application to PBFA-II Ion Source and Target Experiments," Eighth Topical Conference on High-Temperature Plasma Diagnostics," Hyannis, MA, May 6-10, 1990.
- P. D. Rockett, J. L. Porter, "A Broadband Condenser Optic for the Efficient Collection of Soft X-Ray Radiation," 17th IEEE International Conference on Plasma Science, Oakland, CA, May 21-23, 1990.
- G. W. Kuswa, R. J. Leeper, G. T. Baldwin, C. E. Crist, W. A. Stygar, D. J. Muron, J. E. Maenchen, F. C. Perry, D. D. Noack, D. L. Fehl, J. E. Bailey, C. O. Landron, D. F. Wenger, G. T. Leifeste, A. L. Carlson, "Electro Optical Measurements in Fusion Research," Symposium on Optoelectronics for Conventional and Nuclear Weapons, Albuquerque, NM, June 5-7, 1990.
- F. C. Perry, "Possible Measurement of R-M and R-T Instabilities Using a Light Ion Beam Source and Holographic Interferometry," Lawrence Livermore National Laboratory, June 13, 1990.
- W. A. Stygar, H. C. Ives, R. P. Kensek, E. R. Brock, D. L. Fehl, D. G. Ghiglia, J. A. Halbleib, V. Harper-Slaboszewicz, M. A. Hedemann, G. A. Mastin, M. A. Palmer, B. Peyton, R. Reyes, K. Allen, J. Cuny, C. R. McClenahan, P. Teytor, "Saturn X-Ray Framing Camera," *Proceedings Defense Nuclear Agency Instrumentation for Nuclear Weapons Effects Testing Conference*, (DNA, Alexandria, 1990), p. 3.

- R. J. Leeper, W. A. Stygar, J. E. Maenchen, J. E. Bailey, G. T. Baldwin, D. D. Bloomquist, A. L. Carlson, G. A. Chandler, G. W. Cooper, M. S. Derzon, R. J. Dukart, D. L. Fehl, D. E. Hebrun, D. J. Johnson, A. B. Jones, A. K. Jones, R. P. Kensek, G. W. Kuswa, C. O. Landron, P. W. Lake, J. R. Lee, T. R. Lockner, C. R. Mattson, M. K. Matzen, T. A. Mehlhorn, L. P. Mix, D. J. Muron, W. E. Nelson, D. D. Noack, K. J. Penn, F. C. Perry, F. V. Reyes, C. E. Robinson, C. L. Ruiz, P. S. Sawyer, F. A. Schmidlapp, W. F. Stearns, R. W. Stinnett, B. Sujka, J. A. Torres, D. F. Wenger, "New Diagnostic Developments for Intense Ion Beam Measurements on PBFA II," Eighth International Conference on High-Power Particle Beams, Novosibirsk, USSR, July 2-5, 1990.
- D. L. Hanson, R. R. Williams, J. L. Porter, R. B. Spielman, M. K. Matzen, "Lithium Niobate Stress Gauge Current Diagnostics for Non-Inductive Measurements of Fast Risettime Multi-Megaampere Currents," *Journal of Applied Physics* 68, 4917 (1990).
- T. A. Haill, T. A. Mehlhorn, K. W. Bieg, M. E. Cuneo, "Simulation of Ion Beam Diagnostics on Extraction Geometry Ion Diodes," *Review Scientific Instruments* 61, 3147 (1990).
- T. A. Mehlhorn, R. J. Dukart, T. A. Haill, W. E. Nelson, "Transport/Hydrodynamics Simulations of Intense Ion Beam Diagnostics," *Review Scientific Instruments* 61, 3309 (1990).
- B. A. Hammel, D. W. Phillion, L. E. Ruggles, "Demonstration of Reduced Source Size Broadening with a Johann Focusing Elliptical Spectrograph and Theory of the Second-Order Source Broadening," *Review Scientific Instruments* 61, 1920 (1990).
- R. P. Kensek, J. R. Lee, R. J. Leeper, D. J. Johnson, T. R. Lockner, J. E. Maenchen, L. P. Mix, W. A. Stygar, D. E. Hebrun, D. F. Wenger, "Data Analysis for the Rutherford Magnetic Spectrograph on PBFA II," *Review Scientific Instruments* 61, 3247 (1990).
- T. A. Mehlhorn, R. J. Dukart, T. A. Haill, W. E. Nelson, "Transport/Hydrodynamics Simulations of Intense Ion Beam Diagnostics," *Review Scientific Instruments* 61, 3309 (1990).
- D. D. Noack, F. C. Perry, "Development of Holographic Interferometry Techniques for Application to PBFA-II Ion Source and Target Experiments," *Review Scientific Instruments* 61, 3150 (1990).
- M. E. Savage, C. W. Mendel, T. W. Grasser, W. W. Simpson, D. M. Zagar, "Time-Resolved Voltage Measurements in Terawatt Magnetically Insulated Transmission Lines," *Review Scientific Instruments* 61, 3812 (1990).
- M. E. Cuneo, T. R. Lockner, G. C. Tisone, K. W. Bieg, R. W. Stinnett, J. R. Chavez, "A Refractive INDEX Gradient (RING) Diagnostic for Transporting Discharges or Expansion of Vapor or Plasmas," XIVth International Symposium on Discharges and Electrical Insulation in Vacuum, Santa Fe, NM, September 17-20, 1990.
- M. E. Cuneo, T. R. Lockner, G. C. Tisone, K. W. Bieg, R. W. Stinnett, J. R. Chavez, "A Refractive INDEX Gradient (RING) Diagnostic for Transporting Discharges or Expansion of Vapor or Plasmas," *Proceedings XIVth International Symposium on Discharges and Electrical Insulation in Vacuum*, Sandia National Laboratories Report No. SAND90-1927C (Albuquerque, NM, September 1990), p. 607.

J. E. Bailey, A. L. Carlson, G. A. Chandler, M. S. Derzon, R. J. Dukart, B. A. Hammel, D. J. Johnson, T. R. Lockner, J. E. Maenchen, E. J. McGuire, T. A. Mehlhorn, W. E. Nelson, L. E. Ruggles, W. A. Stygar, D. F. Wenger, R. Mancini, J. J. MacFarlane, P. Wang, "Diagnosis of an Ion Beam Heated Target Using K-Alpha X-Ray Satellites," Third International Conference on Intense Ion-Beam Interactions with Matter, Albuquerque, NM, November 7-8, 1990.

R. J. Leeper, J. E. Maenchen, J. E. Bailey, R. P. Kensek, W. A. Stygar, D. F. Wenger, "Proposed Enhanced dE/dx Measurements on PBFA II," Third International Conference on Intense Ion-Beam Interactions with Matter, Albuquerque, NM, November 7-8, 1990.

J. E. Bailey, A. L. Carlson, A. B. Filuk, T. J. Nash, Y. Maron, "Visual Spectroscopy Diagnostics of Light Ion Beams," Diagnostics for Contemporary Fusion Experiments Course and Workshop, Varenna, Italy, August 27-September 6, 1991.

R. J. Leeper, W. A. Stygar, J. E. Bailey, G. T. Baldwin, D. D. Bloomquist, A. L. Carlson, G. A. Chandler, C. E. Crist, G. Cooper, M. S. Derzon, R. J. Dukart, D. L. Fehl, D. E. Hebron, D. J. Johnson, R. P. Kensek, C. O. Landron, J. R. Lee, T. R. Lockner, C. R. Mattson, M. K. Matzen, J. E. Maenchen, T. A. Mehlhorn, L. P. Mix, D. J. Muron, T. J. Nash, W. E. Nelson, F. V. Reyes, P. D. Rockett, C. L. Ruiz, F. A. Schmidlapp, R. W. Stinnett, B. Sujka, D. F. Wenger, "Intense Ion Beam Diagnostics for Light Ion Inertial Fusion Experiments on PBFA II," Diagnostics for Contemporary Fusion Experiments Course and Workshop, Varenna, Italy, August 27-September 6, 1991.

W. A. Stygar, L. P. Mix, R. J. Leeper, "Optimized Rutherford-Scattering Geometries for Intense Ion Beam Diagnostics," *Review Scientific Instruments* 62, 1527 (1991).

J. E. Bailey, A. L. Carlson, A. B. Filuk, T. J. Nash, Y. Maron, "Visible Spectroscopy Diagnostics of Light Ion Beams," in *Diagnostics for Contemporary Fusion Experiments*, ed. by P. E. Stott, D. K. Akulina, G. Gorini, and E. Sindoni (Societa Italiana di Fisica, Bologna, Italy, 1991), p. 1059.

R. J. Leeper, W. A. Stygar, J. E. Bailey, G. T. Baldwin, D. D. Bloomquist, A. L. Carlson, G. A. Chandler, C. E. Crist, G. Cooper, M. S. Derzon, R. J. Dukart, D. L. Fehl, D. E. Hebron, D. J. Johnson, R. P. Kensek, C. O. Landron, J. R. Lee, T. R. Lockner, C. R. Mattson, M. K. Matzen, J. E. Maenchen, T. A. Mehlhorn, L. P. Mix, D. J. Muron, T. J. Nash, W. E. Nelson, F. V. Reyes, P. D. Rockett, C. L. Ruiz, F. A. Schmidlapp, R. W. Stinnett, B. Sujka, D. F. Wenger, "Intense Ion Beam Diagnostics for Light Ion Inertial Fusion Experiments on PBFA II," in *Diagnostics for Contemporary Fusion Experiments*, ed. by P. E. Stott, D. K. Akulina, G. Gorini, and E. Sindoni (Societa Italiana di Fisica, Bologna, Italy, 1991), p. 1051.

G. T. Baldwin, C. O. Landron, R. J. Leeper, C. R. Mattson, D. J. Muron, "Status of Photonic Data Recording on PBFA II," Sixth Photonics Workshop, Santa Barbara, CA, October 2-4, 1991.

M. E. Cuneo, T. R. Lockner, G. C. Tisone, "A Refractive INDEX Gradient (RING) Diagnostic for Transporting Discharges or Expansion of Vapor or Plasma," *IEEE Transactions on Plasma Science* 19, 800 (1991).

R. J. Leeper, W. A. Stygar, J. E. Maenchen, J. E. Bailey, G. T. Baldwin, D. D. Bloomquist, A. L. Carlson, G. A. Chandler, G. W. Cooper, M. S. Derzon, R. J. Dukart, D. L. Fehl, D. E. Hebron, D. J. Johnson, A. B. Jones, A. K. Jones, R. P. Kensek, G. W. Kuswa, C. O. Landron, P. W. Lake, J. R. Lee, T. R. Lockner, C. R. Mattson, M. K. Matzen, T. A. Mehlhorn, L. P. Mix, D. J. Muron, W. E. Nelson, D. D. Noack, K. J. Penn, F. C. Perry, F. V. Reyes, C. E. Robinson, C. L. Ruiz, P. S. Sawyer, F. A. Schmidlapp, W. F. Stearns, R. W. Stinnett, B. Sujka, J. A. Torres, D. F. Wenger, "New Diagnostic Developments for Intense Ion Beam Measurements on PBFA II," *Proceedings Eighth International Conference on High-Power Particle Beams*, ed. by B. N. Breizman and B. A. Knyazev (World Scientific, NJ, 1991), vol. 1, p. 173.

P. D. Rockett, J. A. Hunter, R. P. Kensek, R. E. Olson, G. D. Kubiak, K. W. Berger, "XUV Conversion Efficiency in a Low-Intensity KrF Laser Plasma for Projection Lithography," *Soft X-Ray Projection Lithography*, vol. 12 of 1991 OSA Technical Digest Series, ed by J. Bokor (Optical Society of America, Washington, D. C., 1991), p. 76.

P. D. Rockett, J. A. Hunter, R. E. Olson, W. C. Sweatt, G. D. Kubiak, R. L. Schmitt, K. W. Berger, "Characterization of an Excimer-Laser Generated VUV Source for Soft X-Ray Projection Lithography," *Soft X-Rays in the 21st Century Conference*, Provo, Utah, February 10-13, 1992.

G. A. Chandler, J. H. Aubert, J. E. Bailey, A. L. Carlson, D. K. Derzon, M. S. Derzon, R. J. Dukart, D. R. Humphreys, J. Hunter, D. J. Johnson, M. K. Matzen, A. R. Moats, R. E. Olson, J. G. Pantuso, P. D. Rockett, C. L. Ruiz, P. S. Sawyer, J. A. Torres, T. W. Hussey, "ICF Target Diagnostics on PBFA II," *Ninth Topical Conference on High-Temperature Plasma Diagnostics*, Santa Fe, NM, March 15-19, 1992 (invited talk).

M. T. Collopy, P. Carpenter, C. D. Harmon, J. Vandenberg, G. W. Cooper, C. L. Ruiz, F. V. Reyes, W. A. Stygar, F. A. Schmidlapp, D. J. Malbrough, R. Becker, "Calibration of CR-39 for Detecting Fusion Neutrons," *Ninth Topical Conference on High-Temperature Plasma Diagnostics*, Santa Fe, NM, March 15-19, 1992.

M. S. Derzon, J. H. Aubert, J. E. Bailey, A. L. Carlson, G. A. Chandler, D. K. Derzon, R. J. Dukart, D. R. Humphreys, J. Hunter, D. J. Johnson, M. K. Matzen, L. P. Mix, A. R. Moats, R. E. Olson, J. G. Pantuso, P. D. Rockett, C. L. Ruiz, P. S. Sawyer, J. A. Torres, T. W. Hussey, "Comparison of Experimental Results and Calculated Detector Responses for PBFA-II Thermal Source Experiments," *Ninth Topical Conference on High-Temperature Plasma Diagnostics*, Santa Fe, NM, March 15-19, 1992.

D. L. Fehl, R. J. Leeper, R. P. Kensek, "A Simple Unfold Method for Rutherford Scattering, Intense Ion Beam Spectrographs," *Ninth Topical Conference on High-Temperature Plasma Diagnostics*, Santa Fe, NM, March 15-19, 1992.

A. B. Filuk, J. E. Bailey, "Analyzing Noise Spectral Line Shapes," *Ninth Topical Conference on High-Temperature Plasma Diagnostics*, Santa Fe, NM, March 15-19, 1992.

S. N. Lapin, G. W. Cooper, L. Davis, J. E. Bailey, W. A. Stygar, A. L. Carlson, F. V. Reyes, "Range and Straggling Effects on CR-39/Range-Filter Ion Energy Measurements," Ninth Topical Conference on High-Temperature Plasma Diagnostics, Santa Fe, NM, March 15-19, 1992.

J. J. MacFarlane, P. Wang, T. A. Mehlhorn, J. E. Bailey, R. J. Dukart, "Aluminum K-Shell Line Emission as a Diagnostic in Light Ion Beam Fusion Experiments," Ninth Topical Conference on High-Temperature Plasma Diagnostics, Santa Fe, NM, March 15-19, 1992.

C. L. Ruiz, R. J. Leeper, F. A. Schmidlapp, G. W. Cooper, D. J. Malbrough, "Absolute Calibration of a Total Yield Indium Activation Detector for DD and DT Neutrons," Ninth Topical Conference on High-Temperature Plasma Diagnostics, Santa Fe, NM, March 15-19, 1992.

G. A. Chandler, J. H. Aubert, J. E. Bailey, A. L. Carlson, D. K. Derzon, M. S. Derzon, R. J. Dukart, D. R. Humphreys, J. Hunter, D. J. Johnson, M. K. Matzen, A. R. Moats, R. E. Olson, J. G. Pantuso, P. D. Rockett, C. L. Ruiz, P. S. Sawyer, J. A. Torres, T. W. Hussey, "ICF Target Diagnostics on PBFA II," *Review Scientific Instruments* **63**, 4828 (1992) (invited paper).

M. T. Collopy, P. Carpenter, C. D. Harmon, J. Vandenberg, G. W. Cooper, C. L. Ruiz, F. V. Reyes, W. A. Stygar, F. A. Schmidlapp, D. J. Malbrough, R. Becker, "Calibration of CR-39 for Detecting Fusion Neutrons," *Review Scientific Instruments* **63**, 4892 (1992).

M. S. Derzon, J. H. Aubert, J. E. Bailey, A. L. Carlson, G. A. Chandler, D. K. Derzon, R. J. Dukart, D. R. Humphreys, J. Hunter, D. J. Johnson, M. K. Matzen, L. P. Mix, A. R. Moats, R. E. Olson, J. G. Pantuso, P. D. Rockett, C. L. Ruiz, P. S. Sawyer, J. A. Torres, T. W. Hussey, "Comparison of Experimental Results and Calculated Detector Responses for PBFA-II Thermal Source Experiments," *Review Scientific Instruments* **63**, 5068 (1992).

D. L. Fehl, R. J. Leeper, R. P. Kensek, "A Simple Unfold Method for Rutherford Scattering, Intense Ion Beam Spectrographs," *Review Scientific Instruments* **63**, 4786 (1992).

A. B. Filuk, J. E. Bailey, "Analyzing Noise Spectral Line Shapes," *Review Scientific Instruments* **63**, 4783 (1992).

S. N. Lapin, G. W. Cooper, L. Davis, J. E. Bailey, W. A. Stygar, A. L. Carlson, F. V. Reyes, "Range and Straggling Effects on CR-39/Range-Filter Ion Energy Measurements," *Review Scientific Instruments* **63**, 4895 (1992).

J. J. MacFarlane, P. Wang, T. A. Mehlhorn, J. E. Bailey, R. J. Dukart, "Aluminum K-Shell Line Emission as a Diagnostic in Light Ion Beam Fusion Experiments," *Review Scientific Instruments* **63**, 5062 (1992).

C. L. Ruiz, R. J. Leeper, F. A. Schmidlapp, G. W. Cooper, D. J. Malbrough, "Absolute Calibration of a Total Yield Indium Activation Detector for DD and DT Neutrons," *Review Scientific Instruments* **63**, 4889 (1992).

P. D. Rockett, J. A. Hunter, R. E. Olson, G. D. Kubiak, K. W. Berger, R. Schmitt, "A Laser-Plasma VUV Source for Projection X-Ray Lithography at 13.9 nm," Optical Society of America Annual Meeting ILS '92, Albuquerque, NM, September 20-25, 1992.

G. W. Cooper, G. D. Chambers, P. Carpenter, M. E. Savage, "A BN Nuclear Activation Diagnostic for Plasma Opening Switches," American Physical Society Division of Plasma Physics Meeting, Seattle, WA, November 16-20, 1992.

C. W. Mendel, Edil Schamiloglu, "Plasma Diagnostics," in *Encyclopedia of Physical Science and Technology* (Academic Press, New York, 1992), vol. 13, p. 21.

J. E. Bailey, A. L. Carlson, G. A. Chandler, M. S. Derzon, R. J. Dukart, B. A. Hammel, D. J. Johnson, T. R. Lockner, J. E. Maenchen, E. J. McGuire, T. A. Mehlhorn, W. E. Nelson, L. E. Ruggles, W. A. Stygar, D. F. Wenger, R. Mancini, J. J. MacFarlane, P. Wang, "Diagnosis of an Ion Beam Heated Target Using K-Alpha X-Ray Satellites," *Proceedings Third International Conference on Intense Ion-Beam Interactions with Matter* (Sandia National Laboratories, Albuquerque, NM, March 1993), p. 61.

R. J. Leeper, J. E. Maenchen, J. E. Bailey, R. P. Kensek, W. A. Stygar, D. F. Wenger, "Proposed Enhanced dE/dx Measurements on PBFA II," *Proceedings Third International Conference on Intense Ion-Beam Interactions with Matter* (Sandia National Laboratories, Albuquerque, NM, March 1993), p. 27.

S. K. Vosburg, C. L. Ruiz, G. W. Cooper, F. A. Schmidlapp, *An Experimental Investigation of Radioactivity Induced by Ions Associated with the Operation of Pulsed-Power Accelerators*, Sandia National Laboratories Report No. SAND92-2075 (Albuquerque, NM, March 1993).

P. D. Rockett, J. A. Hunter, R. E. Olson, W. C. Sweatt, G. D. Kubiak, K. W. Berger, R. L. Schmitt, H. Shields, M. Powers, D. L. Windt, "Investigation of Discharge-Laser-Driven Plasmas as Sources for SXPL," Topical Meeting on Soft X-Ray Projection Lithography, Monterey, CA, May 10-12, 1993.

T. G. Trucano, D. E. Grady, R. E. Olson, A. V. Farnsworth, "Computational Analysis of Debris Formation in SXPL Laser-Plasma Sources," Optical Society of America Conference on Soft X-Ray Projection Lithography, Monterey, CA, May 10-12, 1993.

H. A. Davis, D. J. Rej, W. J. Waganaar, C. L. Ruiz, "Intense Ion Beam Characterization Including a New Method to Measure Beam Areal Energy Density," 20th IEEE International Conference on Plasma Science, Vancouver, B.C., June 7-9, 1993.

F. C. Perry, W. E. Nelson, "Applications of Pulsed Energy Sources and Hydrodynamic Response to Materials Science," 20th IEEE International Conference on Plasma Science, Vancouver, B. C., June 7-9, 1993.

J. P. Quintenz, C. W. Mendel, M. E. Savage, "Potential for Using an Electron Launcher Voltage Probe as an Electron Flow Diagnostic in a Magnetically Insulated Transmission Line," 20th IEEE International Conference on Plasma Science, Vancouver, B. C., June 7-9, 1993.

C. L. Ruiz, "Nuclear Activation Diagnostics for Plasma Opening Switches," 20th IEEE International Conference on Plasma Science, Vancouver, B.C., June 7-9, 1993.

S. K. Vosburg, C. L. Ruiz, F. Ghanbari, G. W. Cooper, F. A. Schmidlapp, "An Experimental Investigation of Radioactivity Induced by Ions Associated with the Operation of Pulsed Power Accelerators," 20th IEEE International Conference on Plasma Science, Vancouver, B. C., June 7-9, 1993.

D. L. Hanson, K. W. Struve, R. B. Spielman, J. F. Seaman, "Application of Piezoelectric Stress Gauges to the Measurement of Fast-Rise-Time Multimegaampere Electric Currents," Joint AIRPT/APS Conference on High Pressure Science and Technology, Colorado Springs, CO, June 28-July 2, 1993.

M. S. Derzon, A. B. Filuk, J. G. Pantuso, R. J. Dukart, R. Olsen, T. Barber, M. A. Bernard, "Development and Characterization of a Time-, Position-, and Energy-Resolved X-Ray Diagnostic for PBFA-II Target Experiments," SPIE Annual International Symposium on Optical Instrumentation and Applied Science, San Diego, CA, July 11-16, 1993.

M. S. Derzon, A. B. Filuk, J. Pantuso, R. J. Dukart, R. Olsen, T. Barber, M. A. Bernard, "Development and Characterization of a Time-, Position-, and Energy-Resolved X-Ray Diagnostic for PBFA-II Target Experiments," *Ultrahigh- and High-Speed Photography, Videography, and Photonics '93*, ed. by P. W. Roehrenbeck (Society of Photo-Optical Instrumentation Engineers, Bellingham, WA, 1993), vol. 2002, p. 31.

T. J. Nash, D. D. Noack, A. B. Filuk, "Nanosecond Time-Resolved Vacuum Ultraviolet Spectrometer for Ion Diode Spectroscopy," *Review Scientific Instruments* **64**, 2493 (1993).

J. J. MacFarlane, P. Wang, J. E. Bailey, T. A. Mehlhorn, R. J. Dukart, R. C. Mancini, "Analysis of K-Alpha Line Emission from Aluminum Plasmas Created by Intense Proton Beams," *Physical Review E* **47**, 2748 (1993).

R. E. Olson, W. C. Sweatt, P. D. Rockett, "Computational Simulations of a Soft X-Ray Projection Lithography Laser Plasma Source," *Technical Digest, Conference Edition, Soft X-Ray Projection Lithography* (Optical Society of America, Washington, D. C., 1993), p. 118.

T. G. Trucano, D. E. Grady, R. E. Olson, A. V. Farnsworth, "Computational Analysis of Debris Formation in SXPL Laser-Plasma Sources," *Technical Digest, Conference Edition, Soft X-Ray Projection Lithography* (Optical Society of America, Washington, D. C., 1993), p. 109.

P. D. Rockett, J. A. Hunter, R. E. Olson, W. C. Sweatt, G. D. Kubiak, K. W. Berger, R. L. Schmitt, H. Shields, M. Powers, D. L. Windt, "Investigation of Discharge-Laser-Driven Plasmas as Sources for SXPL," *Soft X-Ray Projection Lithography*, vol. 18 of 1993 OSA Technical Digest Series, ed. by A. M. Hawryluk, R. H. Stulen (Optical Society of America, Washington, D. C., 1993), p. 163.

P. D. Rockett, J. A. Hunter, R. E. Olson, W. C. Sweatt, G. D. Kubiak, K. W. Berger, R. L. Schmitt, H. Shields, M. Powers, D. L. Windt, "Investigation of Discharge-Laser-Driven Plasma as Sources for SXPL," *OSA Proceedings on Soft X-Ray Projection Lithography*, ed. by A. M. Hawryluk and R. H. Stulen (Optical Society of America, Washington, D.C., 1993), vol. 18, p. 163.

T. G. Trucano, D. E. Grady, R. E. Olson, A. V. Farnsworth, "Computational Analysis of Debris Formation in SXPL Laser-Plasma Sources," *OSA Proceedings on Soft X-Ray Projection Lithography*, ed. by A. M. Hawryluk and R. H. Stulen (Optical Society of America, Washington, D.C., 1993), vol. 18, p. 146.

J. E. Bailey, A. L. Carlson, A. B. Filuk, D. J. Johnson, P. W. Lake, E. J. McGuire, T. A. Mehlhorn, T. D. Pointon, T. J. Renk, G. C. Tisone, Y. Maron, E. Stambulchik, "Visible Spectroscopy Measurements on PBFA II," Sixth International Workshop on Atomic Physics for Ion-Driven Fusion, Santa Fe, NM, November 8-12, 1993.

J. J. MacFarlane, P. Wang, J. E. Bailey, T. A. Mehlhorn, R. J. Dukart, "Plasma Diagnostics Using K-Alpha Satellite Line Emission in Light Ion Beam Fusion Experiments," Sixth International Workshop on Atomic Physics for Ion-Driven Fusion, Santa Fe, NM, November 8-12, 1993.

L. P. Mix, J. E. Bailey, A. L. Carlson, G. A. Chandler, G. W. Cooper, M. S. Derzon, D. L. Fehl, A. B. Filuk, T. A. Haill, D. E. Hebron, D. J. Johnson, R. P. Kensek, J. R. Lee, R. J. Leeper, D. J. Muron, W. E. Nelson, F. V. Reyes, C. L. Ruiz, W. A. Stygar, D. F. Wenger, "Diagnostics for Intense Ion Beam Experiments," Sixth International Workshop on Atomic Physics for Ion-Driven Fusion, Santa Fe, NM, November 8-12, 1993.

T. J. Nash, D. D. Noack, A. B. Filuk, "Nanosecond Time-Resolved Vacuum Ultraviolet Spectrometer for Ion Diode Spectroscopy," *Review Scientific Instruments* **64**, 2493 (1993).

I. Code Development

M. L. Kiefer, J. P. Quintenz, T. D. Pointon, W. A. Johnson, D. B. Seidel, R. S. Coats, "Visualizing Data Produced by 3-D, Electromagnetic, Particle-in-Cell Codes," 13th Conference on Numerical Simulation of Plasmas, Santa Fe, NM, September 17-20, 1989.

J. P. Quintenz, M. L. Kiefer, W. A. Johnson, T. D. Pointon, R. S. Coats, D. B. Seidel, "Application of the 3-D, Electromagnetic, Particle-in-Cell Code QUICKSILVER," 13th Conference on Numerical Simulation of Plasmas," Santa Fe, NM, September 17-20, 1989.

D. B. Seidel, M. L. Kiefer, R. S. Coats, T. D. Pointon, J. P. Quintenz, W. A. Johnson, "Multitasking the 3-D Electromagnetic Particle-in-Cell Code QUICKSILVER," 13th Conference on Numerical Simulation of Plasmas," Santa Fe, NM, September 17-20, 1989.

M. L. Kiefer, D. B. Seidel, R. S. Coats, J. P. Quintenz, T. D. Pointon, W. A. Johnson, "An Overview of the 3-D, Electromagnetic, Particle-in-Cell Code, QUICKSILVER, and Sample Applications," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.

M. L. Kiefer, T. D. Pointon, W. A. Johnson, J. P. Quintenz, D. B. Seidel, R. S. Coats, "Architecture and Computing Philosophy of the QUICKSILVER, Three-Dimensional, Electromagnetic, Particle-in-Cell Code," Conference on Computer Codes and the Linear Accelerator Community, Los Alamos, NM, January 22-25, 1990.

M. J. Eaton, "Designing an Experimenter's Database Using the Nijssen Information Analysis Methodology (NIAM)," National U.S. Decus Symposium, New Orleans, LA, May 7-11, 1990.

D. B. Seidel, M. L. Kiefer, R. S. Coats, T. D. Pointon, J. P. Quintenz, W. A. Johnson, "Recent Developments in the Three-Dimensional, Electromagnetic, Particle-in-Cell Code, QUICKSILVER," 17th IEEE International Conference on Plasma Science, Oakland, CA, May 21-23, 1990.

I. R. Shokair, J. S. Wagner, *Gridless Electrostatic Field Solver for Particle Simulation Codes in Cylindrical Geometry*, Sandia National Laboratories Report No. SAND90-1249 (Albuquerque, NM, June 1990).

D. B. Seidel, M. L. Kiefer, R. S. Coats, T. D. Pointon, J. P. Quintenz, W. A. Johnson, "The 3-D, Electromagnetic, Particle-in-Cell Code, QUICKSILVER," Europhysics Conference on Computational Physics, Amsterdam, Netherlands, September 10-13, 1990.

M. J. Eaton, A. R. Moats, T. A. Mehlhorn, "The PBFA II Experimenter's Database," Ninth Biennial CUBE Symposium, Santa Fe, NM, November 27-30, 1990.

M. L. Kiefer, T. D. Pointon, D. B. Seidel, "Visualizing the 3D, Electromagnetic, Particle-in-Cell Code Data Using the Application Visualization System Software," Ninth Biennial CUBE Symposium, Santa Fe, NM, November 27-30, 1990.

W. E. Nelson, T. A. Mehlhorn, "The Visual Ion Beam Diagnostic Analyzer (VIDA)," Ninth Biennial CUBE Symposium, Santa Fe, NM, November 27-30, 1990.

D. B. Seidel, R. S. Coats, M. L. Kiefer, T. D. Pointon, L. P. Mix, "Portable File Format (PFF): A Compact, Machine-Independent File Format for Simulation Data," Ninth Biennial CUBE Symposium, Santa Fe, NM, November 27-30, 1990.

D. B. Seidel, M. L. Kiefer, R. S. Coats, T. D. Pointon, J. P. Quintenz, W. A. Johnson, "The 3-D, Electromagnetic, Particle-in-Cell Code, QUICKSILVER," *Proceedings Europhysics Conference on Computational Physics*, ed. by A. Tenner (World Scientific, Singapore, 1991), p. 475.

A. R. Moats, M. J. Eaton, "PBFA-II Data Base Management and Analysis System," Physics Computing '91 Conference, San Jose, CA, June 10-14, 1991.

M. L. Kiefer, T. D. Pointon, W. A. Johnson, J. P. Quintenz, D. B. Seidel, R. S. Coats, "Architecture and Computing Philosophy of the QUICKSILVER, Three-Dimensional, Electromagnetic, Particle-in-Cell Code," *Proceedings Conference on Computer Codes and the Linear Accelerator Community* (Los Alamos, NM, 1990), p. 323.

M. L. Kiefer, T. D. Pointon, D. B. Seidel, R. S. Coats, J. P. Quintenz, "Graphical Display and Animation of Data Produced by Electromagnetic Particle-in-Cell Codes," 14th International Conference on Numerical Simulation of Plasmas, Annapolis, MD, September 3-6, 1991.

T. D. Pointon, "Slanted Conducting Boundaries and Field Emission of Particles in an Electromagnetic Particle Simulation Code," *Journal Computational Physics* **96**, 143 (1991).

M. F. Pasik, D. B. Seidel, R. S. Coats, M. L. Kiefer, T. D. Pointon, J. P. Quintenz, "A Method for Computing Fields Near the Origin of a Cylindrical Coordinate System in Time Domain Finite-Difference Electromagnetic Simulations," 14th International Conference on the Numerical Simulation of Plasmas, Annapolis, MD, September 3-6, 1991.

W. A. Johnson, L. K. Warne, "Steep Front Approximation as the Solution to Nonlinear Diffusion into a Half-Space Ferromagnetic Material," *IEEE Magnetics* **27**, 4322 (1991).

S. Humphries, C. L. Olson, "Simulations of Longitudinal Stability in Linear Induction Ion Accelerators," American Physical Society Division of Plasma Physics Meeting, Tampa, FL, November 4-8, 1991.

J. A. Halbleib, T. A. Mehlhorn, R. P. Kensek, *Integrated Tiger Series of Coupled Electron-Photon Monte Carlo Transport Codes, ITS Version 3.0*, Sandia National Laboratories Report No. SAND91-1634 (Albuquerque, NM, March 1992).

T. A. Mehlhorn, T. A. Haill, *UPEML Version 3.0: A Machine-Portable CDC Update Emulator*, Sandia National Laboratories Report No. SAND92-0073 (Albuquerque, NM, April 1992).

D. B. Seidel, M. L. Kiefer, R. S. Coats, T. D. Pointon, J. P. Quintenz, W. A. Johnson, "QUICKSILVER, a 3-D, Time Domain, Finite-Difference Code for the Electromagnetic Simulation of Complex Structures," Topical Meeting on Electrical Performance of Electronic Packaging, Tucson, AZ, April 22-24, 1992.

J. P. Quintenz, "Applications of the QUICKSILVER 3-D Electromagnetic Particle-in-Cell Code for the Simulation of Intense Particle Beam Diodes and Pulsed Power Devices," Russian-U.S. Technology Exchange in Computations and Computer Science, Livermore, CA, October 19, 1992.

L. P. Mix, "Analysis of Waveform Data Using IDL," Tenth Biennial CUBE Symposium, Pleasanton, CA, October 27-30, 1992.

M. L. Kiefer, D. B. Seidel, "Automated Generation of Video Animations from Time-Dependent Computer Simulations," T. D. Pointon, "PLOTFFF, An Interactive Post-Processor for Particle-in-Cell Simulation Codes," Tenth Biennial CUBE Symposium, Pleasanton, CA, October 27-30, 1992.

Author Index, Arranged Alphabetically

A

R. G. Adams, "Tuned Ultraviolet Laser Triggering of Lightning Channels," The Lightning Environmental Working Group, Albuquerque, NM, May 16, 1990.

R. G. Adams, J. R. Woodworth, A. L. Pregonzer, T. R. Lockner, R. A. Gerber, D. J. Johnson, W. H. Jaramillo, M. M. Dillon, R. S. Coats, M. Halliburton, P. Primm, G. A. Torres, G. Ziska, T. Atwood, "Electrohydrodynamic Lithium Ion Source Experiments on PBFA II," XIVth International Symposium on Discharges and Electrical Insulation in Vacuum, Santa Fe, NM, September 17-20, 1990.

R. G. Adams, J. R. Woodworth, A. L. Pregonzer, T. R. Lockner, R. A. Gerber, D. J. Johnson, W. H. Jaramillo, M. M. Dillon, R. S. Coats, M. Halliburton, P. Primm, G. A. Torres, G. Ziska, T. Atwood, "Electrohydrodynamic Lithium Ion Source Experiments on PBFA II," *Proceedings XIVth International Symposium on Discharges and Electrical Insulation in Vacuum*, Sandia National Laboratories Report No. SAND90-1927C (Albuquerque, NM, September 1990), p. 598.

J. A. Alexander, J. P. Corley, D. L. Johnson, G. J. Denison, K. Hodge, P. Pankuch, J. J. Ramirez, "Performance of the Hermes-III Pulse Forming Lines," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.

J. A. Alexander, J. P. Corley, D. L. Johnson, G. J. Denison, K. Hodge, P. Pankuch, J. J. Ramirez, "Performance of the Hermes-III Pulse Forming Lines," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 575.

J. H. Aubert, P. Baca, "Lithium Thermal Targets Shot on PBFA II," Ninth Target Fabrication Specialists' Meeting, Monterey, CA, July 5-9, 1993.

B

B. Badger, G. A. Moses, R. L. Engelstad, G. L. Kulcinski, E. G. Lovell, J. J. MacFarlane, R. R. Peterson, M. E. Sawan, I. N. Sviatoslavsky, L. J. Wittenberg, I. Smith, R. Altes, P. Corcoran, R. Kuenning, D. Fellow, D. Wake, J. Ehrhardt, G. Kessler, E. Stein, D. L. Cook, R. E. Olson, R. W. Stinnett, "LIBRA: A Light Ion Beam Fusion Conceptual Reactor Design," University of Wisconsin Report No. UWFD-800, July 1989 (revised February 1990).

J. E. Bailey, "Spectroscopic Analysis of POS Plasma in PBFA II," Sixth Plasma Opening Switch Workshop, Albuquerque, NM, August 24-25, 1989.

J. E. Bailey, "Spectroscopic Measurements in the Switch Region on PBFA II," Seventh Plasma Opening Switch Workshop, Albuquerque, NM, April 24-25, 1990.

J. E. Bailey, A. L. Carlson, "Spectroscopic Diagnostics of the PBFA-II Ion Source," 18th IEEE International Conference on Plasma Science, Williamsburg, VA, June 3-5, 1991.

J. E. Bailey, A. L. Carlson, G. A. Chandler, M. S. Derzon, R. J. Dukart, B. A. Hammel, D. J. Johnson, T. R. Lockner, J. E. Maenchen, E. J. McGuire, T. A. Mehlhorn, W. E. Nelson, L. E. Ruggles, D. F. Wenger, B. A. Hammel, "Observation of K-Alpha X-Ray Satellites from an Ion Beam Heated Target," Seventh American Physical Society Topical Conference on Atomic Processes in Plasmas, Gaithersburg, MD, October 2-5, 1989.

J. E. Bailey, A. L. Carlson, G. A. Chandler, M. S. Derzon, R. J. Dukart, B. A. Hammel, D. J. Johnson, T. R. Lockner, J. E. Maenchen, E. J. McGuire, T. A. Mehlhorn, W. E. Nelson, L. E. Ruggles, W. A. Stygar, D. F. Wenger, "Diagnosis of an Ion Beam Heated Target Using K-Alpha X-Ray Satellites," Fifth International Workshop on Atomic Physics for Ion Driven Fusion, Schliersee, Germany, January 29-February 2, 1990.

J. E. Bailey, A. L. Carlson, G. A. Chandler, M. S. Desjarlais, R. J. Dukart, B. A. Hammel, D. J. Johnson, T. R. Lockner, J. E. Maenchen, E. J. McGuire, T. A. Mehlhorn, W. E. Nelson, L. E. Ruggles, W. A. Stygar, D. F. Wenger, "Observation of K-Alpha X-Ray Satellites from a Target Heated by an Intense Ion Beam," *Laser and Particle Beams* **8**, 555 (1990).

J. E. Bailey, A. L. Carlson, G. A. Chandler, M. S. Derzon, R. J. Dukart, B. A. Hammel, D. J. Johnson, T. R. Lockner, J. E. Maenchen, E. J. McGuire, T. A. Mehlhorn, W. E. Nelson, L. E. Ruggles, W. A. Stygar, D. F. Wenger, R. Mancini, J. J. MacFarlane, P. Wang, "Diagnosis of an Ion Beam Heated Target Using K-Alpha X-Ray Satellites," Third International Conference on Intense Ion-Beam Interactions with Matter, Albuquerque, NM, November 7-8, 1990.

J. E. Bailey, A. L. Carlson, G. A. Chandler, M. S. Derzon, R. J. Dukart, B. A. Hammel, D. J. Johnson, T. R. Lockner, J. E. Maenchen, E. J. McGuire, T. A. Mehlhorn, W. E. Nelson, L. E. Ruggles, W. A. Stygar, D. F. Wenger, R. Mancini, J. J. MacFarlane, P. Wang, "Diagnosis of an Ion Beam Heated Target Using K-Alpha X-Ray Satellites," *Proceedings Third International Conference on Intense Ion-Beam Interactions with Matter* (Sandia National Laboratories, Albuquerque, NM, March 1993), p. 61.

J. E. Bailey, A. L. Carlson, M. P. Desjarlais, D. J. Johnson, T. R. Lockner, R. L. Morrison, "Time-Resolved Visible Spectroscopy of PBFA-II Ion Diode," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.

J. E. Bailey, A. L. Carlson, R. J. Dukart, D. J. Johnson, L. P. Mix, T. A. Mehlhorn, J. J. MacFarlane, P. Wang, "Spectroscopy of Planar Targets Heated by Intense Lithium Ion Beams," Sixth International Workshop on Atomic Physics for Ion-Driven Fusion, Santa Fe, NM, November 8-12, 1993.

J. E. Bailey, A. L. Carlson, A. B. Filuk, D. J. Johnson, P. W. Lake, E. J. McGuire, T. A. Mehlhorn, T. D. Pointon, T. J. Renk, S. E. Rosenthal, Y. Maron, E. Stambulchik, "LiI Emission Spectroscopy in High Electric and Magnetic Fields," Ninth American Physical Society Topical Conference on Atomic Processes in Plasmas, San Antonio, TX, September 19-23, 1993.

- J. E. Bailey, A. L. Carlson, A. B. Filuk, D. J. Johnson, P. W. Lake, E. J. McGuire, T. A. Mehlhorn, T. D. Pointon, T. J. Renk, G. C. Tisone, Y. Maron, E. Stambulchik, "Visible Spectroscopy Measurements on PBFA II," Sixth International Workshop on Atomic Physics for Ion-Driven Fusion, Santa Fe, NM, November 8-12, 1993.
- J. E. Bailey, A. L. Carlson, A. B. Filuk, D. J. Johnson, P. W. Lake, E. J. McGuire, T. A. Mehlhorn, T. D. Pointon, S. E. Rosenthal, Y. Maron, E. Stambulchik, "Time-Dependent Measurements and Calculations of the Electric Field Profile in the PBFA-II Ion Diode," 20th IEEE International Conference on Plasma Science, Vancouver, B. C., June 7-9, 1993.
- J. E. Bailey, A. L. Carlson, A. B. Filuk, T. J. Nash, Y. Maron, "Spectroscopic Results from PBFA II," Eighth American Physical Society Topical Conference on Atomic Processes in Plasmas, Portland, ME, August 25-29, 1991.
- J. E. Bailey, A. L. Carlson, A. B. Filuk, T. J. Nash, Y. Maron, "Visual Spectroscopy Diagnostics of Light Ion Beams," Diagnostics for Contemporary Fusion Experiments Course and Workshop, Varenna, Italy, August 27-September 6, 1991.
- J. E. Bailey, A. L. Carlson, A. B. Filuk, T. J. Nash, Y. Maron, "Ion Source Spectroscopy on PBFA II," 44th Annual Gaseous Electronics Conference, Albuquerque, NM, October 22-25, 1991.
- J. E. Bailey, A. L. Carlson, A. B. Filuk, T. J. Nash, Y. Maron, "Visible Spectroscopy Diagnostics of Light Ion Beams," in *Diagnostics for Contemporary Fusion Experiments*, ed. by P. E. Stott, D. K. Akulina, G. Gorini, and E. Sindoni (Societa Italiana di Fisica, Bologna, Italy, 1991), p. 1059.
- J. E. Bailey, A. L. Carlson, D. J. Johnson, E. J. McGuire, T. J. Nash, C. L. Olson, J. J. MacFarlane, P. Wang, "Spectroscopic Studies of Intense Ion Beam Propagation in the PBFA-II Gas Cell," Ninth International Conference on High-Power Particle Beams, Washington, D.C., May 25-29, 1992.
- J. E. Bailey, A. L. Carlson, D. J. Johnson, E. J. McGuire, T. J. Nash, C. L. Olson, J. J. MacFarlane, P. Wang, "Spectroscopic Studies of Intense Ion Beam Propagation in the PBFA-II Gas Cell," *Proceedings Ninth International Conference on High-Power Particle Beams*, ed. by D. Mosher and G. Cooperstein (National Technical Information Service, Springfield, VA, 1993), vol. 2, p. 903.
- J. E. Bailey, A. L. Carlson, Y. Maron, "Spectroscopic Diagnostics of the PBFA-II Ion Source," 18th IEEE International Conference on Plasma Science, Williamsburg, VA, June 3-5, 1991 (invited talk).
- J. E. Bailey, A. L. Carlson, R. L. Morrison, Y. Maron, "Visible Spectroscopy Measurements in the PBFA-II Ion Diode," Eighth Topical Conference on High-Temperature Plasma Diagnostics, Hyannis, MA, May 6-10, 1990 (invited talk).
- J. E. Bailey, A. L. Carlson, R. L. Morrison, Y. Maron, "Visible Spectroscopy Measurements in the PBFA-II Ion Diode," *Review Scientific Instruments* 61, 3075 (1990) (invited paper).

J. E. Bailey, A. B. Filuk, A. L. Carlson, P. W. Lake, "Spectroscopic Observations of Ion Source Behavior and Diode Dynamics in a High Power Pulsed Ion Diode," American Physical Society Division of Plasma Physics Meeting, Seattle, WA, November 16-20, 1992.

G. T. Baldwin, C. O. Landron, R. J. Leeper, C. R. Mattson, D. J. Muron, "Status of Photonic Data Recording on PBFA II," Sixth Photonics Workshop, Santa Barbara, CA, October 2-4, 1991.

K. W. Bieg, A. L. Pregarz, J. R. Woodworth, T. R. Lockner, D. J. Johnson, R. A. Gerber, J. E. Bailey, R. P. Kensek, R. J. Leeper, J. E. Maenchen, T. A. Mehlhorn, R. E. Olson, C. L. Ruiz, W. A. Stygar, "Lithium Fluoride Ion Source Experiments on the Particle Beam Fusion Accelerator II," International Conference on Ion Sources, Berkeley, CA, July 10-14, 1989.

K. W. Bieg, A. L. Pregarz, J. R. Woodworth, T. R. Lockner, D. J. Johnson, R. A. Gerber, J. E. Bailey, R. P. Kensek, R. J. Leeper, J. E. Maenchen, T. A. Mehlhorn, R. E. Olson, C. L. Ruiz, W. A. Stygar, "Lithium Fluoride Ion Source Experiments on the Particle Beam Fusion Accelerator II," *Review Scientific Instruments* 61, 556 (1990).

K. W. Bieg, G. C. Tisone, J. E. Bailey, R. A. Hamil, "Design of a Laser-Produced Lithium Anode Plasma Experiment on the HELIA Extraction Ion Diode," 16th IEEE International Conference on Plasma Science, Buffalo, NY, May 22-24, 1989.

K. W. Bieg, G. C. Tisone, T. R. Lockner, J. E. Bailey, M. E. Cuneo, B. F. Clark, J. E. Potter, L. P. Schanwald, "A Laser-Produced Lithium Ion Source for Pulsed-Power Inertial Confinement Fusion," Eighth International Conference on High-Power Particle Beams, Novosibirsk, USSR, July 2-5, 1990.

K. W. Bieg, G. C. Tisone, T. R. Lockner, J. E. Bailey, M. E. Cuneo, B. F. Clark, J. E. Potter, L. P. Schanwald, "A Laser Produced Lithium Ion Source for Pulsed-Power Inertial Confinement Fusion," XIVth International Symposium on Discharges and Electrical Insulation in Vacuum, Santa Fe, NM, September 17-20, 1990.

K. W. Bieg, G. C. Tisone, T. R. Lockner, J. E. Bailey, M. E. Cuneo, B. F. Clark, J. E. Potter, L. P. Schanwald, "A Laser Produced Lithium Ion Source for Pulsed-Power Inertial Confinement Fusion," *Proceedings XIVth Symposium on Discharges and Electrical Insulation in Vacuum*, ed. by R. W. Stinnett, Sandia National Laboratories Report SAND90-1927C (Albuquerque, NM, September 1990), p. 586.

K. W. Bieg, G. C. Tisone, T. R. Lockner, J. E. Bailey, M. E. Cuneo, B. F. Clark, J. E. Potter, L. P. Schanwald, "A Laser-Produced Lithium Ion Source for Pulsed-Power Inertial Confinement Fusion," *Proceedings Eighth International Conference on High-Power Particle Beams*, ed. by B. N. Breizman and B. A. Knyazev (World Scientific, NJ, 1991), vol. 2, p. 933.

D. N. Bixler, S. A. Goldstein, "A Laboratory Microfusion Capability for the U. S. ICF Program," 9th Topical Meeting on Technology of Fusion Energy, Oak Brook, IL, October 7-11, 1990.

D. N. Bixler, S. A. Goldstein, "A Laboratory Microfusion Capability for the U. S. ICF Program," *Fusion Technology* 19, Part 2A, p. 646 (1991).

M. T. Buttram, J. F. Aurand, R. S. Clark, G. M. Loubriel, L. F. Rinehart, F. J. Zuvatern, "Compact, High-Power, High Repetition Rate Impulse Generators," 1991 High Voltage Workshop, Port Heuneme, CA, March 19-21, 1991.

C

R. M. Calfo, D. J. Scott, D. W. Scherbarth, M. T. Buttram, H. C. Harjes, "Design and Test of a Continuous Duty Pulsed AC Generator," Eighth IEEE Pulsed Power Conference, San Diego, CA, June 17-19, 1991.

R. M. Calfo, D. J. Scott, D. W. Scherbarth, M. T. Buttram, H. C. Harjes, "Design and Test of a Continuous Duty Pulsed AC Generator," *Digest of Technical Papers, Eighth IEEE Pulsed Power Conference*, ed. by K. R. Prestwich and R. White (IEEE, New York, 1991), p. 715.

G. A. Chandler, J. H. Aubert, J. E. Bailey, A. L. Carlson, D. K. Derzon, M. S. Derzon, R. J. Dukart, D. R. Humphreys, J. Hunter, D. J. Johnson, M. K. Matzen, A. R. Moats, R. E. Olson, J. G. Pantuso, P. D. Rockett, C. L. Ruiz, P. S. Sawyer, J. A. Torres, T. W. Hussey, "ICF Target Diagnostics on PBFA II," Ninth Topical Conference on High-Temperature Plasma Diagnostics, Santa Fe, NM, March 15-19, 1992 (invited talk).

G. A. Chandler, J. H. Aubert, J. E. Bailey, A. L. Carlson, D. K. Derzon, M. S. Derzon, R. J. Dukart, D. R. Humphreys, J. Hunter, D. J. Johnson, M. K. Matzen, A. R. Moats, R. E. Olson, J. G. Pantuso, P. D. Rockett, C. L. Ruiz, P. S. Sawyer, J. A. Torres, T. W. Hussey, "ICF Target Diagnostics on PBFA II," *Review Scientific Instruments* 63, 4828 (1992) (invited paper).

G. A. Chandler, M. S. Derzon, R. J. Dukart, P. D. Grandon, T. R. Lockner, E. J. McGuire, "A Grazing Incidence Spectrum from an On-Axis Teflon Cone Target Has Been Obtained on PBFA II," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.

R. S. Coats, D. B. Seidel, "Integrating an External Circuit Model into a Magnetic Diffusion Code," Tenth Biennial Cube Symposium, Pleasanton, CA, October 27-30, 1992.

M. T. Collopy, P. Carpenter, C. D. Harmon, J. Vandenberg, G. W. Cooper, C. L. Ruiz, F. V. Reyes, W. A. Stygar, F. A. Schmidlapp, D. J. Malbrough, R. Becker, "Calibration of CR-39 for Detecting Fusion Neutrons," Ninth Topical Conference on High-Temperature Plasma Diagnostics, Santa Fe, NM, March 15-19, 1992.

M. T. Collopy, P. Carpenter, C. D. Harmon, J. Vandenberg, G. W. Cooper, C. L. Ruiz, F. V. Reyes, W. A. Stygar, F. A. Schmidlapp, D. J. Malbrough, R. Becker, "Calibration of CR-39 for Detecting Fusion Neutrons," *Review Scientific Instruments* 63, 4892 (1992).

D. L. Cook, "Pulsed Power Technologies for Fusion Research on PBFA II and Beyond," Advanced Pulsed Power Conference, Albuquerque, NM, July 31-August 3, 1990.

D. L. Cook, panel member, "Forum: National Academy of Sciences Reviews of Plasma Science and ICF," American Physical Society Division of Plasma Physics Meeting, Cincinnati, OH, November 12-16, 1990.

D. L. Cook, "Progress in Light Ion Fusion," Particle Accelerator Conference, San Francisco, CA, May 6-9, 1991 (invited talk).

D. L. Cook, "Progress in Light Ion Fusion," *Conference Record of the 1991 IEEE Particle Accelerator Conference* (IEEE, New York, 1991), vol. 1, p. 557 (invited paper).

D. L. Cook, "Progress in Light Ion Fusion," American Physical Society Division of Plasma Physics Meeting, Tampa, FL, November 4-8, 1991 (invited talk).

D. L. Cook, "Future Directions in Pulsed Power Driven Inertial Confinement Fusion," Fusion Power Associates Annual Meeting and Symposium, Pleasanton, CA, April 9-10, 1992.

D. L. Cook, "Results from PBFA II," Tenth Topical Meeting on the Technology of Fusion Energy, Boston, MA, June 7-12, 1992.

D. L. Cook, "Results from PBFA II," *Fusion Technology* 21, 1358 (1992).

D. L. Cook, "Light Ion Fusion," European Research Conference on Nuclear Physics, Aghia Pelaghia, Crete, September 27-October 1, 1992.

D. L. Cook, "Light Ion Fusion Experiments at Sandia," Sixth International Symposium on Heavy Ion Fusion, Frascati, Italy, May 25-28, 1993.

D. L. Cook, "Economically Viable Applications of Repetitive Pulsed Power Technologies," Symposium on Near-Term Applications of Fusion and Plasma Technology, Oak Ridge, TN, October 5-7, 1993.

D. L. Cook, "Economically Viable Applications of Repetitive Pulsed Power Technologies," *Journal of Fusion Energy* 12, 361 (1993).

D. L. Cook, R. G. Adams, J. H. Aubert, L. D. Bacon, J. E. Bailey, D. D. Bloomquist, J. D. Boyes, G. A. Chandler, R. S. Coats, J. P. Corley, J. T. Crow, M. E. Cuneo, D. K. Derzon, M. S. Derzon, M. P. Desjarlais, R. J. Dukart, D. L. Fehl, A. B. Filuk, R. A. Gerber, T. A. Haill, D. L. Hanson, D. R. Humphries, T. W. Hussey, H. L. Ives, D. J. Johnson, D. L. Johnson, R. J. Leeper, R. W. Lemke, T. R. Lockner, J. E. Maenchen, M. K. Matzen, D. H. McDaniel, P. F. McKay, E. J. McGuire, T. A. Mehlhorn, C. W. Mendel, L. P. Mix, W. E. Nelson, C. L. Olson, T. D. Pointon, J. W. Poukey, J. P. Quintenz, J. J. Ramirez, T. J. Renk, G. E. Rochau, P. D. Rockett, S. E. Rosenthal, D. C. Rovang, C. L. Ruiz, H. R. Schmitt, D. B. Seidel, S. A. Slutz, R. W. Stinnett, W. A. Stygar, M. A. Sweeney, G. C. Tisone, J. P. VanDevender, "Light Ion Driven Inertial Confinement Fusion," 14th International Conference on Plasma Physics and Controlled Nuclear Fusion Research, Wuerzburg, Germany, September 30 - October 7, 1992 (invited talk).

D. L. Cook, R. G. Adams, J. H. Aubert, L. D. Bacon, J. E. Bailey, D. D. Bloomquist, J. D. Boyes, G. A. Chandler, R. S. Coats, J. P. Corley, J. T. Crow, M. E. Cuneo, D. K. Derzon, M. S. Derzon, M. P. Desjarlais, R. J. Dukart, D. L. Fehl, A. B. Filuk, R. A. Gerber, T. A. Haill, D. L. Hanson, D. R. Humphries, T. W. Hussey, H. L. Ives, D. J. Johnson, D. L. Johnson, R. J. Leeper, R. W. Lemke, T. R. Lockner, J. E. Maenchen, M. K. Matzen, D. H. McDaniel, P. F. McKay, E. J. McGuire, T. A. Mehlhorn, C. W. Mendel, L. P. Mix, W. E. Nelson, C. L. Olson, T. D. Pointon, J. W. Poukey, J. P. Quintenz, J. J. Ramirez, T. J. Renk, G. E. Rochau, P. D. Rockett, S. E. Rosenthal, D. C. Rovang, C. L. Ruiz, H. R. Schmitt, D. B. Seidel, S. A. Slutz, R. W. Stinnett, W. A. Stygar, M. A. Sweeney, G. C. Tisone, J. P. VanDevender, "Light Ion Driven Inertial Confinement Fusion," *14th Conference Proceedings, Plasma Physics and Controlled Nuclear Fusion Research 1992* (IAEA, Vienna, 1993), vol. 3, p. 63 (invited paper).

D. L. Cook, J. E. Bailey, K. W. Bieg, D. D. Bloomquist, R. S. Coats, G. A. Chandler, M. E. Cuneo, M. S. Derzon, M. P. Desjarlais, P. L. Dreike, R. J. Dukart, R. A. Gerber, D. J. Johnson, R. J. Leeper, T. R. Lockner, D. H. McDaniel, J. E. Maenchen, M. K. Matzen, T. A. Mehlhorn, L. P. Mix, A. R. Moats, W. E. Nelson, T. D. Pointon, A. L. Pregonzer, J. P. Quintenz, T. J. Renk, S. E. Rosenthal, C. L. Ruiz, S. A. Slutz, R. W. Stinnett, W. A. Stygar, G. C. Tisone, J. R. Woodworth, J. P. VanDevender, "Light Ion Sources and Target Results on PBFA II," Eighth International Conference on High-Power Particle Beams, Novosibirsk, USSR, July 2-5, 1990 (invited talk).

D. L. Cook, J. E. Bailey, K. W. Bieg, D. D. Bloomquist, R. S. Coats, G. A. Chandler, M. E. Cuneo, M. S. Derzon, M. P. Desjarlais, P. L. Dreike, R. J. Dukart, R. A. Gerber, D. J. Johnson, R. J. Leeper, T. R. Lockner, D. H. McDaniel, J. E. Maenchen, M. K. Matzen, T. A. Mehlhorn, L. P. Mix, A. R. Moats, W. E. Nelson, T. D. Pointon, A. L. Pregonzer, J. P. Quintenz, T. J. Renk, S. E. Rosenthal, C. L. Ruiz, S. A. Slutz, R. W. Stinnett, W. A. Stygar, G. C. Tisone, J. R. Woodworth, J. P. VanDevender, "Light Ion Sources and Target Results on PBFA II," *Proceedings Eighth International Conference on High-Power Particle Beams*, ed. by B. N. Breizman and B. A. Knyazev (World Scientific, NJ, 1991), vol. 1, p. 3 (invited paper).

D. L. Cook, J. E. Bailey, K. W. Bieg, D. D. Bloomquist, R. S. Coats, G. A. Chandler, M. E. Cuneo, M. S. Derzon, M. P. Desjarlais, P. L. Dreike, R. J. Dukart, R. A. Gerber, D. J. Johnson, R. J. Leeper, T. R. Lockner, D. H. McDaniel, J. E. Maenchen, M. K. Matzen, T. A. Mehlhorn, L. P. Mix, A. R. Moats, W. E. Nelson, T. D. Pointon, A. L. Pregonzer, J. P. Quintenz, T. J. Renk, S. E. Rosenthal, C. L. Ruiz, S. A. Slutz, R. W. Stinnett, W. A. Stygar, G. C. Tisone, J. R. Woodworth, J. P. VanDevender, "Inertial Confinement Fusion Using Light Ion Beams," Topical Conference on Research Trends in Nonlinear and Relativistic Effects in Plasmas, La Jolla, CA, February 5-8, 1990.

D. L. Cook, J. E. Bailey, K. W. Bieg, D. D. Bloomquist, R. S. Coats, G. A. Chandler, M. E. Cuneo, M. S. Derzon, M. P. Desjarlais, P. L. Dreike, R. J. Dukart, R. A. Gerber, D. J. Johnson, R. J. Leeper, T. R. Lockner, D. H. McDaniel, J. E. Maenchen, M. K. Matzen, T. A. Mehlhorn, L. P. Mix, A. R. Moats, W. E. Nelson, T. D. Pointon, A. L. Pregoner, J. P. Quintenz, T. J. Renk, S. E. Rosenthal, C. L. Ruiz, S. A. Slutz, R. W. Stinnett, W. A. Stygar, G. C. Tisone, J. R. Woodworth, J. P. VanDevender, "Inertial Confinement Fusion Using Light Ion Beams," *Proceedings Topical Conference on Research Trends in Nonlinear and Relativistic Effects in Plasmas*, ed. by V. Stefan (American Institute of Physics Press, New York, 1992), p. 7.

G. W. Cooper, P. Carpenter, J. VanDenburg, B. Hunt, M. E. Savage, C. L. Ruiz, "Nuclear Activation Diagnostics for Plasma Opening Switches," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.

G. W. Cooper, G. D. Chambers, P. Carpenter, M. E. Savage, "A BN Nuclear Activation Diagnostic for Plasma Opening Switches," American Physical Society Division of Plasma Physics Meeting, Seattle, WA, November 16-20, 1992.

J. P. Corley, J. A. Alexander, P. J. Pankuch, C. E. Heath, D. L. Johnson, J. J. Ramirez, G. J. Denison, "SABRE, a 10-MV Linear Induction Accelerator," Eighth IEEE Pulsed Power Conference, San Diego, CA, June 17-19, 1991.

J. P. Corley, J. A. Alexander, P. J. Pankuch, C. E. Heath, D. L. Johnson, J. J. Ramirez, G. J. Denison, "SABRE, a 10-MV Linear Induction Accelerator," *Digest of Technical Papers, Eighth IEEE Pulsed Power Conference*, ed. by K. R. Prestwich and R. White (IEEE, New York, 1991), p. 920.

J. P. Corley, C. E. Heath, D. L. Johnson, S. E. Rosenthal, J. W. Poukey, R. G. Adams, J. J. Ramirez, I. D. Smith, P. W. Spence, J. Fockler, "Positive Polarity Voltage Adder Magnetically Insulated Transmission Line (MITL) Experiments on HELIA," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.

J. P. Corley, C. E. Heath, D. L. Johnson, S. E. Rosenthal, J. W. Poukey, R. G. Adams, J. J. Ramirez, I. D. Smith, P. W. Spence, J. Fockler, "Positive Polarity Voltage Adder Magnetically Insulated Transmission Line (MITL) Experiments on HELIA," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 571.

M. E. Cuneo, R. M. Gilgenbach, M. L. Brake, C. L. Enloe, J. D. Miller, T. E. Repetti, "Characteristics of the Time Evolution of a Microsecond Electron Beam Diode with Anode Effects," 16th IEEE International Conference on Plasma Science, Buffalo, NY, May 22-24, 1989.

M. E. Cuneo, D. L. Hanson, P. F. McKay, R. S. Coats, W. G. Adams, C. E. Heath, W. F. Stearns, J. R. Chavez, "Extraction Applied-B Ion Diode Experiments on HELIA," 17th IEEE International Conference on Plasma Science, Oakland, CA, May 21-23, 1990.

M. E. Cuneo, D. L. Hanson, P. F. McKay, J. E. Maenchen, G. C. Tisone, R. G. Adams, T. J. Nash, M. A. Bernard, C. Boney, J. R. Chavez, W. F. Fowler, J. Ruscetti, W. F. Stearns, D. D. Noack, D. F. Wenger, "SABRE (Sandia Accelerator and Beam Research Experiment): A Test Bed for the Light Ion Fusion Program," 19th IEEE International Conference on Plasma Science, Tampa, FL, June 1-3, 1992 (invited talk).

M. E. Cuneo, D. L. Hanson, J. R. Smith, S. E. Rosenthal, R. S. Coats, M. A. Bernard, "Operation of Passive Wax Flashover and LiF Ion Sources on Extraction Applied-B Ion Diodes on SABRE," 20th IEEE International Conference on Plasma Science, Vancouver, B.C., June 7-9, 1993.

M. E. Cuneo, T. R. Lockner, G. C. Tisone, "A Refractive INDEX Gradient (RING) Diagnostic for Transporting Discharges or Expansion of Vapor or Plasma," *IEEE Transactions on Plasma Science* 19, 800 (1991).

M. E. Cuneo, T. R. Lockner, G. C. Tisone, K. W. Bieg, R. W. Stinnett, J. R. Chavez, "A Refractive INDEX Gradient (RING) Diagnostic for Transporting Discharges or Expansion of Vapor or Plasmas," XIVth International Symposium on Discharges and Electrical Insulation in Vacuum, Santa Fe, NM, September 17-20, 1990.

M. E. Cuneo, T. R. Lockner, G. C. Tisone, K. W. Bieg, R. W. Stinnett, J. R. Chavez, "A Refractive INDEX Gradient (RING) Diagnostic for Transporting Discharges or Expansion of Vapor or Plasmas," *Proceedings XIVth International Symposium on Discharges and Electrical Insulation in Vacuum*, Sandia National Laboratories Report No. SAND90-1927C (Albuquerque, NM, September 1990), p. 607.

M. E. Cuneo, J. W. Poukey, C. W. Mendel, S. E. Rosenthal, D. L. Hanson, J. R. Smith, J. E. Maenchen, D. F. Wenger, M. A. Bernard, "Observation of Reflected Waves on the SABRE Positive Polarity Inductive Adder MITL," Ninth IEEE Pulsed Power Conference, Albuquerque, NM, June 21-23, 1993.

M. E. Cuneo, J. W. Poukey, C. W. Mendel, S. E. Rosenthal, D. L. Hanson, J. R. Smith, J. E. Maenchen, D. F. Wenger, M. A. Bernard, "Observation of Reflected Waves in the SABRE Positive Polarity Inductive Adder MITL," *Digest of Technical Papers, Ninth IEEE Pulsed Power Conference*, ed. by W. L. Baker and K. R. Prestwich (IEEE, New York, 1993), vol. 1, p. 423.

M. E. Cuneo, G. C. Tisone, B. F. Clark, J. R. Chavez, M. Lopez, "Characterization of LEVIS (Laser EVaporation Ion Source) for Light Ion Inertial Confinement Fusion," 18th IEEE International Conference on Plasma Science, Williamsburg, VA, June 3-5, 1991 (invited talk).

M. E. Cuneo, G. C. Tisone, D. L. Hanson, P. F. McKay, "Laser-Produced Lithium Ion Source for Intense Applied-B Ion Diodes," American Physical Society Division of Plasma Physics Meeting, Tampa, FL, November 4-8, 1991.

D

H. A. Davis, G. P. Johnston, D. J. Rej, W. J. Waganaar, C. L. Ruiz, "Intense Ion Beam Characteristics for Beam Materials Processing," American Physical Society Division of Plasma Physics Meeting, St. Louis, MO, November 1-5, 1993.

H. A. Davis, D. J. Rej, W. J. Waganaar, C. L. Ruiz, "Intense Ion Beam Characterization Including a New Method to Measure Beam Areal Energy Density," 20th IEEE International Conference on Plasma Science, Vancouver, B.C., June 7-9, 1993.

G. J. Denison, J. A. Alexander, J. P. Corley, "LMF Component Design and Testing," Eighth IEEE Pulsed Power Conference, San Diego, CA, June 17-19, 1991.

G. J. Denison, J. A. Alexander, J. P. Corley, D. L. Johnson, K. C. Hodge, M. M. Manzanares, G. Weber, R. A. Hamil, L. P. Schanwald, J. J. Ramirez, "Performance of the Hermes-III Laser Triggered Gas Switches," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.

G. J. Denison, J. A. Alexander, J. P. Corley, D. L. Johnson, K. C. Hodge, M. M. Manzanares, G. Weber, R. A. Hamil, L. P. Schanwald, J. J. Ramirez, "Performance of the Hermes-III Laser Triggered Gas Switches," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 579.

D. K. Derzon, J. H. Aubert, D. H. Schneider, R. A. Assink, P. S. Sawyer, F. W. McNamara, "Proton Beam Targets Shot on PBFA II," Ninth Topical Conference on High-Temperature Plasma Diagnostics, Santa Fe, NM, March 15-19, 1992.

D. K. Derzon, J. H. Aubert, D. H. Schneider, R. A. Assink, P. S. Sawyer, F. W. McNamara, "Proton Beam Targets Shot on PBFA II," *Review Scientific Instruments* **63**, 4779 (1992).

M. S. Derzon, J. H. Aubert, J. E. Bailey, A. L. Carlson, G. A. Chandler, D. K. Derzon, R. J. Dukart, D. R. Humphreys, J. Hunter, D. J. Johnson, M. K. Matzen, L. P. Mix, A. R. Moats, R. E. Olson, J. G. Pantuso, P. D. Rockett, C. L. Ruiz, P. S. Sawyer, J. A. Torres, T. W. Hussey, "Comparison of Experimental Results and Calculated Detector Responses for PBFA-II Thermal Source Experiments," Ninth Topical Conference on High-Temperature Plasma Diagnostics, Santa Fe, NM, March 15-19, 1992 .

M. S. Derzon, J. H. Aubert, J. E. Bailey, A. L. Carlson, G. A. Chandler, D. K. Derzon, R. J. Dukart, D. R. Humphreys, J. Hunter, D. J. Johnson, M. K. Matzen, L. P. Mix, A. R. Moats, R. E. Olson, J. G. Pantuso, P. D. Rockett, C. L. Ruiz, P. S. Sawyer, J. A. Torres, T. W. Hussey, "Comparison of Experimental Results and Calculated Detector Responses for PBFA-II Thermal Source Experiments," *Review Scientific Instruments* **63**, 5068 (1992).

M. S. Derzon, J. E. Bailey, G. A. Chandler, D. J. Johnson, J. E. Maenchen, M. K. Matzen, E. J. McGuire, T. A. Mehlhorn, W. E. Nelson, J. A. Pantuso, P. D. Rockett, C. L. Ruiz, F. A. Schmidlapp, T. Smith, W. A. Stygar, J. A. Torres, D. K. Wiemann, "Results of Beam Characterization Measurements on PBFA II," Eighth Topical Conference on High-Temperature Plasma Diagnostics," Hyannis, MA, May 6-10, 1990.

M. S. Derzon, J. E. Bailey, G. A. Chandler, D. J. Johnson, J. E. Maenchen, M. K. Matzen, E. J. McGuire, T. A. Mehlhorn, W. E. Nelson, J. A. Pantuso, P. D. Rockett, C. L. Ruiz, F. A. Schmidlapp, T. Smith, W. A. Stygar, J. A. Torres, D. K. Wiemann, "Results of Beam Characterization Measurements on PBFA II," *Review Scientific Instruments* **61**, 3144 (1990).

M. S. Derzon, J. E. Bailey, G. A. Chandler, D. J. Johnson, J. E. Maenchen, M. K. Matzen, E. J. McGuire, T. A. Mehlhorn, W. E. Nelson, J. A. Pantuso, P. D. Rockett, C. L. Ruiz, F. A. Schmidlapp, T. Smith, W. A. Stygar, J. A. Torres, D. K. Wiemann, "Results of Beam Characterization Measurements on PBFA II," Third International Conference on Intense Ion-Beam Interactions with Matter, Albuquerque, NM, November 7-8, 1990.

M. S. Derzon, J. E. Bailey, G. A. Chandler, D. J. Johnson, J. E. Maenchen, M. K. Matzen, E. J. McGuire, T. A. Mehlhorn, W. E. Nelson, J. A. Pantuso, P. D. Rockett, C. L. Ruiz, F. A. Schmidlapp, T. Smith, W. A. Stygar, J. A. Torres, D. K. Wiemann, "Results of Beam Characterization Measurements on PBFA II," *Proceedings Third International Conference on Intense Ion-Beam Interactions with Matter* (Sandia National Laboratories, Albuquerque, NM, March 1993), p. 32.

M. S. Derzon, A. B. Filuk, J. G. Pantuso, R. J. Dukart, R. Olsen, T. Barber, M. A. Bernard, "Development and Characterization of a Time-, Position-, and Energy-Resolved X-Ray Diagnostic for PBFA-II Target Experiments," SPIE Annual International Symposium on Optical Instrumentation and Applied Science, San Diego, CA, July 11-16, 1993.

M. S. Derzon, A. B. Filuk, J. Pantuso, R. J. Dukart, R. Olsen, T. Barber, M. A. Bernard, "Development and Characterization of a Time-, Position-, and Energy-Resolved X-Ray Diagnostic for PBFA-II Target Experiments," *Ultrahigh- and High-Speed Photography, Videography, and Photonics '93*, ed. by P. W. Roehrenbeck (Society of Photo-Optical Instrumentation Engineers, Bellingham, WA, 1993), vol. 2002, p. 31.

M. P. Desjarlais, "Theory of Applied-B Ion Diodes," *Physics Fluids B* **1**, 1709 (1989).

M. P. Desjarlais, "Theory of Voltage Decay in Applied-B Ion Diodes," 16th IEEE International Conference on Plasma Science, Buffalo, NY, May 22-24, 1989 (invited talk).

M. P. Desjarlais, "The Effect of Charge Exchange Processes on Ion Diode Impedance," *Journal of Applied Physics* **66**, 2888 (1989).

M. P. Desjarlais, "Analytic Modeling of High Power Applied-B Ion Diodes," American Physical Society Spring Meeting, Washington, D.C., April 16-19, 1990.

M. P. Desjarlais, "Coupling of a POS to an Ion Diode Load," Seventh Plasma Opening Switch Workshop, Albuquerque, NM, April 24-25, 1990.

- M. P. Desjarlais, "Linear and Nonlinear Evolution of Instabilities in Applied-B Ion Diodes," International Conference on Research Trends in Inertial Confinement Fusion, La Jolla, CA, February 4-6, 1991.
- M. P. Desjarlais, "The Evolution and Control of Ion Beam Divergence in Ion Diodes," American Physical Society Division of Plasma Physics Meeting, Tampa, FL, November 4-8, 1991 (invited talk).
- M. P. Desjarlais, "Impedance Collapse in Applied-B Ion Diodes," American Physical Society Division of Plasma Physics, Seattle, WA, November 16-20, 1992.
- M. P. Desjarlais, T. D. Pointon, "QUICKSILVER Simulations of Applied-B Extraction Diodes," Ninth International Conference on High Power Particle Beams, Washington, D.C., May 25-29, 1992.
- M. P. Desjarlais, T. D. Pointon, "QUICKSILVER Simulations of Applied-B Extraction Diodes," *Proceedings Ninth International Conference on High-Power Particle Beams*, ed. by D. Mosher and G. Cooperstein (National Technical Information Service, Springfield, VA, 1993), vol. 2, p. 775.
- M. P. Desjarlais, T. D. Pointon, "Numerical Study of Ion Mode Saturation in Applied-B Ion Diodes," 20th IEEE International Conference on Plasma Science, Vancouver, B.C., June 7-9, 1993.
- M. P. Desjarlais, T. D. Pointon, D. B. Seidel, "Linear, Nonlinear, and Turbulent Behavior of 3-D Ion Diode Simulations," American Physical Society Division of Plasma Physics, Cincinnati, OH, November 12-16, 1990.
- M. P. Desjarlais, T. D. Pointon, D. B. Seidel, R. S. Coats, M. L. Kiefer, J. P. Quintenz, S. A. Slutz, "Evolution and Control of Ion Beam Divergence in Applied-B Ion Diodes," *Physical Review Letters* 67, 3094 (1991).
- P. L. Dreike, *Status of the BOLVAPS Lithium Vapor Source Development*, Sandia National Laboratories Report No. SAND91-0994 (Albuquerque, NM, June 1991).
- P. L. Dreike, D. B. Appel, J. S. Cap, F. P. Gerstle, K. P. Lamppa, D. M. Mattox, H. L. McCollister, R. H. Moore, M. K. Neilsen, C. R. Peebles, G. C. Tisone, "Development of the BOLVAPS Lithium Vapor Source for the PBFA-II Accelerator," International Conference on Ion Sources, Berkeley, CA, July 10-14, 1989.
- P. L. Dreike, D. B. Appel, J. S. Cap, F. P. Gerstle, K. P. Lamppa, D. M. Mattox, H. L. McCollister, R. H. Moore, M. K. Neilsen, C. R. Peebles, G. C. Tisone, "Development of the BOLVAPS Lithium Vapor Source for the PBFA-II Accelerator," *Review Scientific Instruments* 61, 532 (1990).
- P. L. Dreike, D. B. Appel, M. E. Cuneo, T. Grasser, K. P. Lamppa, R. H. Moore, C. R. Peebles, T. J. Renk, G. C. Tisone, "Development of the BOLVAPS-LIBORS Lithium Ion Source for the Particle Beam Fusion Accelerator II (PBFA II)," XIVth International Symposium on Electrical Discharges and Electrical Insulation in Vacuum, Santa Fe, NM, September 17-20, 1990.

P. L. Dreike, D. B. Appel, M. E. Cuneo, T. Grasser, K. P. Lamppa, R. H. Moore, C. R. Peebles, T. J. Renk, G. C. Tisone, "Development of the BOLVAPS-LIBORS Lithium Ion Source for the Particle Beam Fusion Accelerator II (PBFA II)," *Proceedings XIVth International Symposium on Electrical Discharges and Electrical Insulation in Vacuum*, Sandia National Laboratories Report No. SAND90-1927C (Albuquerque, NM, September 1990), p. 614.

P. L. Dreike, K. W. Bieg, G. A. Chandler, R. H. Moore, T. J. Renk, G. C. Tisone, "Development of the BOLVAPS-LIBORS Lithium Ion Source for the PBFA-II Accelerator," American Physical Society Division of Plasma Physics Meeting, Cincinnati, OH, November 12-16, 1990.

P. L. Dreike, G. C. Tisone, D. B. Appel, F. P. Gerstle, K. P. Lamppa, D. M. Mattox, H. L. McCollister, R. H. Moore, T. J. Renk, "Development of the Boil Off Lithium Vapor Source (BOLVAPS)-Laser Ionization Based on Resonant Saturation (LIBORS) Lithium Ion Source for the PBFA-II Accelerator," 16th IEEE International Conference on Plasma Science, Buffalo, NY, May 22-24, 1989.

R. J. Dukart, "Ion Beam Effects on Thermal K-Shell Emission from High-Temperature Plasmas on PBFA II," 16th IEEE International Conference on Plasma Science, Buffalo, NY, May 22-24, 1989.

R. J. Dukart, "Ion Beam Effects on Thermal K-Shell Emission from High-Temperature Plasmas on PBFA II," Seventh American Physical Society Topical Conference on Atomic Processes in Plasmas, Gaithersburg, MD, October 2-5, 1989.

R. J. Dukart, T. A. Mehlhorn, "Ion Impact Ionization Effects in a 1-D Radiation Hydrodynamics Code," Eighth Topical Conference on High-Temperature Plasma Diagnostics, Hyannis, MA, May 6-10, 1990.

R. J. Dukart, T. A. Mehlhorn, "Ion Impact Ionization Effects in a 1-D Radiation Hydrodynamics Code," *Review Scientific Instruments* 61, 3148 (1990).

R. J. Dukart, R. E. Olson, "Analysis of PBFA II Target Experiments," Ninth International Conference on High Power Particle Beams, Washington, D.C., May 25-29, 1992.

R. J. Dukart, R. E. Olson, J. E. Bailey, G. A. Chandler, M. S. Derzon, "Analysis of a Proton Driven, Imploding Pusher Target on PBFA II," Ninth Topical Conference on High-Temperature Plasma Diagnostics, Santa Fe, NM, March 15-19, 1992.

E

M. J. Eaton, "Designing an Experimenter's Database Using the Nijssen Information Analysis Methodology (NIAM)," National U.S. Decus Symposium, New Orleans, LA, May 7-11, 1990.

M. J. Eaton, A. R. Moats, T. A. Mehlhorn, "The PBFA II Experimenter's Database," Ninth Biennial CUBE Symposium, Santa Fe, NM, November 27-30, 1990.

F

D. L. Fehl, R. J. Leeper, R. P. Kensek, "A Simple Unfold Method for Rutherford Scattering, Intense Ion Beam Spectrographs," Ninth Topical Conference on High-Temperature Plasma Diagnostics, Santa Fe, NM, March 15-19, 1992.

D. L. Fehl, R. J. Leeper, R. P. Kensek, "A Simple Unfold Method for Rutherford Scattering, Intense Ion Beam Spectrographs," *Review Scientific Instruments* **63**, 4786 (1992).

A. B. Filuk, J. E. Bailey, "Analyzing Noisy Spectral Line Shapes," Ninth Topical Conference on High-Temperature Plasma Diagnostics, Santa Fe, NM, March 15-19, 1992.

A. B. Filuk, J. E. Bailey, "Analyzing Noisy Spectral Line Shapes," *Review Scientific Instruments* **63**, 4783 (1992).

A. B. Filuk, J. E. Bailey, K. W. Bieg, A. L. Carlson, T. J. Renk, G. C. Tisone, Y. Maron, "Spectroscopic Characterization of LEVIS Active Ion Source on PBFA II," Ninth International Conference on High Power Particle Beams, Washington, D.C., May 25-29, 1992.

A. B. Filuk, J. E. Bailey, K. W. Bieg, A. L. Carlson, T. J. Renk, G. C. Tisone, Y. Maron, "Spectroscopic Characterization of LEVIS Active Ion Source on PBFA II," *Proceedings Ninth International Conference on High-Power Particle Beams*, ed. by D. Mosher and G. Cooperstein (National Technical Information Service, Springfield, VA, 1993), vol. 2, p. 794.

A. B. Filuk, J. E. Bailey, A. L. Carlson, B. F. Clark, T. A. Green, P. W. Lake, T. J. Renk, G. C. Tisone, Y. Maron, "High-Power Ion Beam Source Divergence from Observations of Charge-Exchange Neutrals," Ninth American Physical Society Topical Conference on Atomic Processes in Plasmas, San Antonio, TX, September 19-23, 1993.

A. B. Filuk, J. E. Bailey, A. L. Carlson, B. F. Clark, P. W. Lake, G. C. Tisone, Y. Maron, "Spectroscopic Measurements of Ion Source Divergence in a High-Power Applied-B Ion Diode," Twentieth IEEE International Conference on Plasma Science, Vancouver, B. C., June 7-9, 1993.

A. B. Filuk, J. E. Bailey, A. L. Carlson, P. W. Lake, Y. Maron, "Charge Exchange Neutral Production in a High-Power Ion Diode," Sixth International Workshop on Atomic Physics for Ion-Driven Fusion, Santa Fe, NM, November 8-12, 1993.

A. B. Filuk, J. E. Bailey, A. L. Carlson, P. W. Lake, Y. Maron, "Continuum Emission in the Anode-Cathode Gap of PBFA II," Sixth International Workshop on Atomic Physics for Ion-Driven Fusion, Santa Fe, NM, November 8-12, 1993.

C. A. Frost, T. H. Martin, P. E. Patterson, L. F. Rinehart, G. J. Rohwein, L. D. Roose, J. F. Aurand, M. T. Buttram, "Ultrafast Gas Switching Experiments," Ninth IEEE Pulsed Power Conference, Albuquerque, NM, June 21-23, 1993.

C. A. Frost, T. H. Martin, P. E. Patterson, L. F. Rinehart, G. J. Rohwein, L. D. Roose, J. F. Aurand, M. T. Buttram, "Ultrafast Gas Switching Experiments," *Digest of Technical Papers, Ninth IEEE Pulsed Power Conference*, ed. by W. L. Baker and K. R. Prestwich (IEEE, New York, 1993), vol. 1, p. 491.

G

R. A. Gerber, "Light-Ion Sources for Inertial Confinement Fusion," Chapter 18, in *The Physics and Technology of Ion Sources*, ed. by I. G. Brown (John Wiley & Sons, New York, 1989), p. 371.

R. A. Gerber, K. W. Bieg, P. L. Dreike, P. F. McKay, A. L. Pregonzer, G. C. Tisone, J. R. Woodworth, "Ion Sources for Light Ion Fusion," International Conference on Ion Sources, Berkeley, CA, July 10-14, 1989 (invited talk).

R. A. Gerber, K. W. Bieg, P. L. Dreike, P. F. McKay, A. L. Pregonzer, G. C. Tisone, J. R. Woodworth, "Ion Sources for Light Ion Fusion," *Review Scientific Instruments* **61**, 511 (1990) (invited paper).

T. A. Green, G. M. Loubriel, P. M. Richards, L. T. Hudson, P. M. Savundararaj, R. G. Albridge, A. V. Barnes, N. H. Tolk, "Hot Hole Diffusion in the Electron-Stimulated Desorption of Metal Atoms from Alkali Halides," Fourth International Workshop on Desorption Induced by Electronic Transitions (DIET IV), Vienna, Austria, October 2-4, 1989.

T. A. Green, G. M. Loubriel, P. M. Richards, L. T. Hudson, P. M. Savundararaj, R. G. Albridge, A. V. Barnes, N. H. Tolk, "Hot Hole Diffusion in the Electron-Stimulated Desorption of Metal Atoms from Alkali Halides," in *Proceedings of Fourth International Workshop on Desorption Induced by Electronic Transitions* (Springer-Verlag, New York, 1990), p. 281.

T. A. Green, M. E. Riley, P. M. Richards, G. M. Loubriel, D. R. Jennison, R. T. Williams, "Auger-Induced Valence Processes in Alkali Halides Following Alkali Core-Hole Creation," *Physical Review B* **39**, 5407 (1989).

J. B. Greenly, S. C. Glidden, R. W. Stinnett, "Ion Diode Design for IBEST," 20th IEEE International Conference on Plasma Science, Vancouver, B. C., June 7-9, 1993.

H

T. A. Haill, D. J. Johnson, J. E. Bailey, R. J. Leeper, D. Hebron, W. A. Stygar, "Divergence Measurements of Light Ion Beams Using Ultra-Compact Ion Pinhole Camera on PBFA II," Ninth Topical Conference on High-Temperature Plasma Diagnostics, Santa Fe, NM, March 15-19, 1992.

T. A. Haill, T. A. Mehlhorn, K. W. Bieg, M. E. Cuneo, "Simulation of Ion Beam Diagnostics on Extraction Geometry Ion Diodes," Eighth Topical Conference on High-Temperature Plasma Diagnostics, Hyannis, MA, May 6-10, 1990.

T. A. Haill, T. A. Mehlhorn, K. W. Bieg, M. E. Cuneo, "Simulation of Ion Beam Diagnostics on Extraction Geometry Ion Diodes," *Review Scientific Instruments* **61**, 3147 (1990).

D. J. Hall, D. Pavlik, J. F. Roach, H. C. Harjes. "Conceptual Design and System Studies for a 600 kW Repetitive Pulse Transformer," Eighth IEEE Pulsed Power Conference, San Diego, CA, June 17-19, 1991.

D. J. Hall, D. Pavlik, J. F. Roach, H. C. Harjes. "Conceptual Design and System Studies for a 600 kW Repetitive Pulse Transformer," *Digest of Technical Papers, Eighth IEEE Pulsed Power Conference*, ed. by K. R. Prestwich and R. White (IEEE, New York, 1991), p. 241.

J. A. Halbleib, T. A. Mehlhorn, R. P. Kensek, *Integrated Tiger Series of Coupled Electron-Photon Monte Carlo Transport Codes, ITS Version 3.0*, Sandia National Laboratories Report No. SAND91-1634 (Albuquerque, NM, March 1992).

B. A. Hammel, L. E. Ruggles, "An Elliptical Spectrograph/Fiber Array/Streak Camera System for Remote Time-Resolved Spectral Measurements in the X-Ray Region," *Review Scientific Instruments* 60, 2861 (1989).

B. A. Hammel, D. W. Phillion, L. E. Ruggles, "Demonstration of Reduced Source Size Broadening with a Johann Focusing Elliptical Spectrograph and Theory of the Second-Order Source Broadening," *Review Scientific Instruments* 61, 1920 (1990).

D. L. Hanson, M. E. Cuneo, P. F. McKay, R. S. Coats, S. E. Rosenthal, J. R. Chavez, W. F. Stearns, C. E. Heath, W. G. Adams, J. Ruscetti, "Ion Coupling Efficiency for an Extraction Applied-B Ion Diode Experiments in the HELIA Linear Induction Adder in Positive Polarity," XIVth International Symposium on Discharges and Electrical Insulation in Vacuum, Santa Fe, NM, September 17-20, 1990.

D. L. Hanson, M. E. Cuneo, P. F. McKay, R. S. Coats, S. E. Rosenthal, J. R. Chavez, W. F. Stearns, C. E. Heath, R. G. Adams, J. Ruscetti, "Ion Coupling Efficiency for an Extraction Applied-B Ion Diode in the HELIA Linear Induction Adder in Positive Polarity," *Proceedings XIVth Symposium on Discharges and Electrical Insulation in Vacuum*, ed. by R. W. Stinnett, Sandia National Laboratories Report SAND90-1927C (Albuquerque, NM, September 1990), p. 708.

D. L. Hanson, M. E. Cuneo, P. F. McKay, R. S. Coats, S. E. Rosenthal, "Ion Coupling Efficiency for an Extraction Applied-B Ion Diode on the HELIA Linear Induction Adder in Positive Polarity," *IEEE Transactions on Plasma Science* 19, 831 (1991).

D. L. Hanson, M. E. Cuneo, P. F. McKay, J. E. Maenchen, R. S. Coats, J. W. Poukey, S. E. Rosenthal, W. E. Fowler, D. F. Wenger, J. R. Chavez, W. F. Stearns, "Extraction Applied-B Ion Diode Experiments on the SABRE Positive Polarity Linear Induction Accelerator," American Physical Society Division of Plasma Physics Meeting, Tampa, FL, November 4-8, 1991.

D. L. Hanson, M. E. Cuneo, P. F. McKay, J. E. Maenchen, R. S. Coats, J. W. Poukey, S. E. Rosenthal, W. E. Fowler, D. F. Wenger, M. A. Bernard, J. R. Chavez, W. F. Stearns, "Operation of a High Impedance Applied-B Extraction Ion Diode on the SABRE Positive Polarity Linear Induction Accelerator," Ninth International Conference on High Power Particle Beams, Washington, D.C., May 25-29, 1992.

- D. L. Hanson, M. E. Cuneo, P. F. McKay, J. E. Maenchen, R. S. Coats, J. W. Poukey, S. E. Rosenthal, W. E. Fowler, D. F. Wenger, M. A. Bernard, J. R. Chavez, W. F. Stearns, "Operation of a High Impedance Applied-B Extraction Ion Diode on the SABRE Positive Polarity Linear Induction Accelerator," *Proceedings Ninth International Conference on High-Power Particle Beams*, ed. by D. Mosher and G. Cooperstein (National Technical Information Service, Springfield, VA, 1993), vol. 2, p. 781.
- D. L. Hanson, M. E. Cuneo, S. E. Rosenthal, M. P. Desjarlais, C. L. Olson, J. P. Quintenz, D. R. Welch, A. B. Filuk, T. J. Nash, D. D. Noack, L. D. Bacon, M. S. Derzon, R. S. Coats, J. R. Smith, M. A. Bernard, "Divergence Control Experiments on the SABRE Extraction Ion Diode," 20th IEEE International Conference on Plasma Science, Vancouver, B.C., June 7-9, 1993.
- D. L. Hanson, J. L. Porter, R. R. Williams, "High Purity Ion Beam Production at High Current Densities with a Liquid Helium Cooled Series Field Coil Extraction Ion Diode," *Journal of Applied Physics* 70, 2926 (1991).
- D. L. Hanson, K. W. Struve, R. B. Spielman, J. F. Seaman, "Application of Piezoelectric Stress Gauges to the Measurement of Fast-Rise-Time Multimegaampere Electric Currents," Joint AIRPT/APS Conference on High Pressure Science and Technology, Colorado Springs, CO, June 28-July 2, 1993.
- D. L. Hanson, R. R. Williams, J. L. Porter, R. B. Spielman, M. K. Matzen, "Lithium Niobate Stress Gauge Current Diagnostics for Non-Inductive Measurements of Fast Risetime Multi-Megaampere Currents," *Journal of Applied Physics* 68, 4917 (1990).
- H. C. Harjes, G. A. Mann, E. L. Neau, F. A. Morgan, "Improved Core Insulating Schemes for Multi-Terawatt Magnetic Switches," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.
- H. C. Harjes, G. A. Mann, E. L. Neau, F. A. Morgan, "Improved Core Insulating Schemes for Multi-Terawatt Magnetic Switches," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 684.
- H. C. Harjes, G. A. Mann, D. J. Sharp, "Electrophoretic Coatings for Magnetic Switches," Eighth IEEE Pulsed Power Conference, San Diego, CA, June 17-19, 1991.
- H. C. Harjes, G. A. Mann, D. J. Sharp, "Electrophoretic Coatings for Magnetic Switches," *Digest of Technical Papers, Eighth IEEE Pulsed Power Conference*, ed. by K. R. Prestwich and R. White (IEEE, New York, 1991), p. 723.
- H. C. Harjes, K. J. Penn, K. W. Reed, C. R. McClenahan, G. E. Laderach, R. W. Wavrik, J. L. Adcock, M. E. Butler, G. A. Mann, L. E. Martinez, F. A. Morgan, G. J. Weber, E. L. Neau, "Status of the Repetitive High Energy Pulsed Power Project," Eighth IEEE Pulsed Power Conference, San Diego, CA, June 17-19, 1991.

H. C. Harjes, K. J. Penn, K. W. Reed, C. R. McClenahan, G. E. Laderach, R. W. Wavrik, J. L. Adcock, M. E. Butler, G. A. Mann, L. E. Martinez, F. A. Morgan, G. J. Weber, E. L. Neau, "Status of the Repetitive High Energy Pulsed Power Project," *Digest of Technical Papers, Eighth IEEE Pulsed Power Conference*, ed. by K. R. Prestwich and R. White (IEEE, New York, 1991), p. 543.

H. C. Harjes, K. J. Penn, K. W. Reed, C. R. McClenahan, G. E. Laderach, R. W. Wavrik, J. L. Adcock, M. E. Butler, G. A. Mann, G. E. Pena, G. J. Weber, D. VanDeValde, L. E. Martinez, D. Muirhead, P. D. Kiekel, D. L. Johnson, E. L. Neau, "Initial Results from the Unipolar Operation of the RHEPP Module," 20th Power Modulator Symposium, Myrtle Beach, SC, June 23-25, 1992.

H. C. Harjes, K. J. Penn, K. W. Reed, C. R. McClenahan, G. E. Laderach, R. W. Wavrik, J. L. Adcock, M. E. Butler, G. A. Mann, G. E. Pena, G. J. Weber, D. VanDeValde, L. E. Martinez, D. Muirhead, P. D. Kiekel, D. L. Johnson, E. L. Neau, "Initial Results from the Unipolar Operation of the RHEPP Module," *Conference Record of the 20th Power Modulator Symposium*, ed. by B. Gray (IEEE, New York, 1992), p. 83.

H. C. Harjes, K. W. Reed, M. T. Buttram, B. N. Turman, E. L. Neau, L. E. Martinez, J. L. Adcock, E. A. Weinbrecht, G. E. Laderach, G. E. Pena, M. E. Butler, L. X. Schneider, R. W. Wavrik, K. J. Penn, G. J. Weber, "The Repetitive High Energy Pulsed Power Module," 19th IEEE Power Modulator Symposium, San Diego, CA, June 26-28, 1990.

H. C. Harjes, K. W. Reed, M. T. Buttram, B. N. Turman, E. L. Neau, L. E. Martinez, J. L. Adcock, E. A. Weinbrecht, G. E. Laderach, G. E. Pena, M. E. Butler, L. X. Schneider, R. W. Wavrik, K. J. Penn, G. J. Weber, "The Repetitive High Energy Pulsed Power Module," *Conference Record of the 19th IEEE Power Modulator Symposium*, ed. by L. Luessen (IEEE, New York, 1990), p. 168.

H. C. Harjes, D. J. Sharp, G. A. Mann, F. A. Morgan, W. G. Yelton, "Investigations into the Use of Dielectric Coatings in Magnetic Switches," 19th Power Modulator Symposium, San Diego, CA, June 26-28, 1990.

H. C. Harjes, D. J. Sharp, G. A. Mann, F. A. Morgan, W. G. Yelton, "Investigations into the Use of Dielectric Coatings in Magnetic Switches," *Conference Record of the 19th IEEE Power Modulator Symposium*, ed. by L. Luessen (IEEE, New York, 1990), p. 181.

A. A. Hauer, D. W. Forslund, C. J. McKinstrie, J. S. Wark, P. J. Hargis, R. A. Hamil, J. M. Kindel, "Current New Applications of Laser Plasmas," in *Laser-Induced Plasmas and Applications*, ed. by L. J. Raziemski and D. A. Cremers (Marcel Dekker, New York, 1989), p. 385.

B. A. Hoselton, J. R. Woodworth, W. H. Jaramillo, "Time-Resolved Density Measurements and Spectral Analysis of Resonant Laser-Produced Lithium Plasmas," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.

D. R. Humphreys, "Magnetized Fuel Targets for PBFA II," Magnetic Target Fusion Workshop, Phillips Laboratory, Albuquerque, NM, September 27, 1991 (invited talk).

D. R. Humphreys, "Current Cooling," Inter-Lab Magnetic Target Fusion Workshop, Los Alamos National Laboratory, Los Alamos, NM, September 21, 1992 (invited talk).

S. Humphries, C. L. Olson, "Simulations of Longitudinal Stability in Linear Induction Ion Accelerators," American Physical Society Division of Plasma Physics Meeting, Tampa, FL, November 4-8, 1991.

T. W. Hussey, S. A. Slutz, M. P. Desjarlais, "MHD Calculations of Anode Plasmas," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.

T. W. Hussey, S. A. Slutz, M. P. Desjarlais, "MHD Calculations of Anode Plasmas," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 959.

J

V. L. Jacobs, A. B. Filuk, "Polarization of Atomic Radiative Transitions in Crossed Electric and Magnetic Fields," Sixth International Workshop on Atomic Physics for Ion-Driven Fusion, Santa Fe, NM, November 8-12, 1993.

D. L. Johnson, J. A. Alexander, J. J. Ramirez, J. P. Corley, G. J. Denison, J. W. Poukey, T. R. Lockner, S. E. Rosenthal, C. L. Ruiz, "Hermes-III Positive Polarity Experiment," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.

D. L. Johnson, J. A. Alexander, J. J. Ramirez, J. P. Corley, G. J. Denison, J. W. Poukey, T. R. Lockner, S. E. Rosenthal, C. L. Ruiz, "Hermes-III Positive Polarity Experiment," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference* (IEEE, New York, 1989), p. 32.

D. L. Johnson, J. P. Corley, J. J. Ramirez, J. W. Poukey, "SABRE, Sandia Accelerator and Beam Research Experiment," American Physical Society Spring Meeting, Washington, D. C., April 16-19, 1990.

D. L. Johnson, J. J. Ramirez, R. W. Stinnett, K. B. Coachman, "A Conceptual Design for an LMF Accelerator Module," Particle Accelerator Conference, Chicago, IL, March 20-23, 1989.

D. L. Johnson, K. W. Reed, H. C. Harjes, C. R. McClenahan, K. J. Penn, G. E. Laderach, G. J. Weber, P. D. Kiekel, L. E. Martinez, G. A. Mann, R. W. Wavrik, D. Muirhead, D. VanDeValde, J. L. Adcock, M. E. Butler, G. E. Pena, J. Flores, E. L. Neau, "Results of Initial Testing of the Four Stage RHEPP Accelerator," Ninth IEEE Pulsed Power Conference, Albuquerque, NM, June 21-23, 1993.

D. L. Johnson, K. W. Reed, H. C. Harjes, C. R. McClenahan, K. J. Penn, G. E. Laderach, G. J. Weber, P. D. Kiekel, L. E. Martinez, G. A. Mann, R. W. Wavrik, D. Muirhead, D. VanDeValde, J. L. Adcock, M. E. Butler, G. E. Pena, J. Flores, E. L. Neau, "Results of Initial Testing of the Four Stage RHEPP Accelerator," *Digest of Technical Papers, Ninth IEEE Pulsed Power Conference*, ed. by W. L. Baker and K. R. Prestwich (IEEE, New York, 1993), vol. 1, p. 437.

D. L. Johnson, J. J. Ramirez, R. W. Stinnett, K. B. Coachman, "A Conceptual Design for an LMF Accelerator Module," *Proceedings 1989 IEEE Particle Accelerator Conference*, ed. by F. Bennett and J. Kopta (IEEE, New York, 1989), vol. 2, p. 1017.

D. J. Johnson, "PBFA II Applied-B Ion Diode Beam Characteristics at High Voltages," 17th IEEE International Conference on Plasma Science, Oakland, CA, May 21-23, 1990 (invited talk).

D. J. Johnson, J. E. Bailey, T. A. Haill, D. F. Wenger, "Divergence Measurements of the Beams from an Applied-B Ion Diode on PBFA II," 19th IEEE International Conference on Plasma Science, Tampa, FL, June 1-3, 1992.

D. J. Johnson, M. P. Desjarlais, D. F. Wenger, T. A. Haill, T. A. Mehlhorn, "Lithium Beam Energy-Momentum Correlation on PBFA II," 20th IEEE International Conference on Plasma Science, Vancouver, B.C., June 7-9, 1993.

D. J. Johnson, T. R. Lockner, R. S. Coats, T. A. Mehlhorn, W. E. Nelson, G. A. Chandler, M. P. Desjarlais, M. S. Derzon, R. J. Leeper, J. E. Maenchen, C. R. Mattson, A. L. Pregonzer, S. E. Rosenthal, C. L. Ruiz, R. W. Stinnett, W. A. Stygar, D. F. Wenger, "PBFA-II Applied-B Ion Diode Beam Characterization at High Voltages," XIVth International Symposium on Discharges and Electrical Insulation in Vacuum, Santa Fe, NM, September 17-20, 1990.

D. J. Johnson, T. R. Lockner, R. S. Coats, T. A. Mehlhorn, W. E. Nelson, G. A. Chandler, M. P. Desjarlais, M. S. Derzon, R. J. Leeper, J. E. Maenchen, C. R. Mattson, A. L. Pregonzer, S. E. Rosenthal, C. L. Ruiz, R. W. Stinnett, W. A. Stygar, D. F. Wenger, "PBFA-II Applied-B Ion Diode Beam Characterization at High Voltages," *Proceedings XIVth International Symposium on Discharges and Electrical Insulation in Vacuum*, Sandia National Laboratories Report No. SAND90-1927C (Albuquerque, NM, September 1990), p. 659.

D. J. Johnson, T. R. Lockner, R. J. Leeper, J. E. Maenchen, C. W. Mendel, G. E. Rochau, W. A. Stygar, R. S. Coats, M. P. Desjarlais, R. P. Kensek, T. A. Mehlhorn, W. E. Nelson, S. E. Rosenthal, J. P. Quintenz, R. W. Stinnett, "PBFA-II Applied-B-Field Ion Diode Proton Beam Characteristics," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.

D. J. Johnson, T. R. Lockner, R. J. Leeper, J. E. Maenchen, C. W. Mendel, G. E. Rochau, W. A. Stygar, R. S. Coats, M. P. Desjarlais, R. P. Kensek, T. A. Mehlhorn, W. E. Nelson, S. E. Rosenthal, J. P. Quintenz, R. W. Stinnett, "PBFA-II Applied-B-Field Ion Diode Proton Beam Characteristics," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 944.

W. A. Johnson, L. X. Schneider, E. L. Neau, "Theory, Simulation, and Experiments of a Single Module Coax to Parallel Plate Transmission for the Transport Section of PBFA II," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.

W. A. Johnson, L. X. Schneider, E. L. Neau, "Theory, Simulation, and Experiments of a Single Module Coax to Parallel Plate Transmission for the Transport Section of PBFA II," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 54.

W. A. Johnson, C. W. Mendel, D. B. Seidel, TE_r Azimuthal Modes for a Biconic Transmission Line in the Small Gap Limit," *Journal of Applied Physics* 71, 4034 (1992).

W. A. Johnson, L. K. Warne, "TEM Analysis of Multi-module Effects on Coax-Parallel-Plate Transitions for PBFA II," *Laser and Particle Beams* 8, 371 (1990).

W. A. Johnson, L. K. Warne, "Simple Circuit Models for the Terminal Properties of a Nonlinear Closing Switch," *Laser and Particle Beams* 10, 373 (1992).

W. A. Johnson, L. K. Warne, *Analytical and Numerical Modeling of a Nonlinear Closing Switch*, Sandia National Laboratories Report No. SAND90-1061 (Albuquerque, NM, August 1990).

W. A. Johnson, L. K. Warne, "Steep Front Approximation as the Solution to Nonlinear Diffusion into a Half-Space Ferromagnetic Material," *IEEE Magnetics* 27, 4322 (1991).

K

R. P. Kensek, J. R. Lee, R. J. Leeper, D. J. Johnson, T. R. Lockner, J. E. Maenchen, L. P. Mix, W. A. Stygar, D. E. Hebron, D. F. Wenger, "Data Analysis for the Rutherford Magnetic Spectrograph on PBFA II," Eighth Topical Conference on High-Temperature Plasma Diagnostics, Hyannis, MA, May 6-10, 1990.

R. P. Kensek, J. R. Lee, R. J. Leeper, D. J. Johnson, T. R. Lockner, J. E. Maenchen, L. P. Mix, W. A. Stygar, D. E. Hebron, D. F. Wenger, "Data Analysis for the Rutherford Magnetic Spectrograph on PBFA II," *Review Scientific Instruments* 61, 3247 (1990).

M. L. Kiefer, T. D. Pointon, W. A. Johnson, J. P. Quintenz, D. B. Seidel, R. S. Coats, "Architecture and Computing Philosophy of the QUICKSILVER, Three-Dimensional, Electromagnetic, Particle-in-Cell Code," Conference on Computer Codes and the Linear Accelerator Community, Los Alamos, NM, January 22-25, 1990.

M. L. Kiefer, T. D. Pointon, W. A. Johnson, J. P. Quintenz, D. B. Seidel, R. S. Coats, "Architecture and Computing Philosophy of the QUICKSILVER, Three-Dimensional, Electromagnetic, Particle-in-Cell Code," *Proceedings Conference on Computer Codes and the Linear Accelerator Community* (Los Alamos, NM, 1990), p. 323.

M. L. Kiefer, T. D. Pointon, D. B. Seidel, "Visualizing the 3D, Electromagnetic, Particle-in-Cell Code Data Using the Application Visualization System Software," Ninth Biennial CUBE Symposium, Santa Fe, NM, November 27-30, 1990.

M. L. Kiefer, T. D. Pointon, D. B. Seidel, R. S. Coats, J. P. Quintenz, "Graphical Display and Animation of Data Produced by Electromagnetic Particle-in-Cell Codes," 14th International Conference on Numerical Simulation of Plasmas, Annapolis, MD, September 3-6, 1991.

M. L. Kiefer, J. P. Quintenz, T. D. Pointon, W. A. Johnson, D. B. Seidel, R. S. Coats, "Visualizing Data Produced by 3-D, Electromagnetic, Particle-in-Cell Codes," 13th Conference on Numerical Simulation of Plasmas, Santa Fe, NM, September 17-20, 1989.

M. L. Kiefer, D. B. Seidel, "Automated Generation of Video Animations from Time-Dependent Computer Simulations," Tenth Biennial CUBE Symposium, Pleasanton, CA, October 27-30, 1992.

M. L. Kiefer, D. B. Seidel, R. S. Coats, T. D. Pointon, J. P. Quintenz, "Electromagnetic Analysis of Particle Accelerators," 1992 IEEE American Physical Society/URSI Symposium, Chicago, IL, July 18-25, 1992.

M. L. Kiefer, D. B. Seidel, R. S. Coats, J. P. Quintenz, T. D. Pointon, W. A. Johnson, "An Overview of the 3-D, Electromagnetic, Particle-in-Cell Code, QUICKSILVER, and Sample Applications," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.

N. A. Krall, S. E. Rosenthal, "Simulating Electron Flow in the Applied-B Diode," *Journal of Applied Physics* 70, 2542 (1991).

G. W. Kuswa, "Workshop Session Summary," Third International Conference on Intense Ion-Beam Interactions with Matter, Albuquerque, NM, November 7-8, 1990.

G. W. Kuswa, "Workshop Session Summary," *Proceedings Third International Conference on Intense Ion-Beam Interactions with Matter* (Sandia National Laboratories, Albuquerque, NM, March 1993), p. 95.

G. W. Kuswa, T. A. Haill, D. J. Johnson, S. E. Rosenthal, T. J. Renk, C. Struckman, "Negative Ions and Molecular Ions Observed in Ion Diodes," 18th IEEE International Conference on Plasma Science, Williamsburg, VA, June 3-5, 1991.

G. W. Kuswa, R. J. Leeper, G. T. Baldwin, C. E. Crist, W. A. Stygar, D. J. Muron, J. E. Maenchen, F. C. Perry, D. D. Noack, D. L. Fehl, J. E. Bailey, C. O. Landron, D. F. Wenger, G. T. Leifeste, A. L. Carlson, "Electro Optical Measurements in Fusion Research," Symposium on Optoelectronics for Conventional and Nuclear Weapons, Albuquerque, NM, June 5-7, 1990.

G. W. Kuswa, C. L. Ruiz, D. J. Johnson, T. J. Renk, T. L. Lockner, W. A. Stygar, R. J. Leeper, D. F. Wenger, C. E. Robinson, T. A. Haill, C. Struckman, "Energetic Materials as Ion Sources for Pulsed Power Diodes," 18th IEEE International Conference on Plasma Science, Williamsburg, VA, June 3-5, 1991.

L

S. N. Lapin, G. W. Cooper, L. Davis, J. E. Bailey, W. A. Stygar, A. L. Carlson, F. V. Reyes, "Range and Straggling Effects on CR-39/Range-Filter Ion Beam Measurements," Ninth Topical Conference on High-Temperature Plasma Diagnostics, Santa Fe, NM, March 15-19, 1989.

S. N. Lapin, G. W. Cooper, L. Davis, J. E. Bailey, W. A. Stygar, A. L. Carlson, F. V. Reyes, "Range and Straggling Effects on CR-39/Range-Filter Ion Energy Measurements," Ninth Topical Conference on High-Temperature Plasma Diagnostics, Santa Fe, NM, March 15-19, 1992.

S. N. Lapin, G. W. Cooper, L. Davis, J. E. Bailey, W. A. Stygar, A. L. Carlson, F. V. Reyes, "Range and Straggling Effects on CR-39/Range-Filter Ion Energy Measurements," *Review Scientific Instruments* **63**, 4895 (1992).

R. J. Leeper, "New Diagnostic Developments for Intense Ion Beam Experiments," *Laser and Particle Beams* **7**, 649 (1989).

R. J. Leeper, J. E. Maenchen, J. E. Bailey, R. P. Kensek, W. A. Stygar, D. F. Wenger, "Proposed Enhanced dE/dx Measurements on PBFA II," Third International Conference on Intense Ion-Beam Interactions with Matter, Albuquerque, NM, November 7-8, 1990.

R. J. Leeper, J. E. Maenchen, J. E. Bailey, R. P. Kensek, W. A. Stygar, D. F. Wenger, "Proposed Enhanced dE/dx Measurements on PBFA II," *Proceedings Third International Conference on Intense Ion-Beam Interactions with Matter* (Sandia National Laboratories, Albuquerque, NM, March 1993), p. 27.

R. J. Leeper, J. L. Porter, D. E. Hebron, G. W. Cooper, C. L. Ruiz, "Total Yield Measurements of a Pulsed DD Neutron Source in an Intense X-Ray Bremsstrahlung Background Using the Pb Activation Technique," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.

R. J. Leeper, W. A. Stygar, J. E. Bailey, G. T. Baldwin, D. D. Bloomquist, A. L. Carlson, G. A. Chandler, C. E. Crist, G. Cooper, M. S. Derzon, R. J. Dukart, D. L. Fehl, D. E. Hebron, D. J. Johnson, R. P. Kensek, C. O. Landron, J. R. Lee, T. R. Lockner, C. R. Mattson, M. K. Matzen, J. E. Maenchen, T. A. Mehlhorn, L. P. Mix, D. J. Muron, T. J. Nash, W. E. Nelson, F. V. Reyes, P. D. Rockett, C. L. Ruiz, F. A. Schmidlapp, R. W. Stinnett, B. Sujka, D. F. Wenger, "Intense Ion Beam Diagnostics for Light Ion Inertial Fusion Experiments on PBFA II," Diagnostics for Contemporary Fusion Experiments Course and Workshop, Varenna, Italy, August 27-September 6, 1991.

R. J. Leeper, W. A. Stygar, J. E. Bailey, G. T. Baldwin, D. D. Bloomquist, A. L. Carlson, G. A. Chandler, C. E. Crist, G. Cooper, M. S. Derzon, R. J. Dukart, D. L. Fehl, D. E. Hebron, D. J. Johnson, R. P. Kensek, C. O. Landron, J. R. Lee, T. R. Lockner, C. R. Mattson, M. K. Matzen, J. E. Maenchen, T. A. Mehlhorn, L. P. Mix, D. J. Muron, T. J. Nash, W. E. Nelson, F. V. Reyes, P. D. Rockett, C. L. Ruiz, F. A. Schmidlapp, R. W. Stinnett, B. Sujka, D. F. Wenger, "Intense Ion Beam Diagnostics for Light Ion Inertial Fusion Experiments on PBFA II," in *Diagnostics for Contemporary Fusion Experiments*, ed. by P. E. Stott, D. K. Akulina, G. Gorini, and E. Sindoni (Societa Italiana di Fisica, Bologna, Italy, 1991), p. 1051.

R. J. Leeper, W. A. Stygar, J. E. Maenchen, J. E. Bailey, G. T. Baldwin, D. D. Bloomquist, A. L. Carlson, G. A. Chandler, G. W. Cooper, M. S. Derzon, R. J. Dukart, D. L. Fehl, D. E. Hebron, D. J. Johnson, A. B. Jones, A. K. Jones, R. P. Kensek, G. W. Kuswa, C. O. Landron, P. W. Lake, J. R. Lee, T. R. Lockner, C. R. Mattson, M. K. Matzen, T. A. Mehlhorn, L. P. Mix, D. J. Muron, W. E. Nelson, D. D. Noack, K. J. Penn, F. C. Perry, F. V. Reyes, C. E. Robinson, C. L. Ruiz, P. S. Sawyer, F. A. Schmidlapp, W. F. Stearns, R. W. Stinnett, B. Sujka, J. A. Torres, D. F. Wenger, "New Diagnostic Developments for Intense Ion Beam Measurements on PBFA II," Eighth International Conference on High-Power Particle Beams, Novosibirsk, USSR, July 2-5, 1990.

R. J. Leeper, W. A. Stygar, J. E. Maenchen, J. E. Bailey, G. T. Baldwin, D. D. Bloomquist, A. L. Carlson, G. A. Chandler, G. W. Cooper, M. S. Derzon, R. J. Dukart, D. L. Fehl, D. E. Hebron, D. J. Johnson, A. B. Jones, A. K. Jones, R. P. Kensek, G. W. Kuswa, C. O. Landron, P. W. Lake, J. R. Lee, T. R. Lockner, C. R. Mattson, M. K. Matzen, T. A. Mehlhorn, L. P. Mix, D. J. Muron, W. E. Nelson, D. D. Noack, K. J. Penn, F. C. Perry, F. V. Reyes, C. E. Robinson, C. L. Ruiz, P. S. Sawyer, F. A. Schmidlapp, W. F. Stearns, R. W. Stinnett, B. Sujka, J. A. Torres, D. F. Wenger, "New Diagnostic Developments for Intense Ion Beam Measurements on PBFA II," *Proceedings Eighth International Conference on High-Power Particle Beams*, ed. by B. N. Breizman and B. A. Knyazev (World Scientific, NJ, 1991), vol. 1, p. 173.

R. J. Leeper, W. A. Stygar, J. E. Maenchen, C. L. Ruiz, R. P. Kensek, J. E. Bailey, G. W. Cooper, D. J. Johnson, J. R. Lee, T. R. Lockner, "An Integrated Diagnostics Package for Intense Proton and Lithium Beam Measurements on Sandia National Laboratories PBFA-II Accelerator," *Nuclear Instruments and Methods* **40**, 973 (1989).

T. R. Lockner, "Ion Beam Focusing Experiments in PBFA II," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989 (invited talk).

T. R. Lockner, "Results of Recent Ion Diode Experiments on the PBFA II Accelerator," 18th IEEE International Conference on Plasma Science, Williamsburg, VA, June 3-5, 1991 (invited talk).

T. R. Lockner, D. J. Johnson, T. A. Mehlhorn, R. J. Leeper, J. E. Maenchen, W. A. Stygar, R. S. Coats, R. P. Kensek, M. P. Desjarlais, C. W. Mendel, G. E. Rochau, S. E. Rosenthal, J. P. Quintenz, R. W. Stinnett, "Beam Transport and Focusing on PBFA II," 16th IEEE International Conference on Plasma Science, Buffalo, NY, May 22-24, 1989.

T. R. Lockner, S. A. Slutz, J. W. Poukey, W. A. Stygar, "Theoretical and Experimental Studies of the Two-Stage Ion Diode," Ninth IEEE Pulsed Power Conference, Albuquerque, NM, June 21-23, 1993.

T. R. Lockner, S. A. Slutz, "Recent Results in Two-Stage Diodes at Sanda National Laboratories," 11th International Workshop on Laser Interaction and Related Plasma Phenomena, Monterey, CA, October 25-29, 1993.

T. R. Lockner, S. A. Slutz, J. W. Poukey, "Theoretical and Experimental Results from Two-Stage Light Ion Diodes," 20th IEEE International Conference on Plasma Science, Vancouver, B.C., June 7-9, 1993.

T. R. Lockner, S. A. Slutz, J. W. Poukey, W. A. Stygar, "Theoretical and Experimental Studies of the Two-Stage Ion Diode," *Digest of Technical Papers, Ninth IEEE Pulsed Power Conference*, ed. by W. L. Baker and K. R. Prestwich (IEEE, New York, 1993), vol. 2, p. 714.

G. M. Loubriel, M. T. Buttram, W. D. Helgeson, D. L. McLaughlin, M. W. O'Malley, F. J. Zuvatern, "Triggering GaAs Lock-On Switches with Laser Diode Arrays," SPIE Optically Activated Switching Conference, Boston, MA, November 5-6, 1990.

G. M. Loubriel, M. T. Buttram, W. D. Helgeson, D. L. McLaughlin, M. W. O'Malley, F. J. Zuvatern, "Triggering GaAs Lock-On Switches with Laser Diode Arrays," *Optically Activated Switching*, SPIE Series vol. 1378, ed. by F. J. Zuvatern (Society of Photo-Optical Instrumentation Engineers, Bellingham, WA, 1991), p. 179.

G. M. Loubriel, W. D. Helgeson, D. L. McLaughlin, M. W. O'Malley, F. J. Zuvatern, A. Rosen, P. J. Stabile, "Triggering GaAs Lock-On Switches with Laser Diode Arrays," *IEEE Trans. Elect. Devices* 38, 692 (1991).

G. M. Loubriel, F. J. Zuvatern, "Silicon and Gallium Arsenide Photoconductive Switches," Fifth Strategic Defense Initiative Office/Office of Naval Research Pulsed Power Meeting, College Park, MD, August 17-19, 1992.

G. M. Loubriel, F. J. Zuvatern, "Silicon and Gallium Arsenide Photoconductive Switches," *Proceedings Fifth Strategic Defense Initiative Office/Office of Naval Research Pulsed Power Meeting*, ed. by G. D. Roy (1992), p. 1.

G. M. Loubriel, F. J. Zuvatern, G. J. Denison, W. D. Helgeson, D. L. McLaughlin, M. W. O'Malley, M. T. Buttram, "Photoconductive Semiconductor Switches for Pulsed Power Applications," Ninth IEEE Pulsed Power Conference, Albuquerque, NM, June 21-24, 1993.

G. M. Loubriel, F. J. Zuvatern, G. J. Denison, W. D. Helgeson, D. L. McLaughlin, M. W. O'Malley, M. T. Buttram, "Photoconductive Semiconductor Switches for Pulsed Power Applications," *Digest of Technical Papers, Ninth IEEE Pulsed Power Conference*, ed. by W. L. Baker and K. R. Prestwich (IEEE, New York, 1993), vol. 1, p. 76.

G. M. Loubriel, F. J. Zuvatern, W. D. Helgeson, D. L. McLaughlin, M. W. O'Malley, T. Burke, "Physics and Applications of the Lock-On Effect," Eighth IEEE Pulsed Power Conference, San Diego, CA, June 17-19, 1991.

G. M. Loubriel, F. J. Zuvatern, W. D. Helgeson, D. L. McLaughlin, M. W. O'Malley, T. Burke, "Physics and Applications of the Lock-On Effect," *Digest of Technical Papers, Eighth IEEE Pulsed Power Conference*, ed. by K. R. Prestwich and R. White (IEEE, New York, 1991), p. 33.

G. M. Loubriel, F. J. Zuvatern, H. P. Hjalmarsen, M. W. O'Malley, "Closing Photoconductive Semiconductor Switches," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.

G. M. Loubriel, F. J. Zuvatern, H. P. Hjalmarsen, M. W. O'Malley, "Closing Photoconductive Semiconductor Switches," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 365.

G. M. Loubriel, F. J. Zuvatern, D. L. McLaughlin, W. D. Helgeson, M. W. O'Malley, "Triggering GaAs Lock-On Switches with Laser Diodes," 19th IEEE Power Modulator Symposium, San Diego, CA, June 26-28, 1990.

G. M. Loubriel, F. J. Zuvatern, D. L. McLaughlin, W. D. Helgeson, M. W. O'Malley, "Triggering GaAs Lock-On Switches with Laser Diodes," *Conference Record of the 19th IEEE Power Modulator Symposium*, ed. by L. Luessen (IEEE, New York, 1990), p. 352.

M

J. J. MacFarlane, P. Wang, J. E. Bailey, T. A. Mehlhorn, R. J. Dukart, "Plasma Diagnostics Using K-Alpha Satellite Line Emission in Light Ion Beam Fusion Experiments," Sixth International Workshop on Atomic Physics for Ion-Driven Fusion, Santa Fe, NM, November 8-12, 1993.

J. J. MacFarlane, P. Wang, J. E. Bailey, T. A. Mehlhorn, R. J. Dukart, R. C. Mancini, "Analysis of K-Alpha Line Emission from Aluminum Plasmas Created by Intense Proton Beams," *Physical Review E* **47**, 2748 (1993).

J. J. MacFarlane, P. Wang, T. A. Mehlhorn, J. E. Bailey, R. J. Dukart, "Aluminum K-Shell Line Emission as a Diagnostic in Light Ion Beam Fusion Experiments," Ninth Topical Conference on High-Temperature Plasma Diagnostics, Santa Fe, NM, March 15-19, 1992.

J. J. MacFarlane, P. Wang, T. A. Mehlhorn, J. E. Bailey, R. J. Dukart, "Aluminum K-Shell Line Emission as a Diagnostic in Light Ion Beam Fusion Experiments," *Review Scientific Instruments* **63**, 5062 (1992).

J. J. MacFarlane, P. Wang, T. A. Mehlhorn, R. J. Dukart, J. E. Bailey, "Numerical Simulations of Time-Dependent K-Alpha Line Emission Spectra from Aluminum Targets Heated by Intense Proton Beams," Eighth American Physical Society Topical Conference on Atomic Processes in Plasmas, Portland, ME, August 25-29, 1991.

- J. E. Maenchen, "Generation and Focusing of Intense Ion Beams with Magnetically Insulated Ion Diodes," Kernforschungszentrum Karlsruhe, Karlsruhe, Germany, October 12, 1989.
- J. E. Maenchen, J. R. Woodworth, T. A. Mehlhorn, T. J. Renk, C. L. Ruiz, B. W. Foltz, W. H. Jaramillo, D. F. Wenger, F. V. Reyes, K. Guidotti, "XUV Illumination Effects in Magnetically Insulated Ion Diodes," *Journal of Applied Physics* **65**, 448 (1989).
- T. H. Martin, "Empirical Formula for Gas Switch Breakdown Delay," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989 (invited talk).
- T. H. Martin, "Empirical Formula for Gas Switch Breakdown Delay," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 73 (invited paper).
- T. H. Martin, J. F. Seaman, D. O. Jobe, "Energy Losses in Switches," Ninth IEEE Pulsed Power Conference, Albuquerque, NM, June 21-23, 1993.
- T. H. Martin, J. F. Seaman, D. O. Jobe, "Energy Losses in Switches," *Digest of Technical Papers, Ninth IEEE Pulsed Power Conference*, ed. by W. L. Baker and K. R. Prestwich (IEEE, New York, 1993), vol. 1, p. 463.
- M. K. Matzen, "Sandia Status," Inter-Lab Magnetic Target Fusion Workshop, Los Alamos National Laboratory, Los Alamos, NM, September 21, 1992 (invited talk).
- M. K. Matzen, "Overview of Light Ion Target Physics," Sixth International Workshop on Atomic Physics for Ion-Driven Fusion, Santa Fe, NM, November 8-12, 1993.
- C. Mayberry, E. Schamiloglu, C. W. Mendel, "Long Pulse Ion Diode for Planar Electrohydrodynamic Instability Studies," 18th IEEE International Conference on Plasma Science, Williamsburg, VA, June 3-5, 1991.
- C. Mayberry, E. Schamiloglu, C. W. Mendel, "Preparation for Long Pulse Ion Diode Experiments with a Lithium Anode," American Physical Society Division of Plasma Physics Meeting, Tampa, FL, November 4-8, 1991.
- M. G. Mazarakis, D. L. Smith, L. F. Bennett, T. R. Lockner, R. E. Olson, J. W. Poukey, J. D. Boyes, "The Light-Ion Pulsed Power Induction Accelerator for the Laboratory Microfusion Facility (LMF)," Particle Accelerator Conference, Washington, D. C., May 17-20, 1993.
- M. G. Mazarakis, D. L. Smith, L. F. Bennett, T. R. Lockner, R. E. Olson, J. W. Poukey, "The LMF Triaxial MITL Voltage Adder System," Ninth IEEE Pulsed Power Conference, Albuquerque, NM, June 21-23, 1993.
- M. G. Mazarakis, D. L. Smith, L. F. Bennett, T. R. Lockner, R. E. Olson, J. W. Poukey, J. D. Boyes, "The Light-Ion Pulsed Power Induction Accelerator for the Laboratory Microfusion Facility (LMF)," *Proceedings 1993 Particle Accelerator Conference*, ed. by S. T. Corneliussen (IEEE, New York, 1993), vol. 1, p. 667.

M. G. Mazarakis, D. L. Smith, L. Bennett, J. W. Poukey, R. E. Olson, T. R. Lockner, J. J. Ramirez, "PBFA-II Modification for High-Power Two-Stage Extraction Diode Experiments," American Physical Society Division of Plasma Physics, St. Louis, MO, November 1-5, 1993.

M. G. Mazarakis, D. L. Smith, L. F. Bennett, T. R. Lockner, R. E. Olson, J. W. Poukey, "The LMF Triaxial MITL Voltage Adder System," *Digest of Technical Papers, Ninth IEEE Pulsed Power Conference*, ed. by W. L. Baker and K. R. Prestwich (IEEE, New York, 1993), vol. 1, p. 427.

D. H. McDaniel, "Sandia National Laboratories Research in PEOS," Defense Nuclear Agency Advanced Pulsed Power Conference, Albuquerque, NM, July 31-August 3, 1990.

D. H. McDaniel, "Circuit Model for Coupling POS to Ion Diode; New and Old Full Energy Tests on PBFA II Compared," Sixth Plasma Opening Switch Workshop, Albuquerque, NM, August 24-25, 1989.

D. H. McDaniel, "Information about Soviet POS from Novosibirsk Workshop on High Power Switches," Sixth Plasma Opening Switch Workshop, Albuquerque, NM, August 24-25, 1989.

D. H. McDaniel, C. W. Mendel, W. B. S. Moore, G. R. Mowrer, G. E. Rochau, W. W. Simpson, M. A. Sweeney, J. P. Quintenz, D. M. Zagar, "Plasma Opening Switch Research on the Particle Beam Fusion Accelerator II at Sandia National Laboratories," International Workshop on Physics and Techniques of High Power Opening Switches, Novosibirsk, USSR, July 1-2, 1989.

D. H. McDaniel, C. W. Mendel, W. B. S. Moore, G. R. Mowrer, G. E. Rochau, W. W. Simpson, M. A. Sweeney, J. P. Quintenz, D. M. Zagar, "Plasma Opening Switch Research on the Particle Beam Fusion Accelerator II at Sandia National Laboratories," *Proceedings International Workshop on Physics and Techniques of High Power Opening Switches*, ed. by V. Bystritski (Tomsk Institute of High Current Electronics, Tomsk, USSR, 1989), p. 25.

E. J. McGuire, "Precision Calculations of Proton Stopping Power," Third International Conference on Intense Ion-Beam Interactions with Matter, Albuquerque, NM, November 7-8, 1990.

E. J. McGuire, "The Proton Stopping Powers of Aluminum and Nickel Ions," *Journal of Applied Physics* **70**, 7213 (1991).

E. J. McGuire, "Precision Calculations of Proton Stopping Power," *Proceedings Third International Conference on Intense Ion-Beam Interactions with Matter* (Sandia National Laboratories, Albuquerque, NM, March 1993), p. 21.

E. J. McGuire, "Systematic Ion-Atom Interaction Cross Sections and Stopping Powers in the Plane Wave Born Approximation," Sixth International Workshop on Atomic Physics for Ion-Driven Fusion, Santa Fe, NM, November 8-12, 1993.

- D. C. McIntyre, R. W. Stinnett, J. B. Greenly, D. Rej, "Evaluation of the Microstructure and Physical Properties of Metallic Materials Treated with Pulsed, Intense Ion Beams," 20th IEEE International Conference on Plasma Science, Vancouver, B.C., June 7-9, 1993.
- P. F. McKay, K. W. Bieg, R. E. Olson, A. L. Pregonzer, D. K. Wiemann, "Ion Production on the PI-110A Accelerator," International Conference on Ion Sources, Berkeley, CA, July 10-14, 1989.
- P. F. McKay, K. W. Bieg, R. E. Olson, A. L. Pregonzer, D. K. Wiemann, "Ion Production on the PI-110A Accelerator," *Review Scientific Instruments* 61, 559 (1990).
- F. W. McNamara, J. H. Aubert, "Techniques for Producing Free-Standing Thin Films on Frames," Ninth Target Fabrication Specialists' Meeting, Monterey, CA, July 5-8, 1993.
- T. A. Mehlhorn, "Considerations for Combining Ion-Energy Deposition and Hydrodynamics," Third International Conference on Intense Ion-Beam Interactions with Matter, Albuquerque, NM, November 7-8, 1990.
- T. A. Mehlhorn, "Progress in Ion-Driven ICF at Sandia National Laboratories," Conference on High Energy Density in Matter, Hirschegg, Klein-Walsertal, Austria, February 3-9, 1991.
- T. A. Mehlhorn, "Status and Prospects for Ion Beam Coupling and Target Physics Experiments at Sandia National Laboratories," in *Laser Interaction and Related Plasma Phenomena* (Plenum Press, New York, 1992), ed. by G. Miley and H. Hora, vol. 10, p. 553.
- T. A. Mehlhorn, "Target Experiments at the Petawatt/g Level at Sandia National Laboratories," Physics of High Energy Density in Matter, Hirschegg, Klein-Walsertal, Austria, January 31-February 5, 1993 (invited talk).
- T. A. Mehlhorn, L. D. Bacon, J. E. Bailey, D. D. Bloomquist, G. A. Chandler, R. S. Coats, D. L. Cook, M. E. Cuneo, M. S. Derzon, M. P. Desjarlais, R. J. Dukart, A. B. Filuk, T. A. Haill, D. L. Hanson, D. J. Johnson, R. J. Leeper, T. R. Lockner, C. W. Mendel, L. P. Mix, A. R. Moats, J. P. Quintenz, T. D. Pointon, T. J. Renk, G. E. Rochau, S. E. Rosenthal, C. L. Ruiz, D. B. Seidel, S. A. Slutz, R. W. Stinnett, W. A. Stygar, G. C. Tisone, R. E. Olson, J. P. VanDevender, D. F. Wenger, "Progress in Lithium Beam Focusing and Beam-Target Interaction Experiments at SNL," Ninth International Conference on High-Power Particle Beams, Washington, D.C., May 25-29, 1992 (invited talk).
- T. A. Mehlhorn, L. D. Bacon, J. E. Bailey, D. D. Bloomquist, G. A. Chandler, R. S. Coats, D. L. Cook, M. E. Cuneo, M. S. Derzon, M. P. Desjarlais, R. J. Dukart, A. B. Filuk, T. A. Haill, D. L. Hanson, D. J. Johnson, R. J. Leeper, T. R. Lockner, C. W. Mendel, L. P. Mix, A. R. Moats, J. P. Quintenz, T. D. Pointon, T. J. Renk, G. E. Rochau, S. E. Rosenthal, C. L. Ruiz, D. B. Seidel, S. A. Slutz, R. W. Stinnett, W. A. Stygar, G. C. Tisone, R. E. Olson, J. P. VanDevender, D. F. Wenger, "Progress in Lithium Beam Focusing and Beam-Target Interaction Experiments at Sandia National Laboratories," *Proceedings Ninth International Conference on High-Power Particle Beams*, ed. by D. Mosher and G. Cooperstein (National Technical Information Service, Springfield, VA, 1993), vol. 1, p. 31 (invited paper).

T. A. Mehlhorn, J. E. Bailey, G. A. Chandler, R. S. Coats, D. L. Cook, M. S. Derzon, M. P. Desjarlais, R. J. Dukart, R. A. Gerber, T. A. Haill, D. J. Johnson, R. J. Leeper, T. R. Lockner, M. G. Mazarakis, C. W. Mendel, L. P. Mix, A. R. Moats, T. J. Renk, G. E. Rochau, S. E. Rosenthal, C. L. Ruiz, G. C. Tisone, R. E. Olson, D. F. Wenger, "Lithium Beam Driven Target Experiments at 10^{15} W/g on PBFA II," 11th International Workshop on Laser Interaction and Related Plasma Phenomena, Monterey, CA, October 25-29, 1993.

T. A. Mehlhorn, R. J. Dukart, T. A. Haill, W. E. Nelson, "Transport/Hydrodynamics Simulations of Intense Ion Beam Diagnostics," Eighth Topical Conference on High-Temperature Plasma Diagnostics, Hyannis, MA, May 6-10, 1990.

T. A. Mehlhorn, R. J. Dukart, T. A. Haill, W. E. Nelson, "Transport/Hydrodynamics Simulations of Intense Ion Beam Diagnostics," *Review Scientific Instruments* **61**, 3309 (1990).

T. A. Mehlhorn, R. J. Dukart, E. J. McGuire, J. E. Bailey, W. E. Nelson, "Simulation of K-Alpha X-Ray Satellites from Ion Beam Heated Targets," Fifth International Workshop on Atomic Physics for Ion Driven Fusion, Schliersee, Germany, January 29-February 2, 1990.

T. A. Mehlhorn, T. A. Haill, *UPEML Version 3.0: A Machine-Portable CDC Update Emulator*, Sandia National Laboratories Report No. SAND92-0073 (Albuquerque, NM, April 1992).

T. A. Mehlhorn, D. J. Johnson, J. E. Bailey, D. L. Cook, G. A. Chandler, M. S. Derzon, M. P. Desjarlais, T. A. Haill, T. W. Hussey, R. J. Leeper, T. R. Lockner, M. K. Matzen, D. H. McDaniel, L. P. Mix, R. E. Olson, J. P. Quintenz, G. E. Rochau, C. L. Ruiz, S. A. Slutz, R. W. Stinnett, W. A. Stygar, "Status and Prospects for Ion Beam Coupling and Target Physics Experiments at Sandia," Tenth International Workshop on Laser Interaction and Related Plasma Phenomena, Monterey, CA, November 11-15, 1991 (invited talk).

T. A. Mehlhorn, D. J. Johnson, M. P. Desjarlais, J. E. Bailey, R. S. Coats, A. B. Filuk, T. A. Haill, R. P. Kensek, C. W. Mendel, L. P. Mix, A. R. Moats, S. E. Rosenthal, C. L. Ruiz, D. F. Wenger, "Optimal Power-Coupling and Beam Focusing Using a LiF Applied-B Ion Diode on PBFA II," 20th IEEE International Conference on Plasma Science, Vancouver, B. C., June 7-9, 1993 (invited talk).

T. A. Mehlhorn, C. L. Olson, J. P. Quintenz, D. L. Johnson, K. R. Prestwich, "Achromatic Solenoidal Focusing of LMF," Particle Accelerator Conference, Chicago, IL, March 20-23, 1989.

T. A. Mehlhorn, J. P. Quintenz, "Particle-in-Cell Simulations of an Achromatic Solenoidal Focusing System for the Laboratory Microfusion Facility (LMF)," Particle Accelerator Conference, Chicago, IL, March 20-23, 1989.

- T. A. Mehlhorn, J. P. Quintenz, "Particle-in-Cell Simulations of an Achromatic Solenoidal Focusing System for the Laboratory Microfusion Facility (LMF)," *Proceedings Particle Accelerator Conference*, ed. by F. Bennett and J. Kopta (IEEE, New York, 1989), vol. 2, p. 1014.
- T. A. Mehlhorn, J. P. Quintenz, R. S. Coats, "PICDIAG: A Hybrid Particle-in-Cell Transport and Ion Beam Diagnostics Code," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.
- C. W. Mendel, "Analysis of SuperMite Data: Plasma Prefill," Seventh Plasma Opening Switch Workshop, Albuquerque, NM, April 24-25, 1990.
- C. W. Mendel, "Moving Wavefronts in Magnetically Insulated Electron Flows," American Physical Society Division of Plasma Physics, Cincinnati, OH, November 12-16, 1990.
- C. W. Mendel, "Current-Toggled Plasma Opening Switch," 18th IEEE International Conference on Plasma Science, Williamsburg, VA, June 3-5, 1991.
- C. W. Mendel, "Analysis of Reflected Waves in Magnetically Insulated Transmission Lines," American Physical Society Division of Plasma Physics, Seattle, WA, November 16-20, 1992.
- C. W. Mendel, M. P. Desjarlais, T. D. Pointon, J. P. Quintenz, D. B. Seidel, S. E. Rosenthal, S. A. Slutz, "Impedance Characteristics of Terawatt Ion Diodes," Topical Conference on Research Trends in Nonlinear and Relativistic Effects in Plasmas, La Jolla, CA, February 5-8, 1990.
- C. W. Mendel, M. P. Desjarlais, T. D. Pointon, J. P. Quintenz, D. B. Seidel, S. E. Rosenthal, S. A. Slutz, "Impedance Characteristics of Terawatt Ion Diodes," *Proceedings Topical Conference on Research Trends in Physics: Nonlinear and Relativistic Effects in Plasmas*, ed. by V. Stefan (American Institute of Physics Press, New York, 1992), p. 18.
- C. W. Mendel, J. P. Quintenz, S. E. Rosenthal, D. B. Seidel, R. S. Coats, M. E. Savage, "Experiments on Insulation of Relativistic Electron Flows in Oblique Magnetic Fields," *IEEE Transactions on Plasma Science* 17, 797 (1989).
- C. W. Mendel, G. E. Rochau, M. A. Sweeney, D. H. McDaniel, J. P. Quintenz, E. L. Lindman, J. M. Kindel, M. E. Savage, "Launched Electron Dynamics in Plasma Opening Switches," International Workshop on Physics and Techniques of High Power Opening Switches, Novosibirsk, USSR, July 1-2, 1989.
- C. W. Mendel, G. E. Rochau, M. A. Sweeney, D. H. McDaniel, J. P. Quintenz, "Launched Electron Dynamics in Plasma Opening Switches," Sixth Plasma Opening Switch Workshop, Albuquerque, NM, August 24-25, 1989.

- C. W. Mendel, G. E. Rochau, M. A. Sweeney, D. H. McDaniel, J. P. Quintenz, E. L. Lindman, J. M. Kindel, M. E. Savage, "Launched Electron Dynamics in Plasma Opening Switches," *Proceedings International Workshop on Physics and Techniques of High Power Opening Switches*, ed. by V. Bystritski (Tomsk Institute of High Current Electronics, Tomsk, USSR, 1989), p. 11.
- C. W. Mendel, S. E. Rosenthal, "Relativistic Electron Flow in Charge Cells," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.
- C. W. Mendel, S. E. Rosenthal, D. B. Seidel, "Low Pressure Relativistic Electron Flow," *Physical Review A* 45, 5854 (1992).
- C. W. Mendel, M. E. Savage, D. M. Zagar, W. W. Simpson, "Carbon 4 Plus Plasma Source," Seventeenth IEEE Conference on Plasma Science, Oakland, CA, May 21-23, 1990.
- C. W. Mendel, M. E. Savage, D. M. Zagar, W. W. Simpson, T. W. Grasser, J. P. Quintenz, "Experiments on a Current Toggled Plasma Opening Switch," *Journal of Applied Physics* 71, 3731 (1992).
- C. W. Mendel, Edl Schamiloglu, "Plasma Diagnostics," in *Encyclopedia of Physical Science and Technology* (Academic Press, New York, 1992), vol. 13, p. 21.
- C. W. Mendel, D. B. Seidel, W. A. Johnson, S. E. Rosenthal, "Modeling Pulsed Power Transmission Lines," Ninth International Conference on High Power Particle Beams, Washington, D.C., May 25-29, 1992.
- C. W. Mendel, D. B. Seidel, W. A. Johnson, S. E. Rosenthal, "Modeling Pulsed Power Transmission Lines," *Proceedings Ninth International Conference on High-Power Particle Beams*, ed. by D. Mosher and G. Cooperstein (National Technical Information Service, Springfield, VA, 1993), vol. 1, p. 499.
- R. B. Miller, C. L. Olson, "Beam Transport," Chapter 3, *Pulsed Power Produced Tritium*, Sandia National Laboratories Report No. SAND89-1451 (Albuquerque, NM, 1990).
- L. P. Mix, "Progress in Light Ion Fusion," American Physical Society Division of Plasma Physics, Cincinnati, OH, November 12-16, 1990.
- L. P. Mix, "Analysis of Waveform Data Using IDL," Tenth Biennial CUBE Symposium, Pleasanton, CA, October 27-30, 1992.
- L. P. Mix, J. E. Bailey, A. L. Carlson, G. A. Chandler, G. W. Cooper, M. S. Derzon, D. L. Fehl, A. B. Filuk, T. A. Haill, D. E. Hebron, D. J. Johnson, R. P. Kensek, J. R. Lee, R. J. Leeper, D. J. Muron, W. E. Nelson, F. V. Reyes, C. L. Ruiz, W. A. Stygar, D. F. Wenger, "Diagnostics for Intense Ion Beam Experiments," Sixth International Workshop on Atomic Physics for Ion-Driven Fusion, Santa Fe, NM, November 8-12, 1993.

- L. P. Mix, J. P. Quintenz, R. J. Leeper, W. A. Stygar, D. F. Wenger, "Time-Resolved Intensity and Divergence Measurements of a Focused Ion Beam in a Magnetically Insulated Ion Diode," 20th IEEE International Conference on Plasma Science, Vancouver, B.C., June 7-9, 1993.
- L. P. Mix, W. A. Stygar, M. P. Desjarlais, "Analysis of Ion Focusing Parameters on PBFA II," 17th IEEE Conference on Plasma Science, Oakland, CA, May 21-23, 1990.
- L. P. Mix, W. A. Stygar, R. J. Leeper, J. E. Maenchen, D. F. Wenger, "Time-Resolved Measurements of the Focused Ion Beams on PBFA II," Ninth Topical Conference on High-Temperature Plasma Diagnostics, Santa Fe, NM, March 15-19, 1992.
- L. P. Mix, W. A. Stygar, R. J. Leeper, J. E. Maenchen, D. F. Wenger, "Time-Resolved Measurements of the Focused Ion Beams on PBFA II," *Review Scientific Instruments* 63, 4863 (1992).
- A. R. Moats, "Imaging the Particle Beam Fusion Accelerator (PBFA II) Ion Beam at SNLA," Physics Department, NM State University, Las Cruces, NM, November 5, 1992.
- A. R. Moats, "Ion Beam Azimuthal Symmetry and Focusing on PBFA II," Particle Accelerator Conference, Washington, D. C., May 17-20, 1993.
- A. R. Moats, M. J. Eaton, "PBFA-II Data Base Management and Analysis System," Physics Computing '91 Conference, San Jose, CA, June 10-14, 1991.
- A. R. Moats, M. S. Derzon, G. A. Chandler, M. K. Matzen, R. J. Dukart, "Lithium Beam Characteristics Using Inner-Shell X-Ray Images on PBFA-II Targets," Sixth International Workshop on Atomic Physics for Ion-Driven Fusion, Santa Fe, NM, November 8-12, 1993.
- A. R. Moats, M. S. Derzon, D. J. Johnson, W. E. Nelson, J. G. Pantuso, C. L. Ruiz, D. F. Wenger, "Measurement of Beam Properties and Reproducibility on Recent PBFA-II Target Shots," Ninth Topical Conference on High-Temperature Plasma Diagnostics, Santa Fe, NM, March 15-19, 1992.
- A. R. Moats, M. S. Derzon, D. J. Johnson, W. E. Nelson, J. G. Pantuso, C. L. Ruiz, D. F. Wenger, "Measurement of Beam Properties and Reproducibility on Recent PBFA-II Target Shots," *Review Scientific Instruments* 63, 5065 (1992).
- A. R. Moats, M. S. Derzon, D. J. Johnson, C. L. Ruiz, W. E. Nelson, "Beam Symmetry Measurements Using Time-Integrated X-Ray Pinhole Cameras on PBFA-II Target Shots," American Physical Society Division of Plasma Physics Meeting, Seattle, WA, November 16-20, 1992.
- A. R. Moats, T. A. Mehlhorn, "Ion Contamination of X-Ray Pinhole Camera Images in PBFA II," Eighth Topical Conference on High-Temperature Plasma Diagnostics," Hyannis, MA, May 6-10, 1990.
- A. R. Moats, T. A. Mehlhorn, "Ion Contamination of X-Ray Pinhole Camera Images on PBFA II," *Review Scientific Instruments* 61, 2792 (1990).

R. H. Moore, D. B. Appel, J. S. Cap, S. H. Spiak, B. P. J. Cason, *Fabrication and Assembly of BOLVAPS Ceramic Option Half Anode*, Sandia National Laboratories Report No. SAND89-0634 (Albuquerque, NM, 1990).

W. B. S. Moore, D. H. McDaniel, G. R. Mowrer, G. E. Rochau, "Numerical Analysis of Experimental Data to Infer Plasma Motion in Plasma Opening Switches," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.

W. B. S. Moore, D. H. McDaniel, G. R. Mowrer, G. E. Rochau, "Numerical Analysis of Experimental Data to Infer Plasma Motion in Plasma Opening Switches," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by B. H. Bernstein and R. White (IEEE, New York, 1989), p. 703.

W. B. S. Moore, D. H. McDaniel, "PBFA II SCREAMER Simulations Using a Zflow POS Model," Seventh Plasma Opening Switch Workshop, Albuquerque, NM, April 24-25, 1990.

G. A. Moses, G. L. Kulcinski, D. Bruggink, R. L. Engelstad, E. G. Lovell, J. J. MacFarlane, Z. Musicki, R. R. Peterson, M. E. Sawan, I. N. Sviatoslavsky, L. J. Wittenberg, G. Kessler, U. VonMollendorff, E. Stein, I. Smith, P. Corcoran, H. Nichimoto, J. Fockler, D. L. Cook, R. E. Olson, "LIBRA--A Light Ion Inertial Confinement Fusion Reactor Conceptual Design," *Laser and Particle Beams* 7, 721 (1989).

G. A. Moses, G. L. Kulcinski, D. Bruggink, R. L. Engelstad, E. G. Lovell, J. J. MacFarlane, Z. Musicki, R. R. Peterson, M. E. Sawan, I. N. Sviatoslavsky, L. J. Wittenberg, G. Kessler, U. VonMollendorff, E. Stein, D. L. Cook, R. E. Olson, I. Smith, P. Corcoran, H. Nishimoto, J. Fockler, "Overview of the LIBRA Light Ion Beam Fusion Concept Design," *Fusion Technology* 15, Part 2A, 756 (1989).

D. Mosher, D. D. Hinshelwood, J. M. Neri, P. F. Ottinger, J. J. Watrous, C. L. Olson, T. A. Mehlhorn, "Ion Transport for LMF," Eighth International Conference on High-Power Particle Beams, Novosibirsk, USSR, July 2-5, 1990 (invited talk).

D. Mosher, D. D. Hinshelwood, J. M. Neri, P. F. Ottinger, J. J. Watrous, C. L. Olson, T. A. Mehlhorn, "Ion Transport for LMF," *Proceedings Eighth International Conference on High-Power Particle Beams*, ed. by B. N. Breizman and B. A. Knyazev (World Scientific, NJ, 1991) vol. 1, p. 26 (invited paper).

N

T. J. Nash, D. D. Noack, A. B. Filuk, "Nanosecond Time-Resolved Vacuum Ultraviolet Spectrometer for Ion Diode Spectroscopy," *Review Scientific Instruments* 64, 2493 (1993).

E. L. Neau, "Environmental and Industrial Applications of Pulsed Power Systems," 20th IEEE International Conference on Plasma Science, Vancouver, B. C., June 7-9, 1993 (invited talk).

E. L. Neau, H. C. Harjes, K. Penn, K. Reed, C. McClenahan, G. Laderach, R. W. Wavrik, J. L. Adcock, M. E. Butler, G. A. Mann, L. E. Martinez, G. Weber, G. E. Pena, "The Development of High Average Pulsed Power Accelerators for Environmental Applications," 18th IEEE International Conference on Plasma Science, Williamsburg, VA, June 3-5, 1991.

E. L. Neau, B. N. Turman, E. L. Patterson, "New Applications for High Average Power Beams," Ninth IEEE Pulsed Power Conference, Albuquerque, NM, June 21-23, 1993.

E. L. Neau, B. N. Turman, E. L. Patterson, "New Applications for High Average Power Beams," *Digest of Technical Papers, Ninth IEEE Pulsed Power Conference*, ed. by W. L. Baker and K. R. Prestwich (IEEE, New York, 1993), vol. 1, p. 253.

W. E. Nelson, T. A. Mehlhorn, "The Visual Ion Beam Diagnostic Analyzer (VIDA)," Ninth Biennial CUBE Symposium, Santa Fe, NM, November 27-30, 1990.

D. D. Noack, F. C. Perry, "Development of Holographic Interferometry Techniques for Application to PBFA-II Ion Source and Target Experiments," Eighth Topical Conference on High-Temperature Plasma Diagnostics, Hyannis, MA, May 6-10, 1990.

D. D. Noack, F. C. Perry, "Development of Holographic Interferometry Techniques for Application to PBFA-II Ion Source and Target Experiments," *Review Scientific Instruments* **61**, 3150 (1990).

O

C. L. Olson, "Beam Transport," National Academy of Sciences Review of ICF, Laboratory for Laser Energetics, University of Rochester, NY, October 23-25, 1989.

C. L. Olson, "Collective Ion Acceleration," in *1989 McGraw-Hill Yearbook of Science and Technology* (McGraw-Hill, New York, 1988), p. 278.

C. L. Olson, "Collective Accelerators," *Encyclopedias/Science* (McGraw-Hill, New York, 1989).

C. L. Olson, "Phase Space Acceptance of Laboratory Microfusion Facility (LMF) Transport Scheme," Particle Accelerator Conference, Chicago, IL, March 20-23, 1989.

C. L. Olson, "Achromatic Magnetic Lens Systems for High Current Ion Beams," *Proceedings of 1988 Linear Accelerator Conference*, ed. by C. Leeman, Continuous Electron Beam Accelerator Facility Report No. 89-001 (June 1989), p. 34.

C. L. Olson, "Phase Space Acceptance of LMF Transport Schemes," *Proceedings 1989 IEEE Particle Accelerator Conference*, ed. by F. Bennett and J. Kopta (IEEE, New York, 1989), vol. 2, p. 1011.

C. L. Olson, "Ion Beam Transport and Focusing for ICF," Third International Conference on Intense Ion-Beam Interactions with Matter, Albuquerque, NM, November 6-8, 1990.

C. L. Olson, "LMF Beam Transport," LMF Design Concept Review, DOE Headquarters, Germantown, MD, January 16-19, 1990.

C. L. Olson, "Ion Beam Transport and Focus for LMF Using an Achromatic Solenoidal Lens System," 17th IEEE International Conference on Plasma Science, Oakland, CA, May 21-23, 1990.

C. L. Olson, "Intense Ion Beam Transport in Neutral Gas," 1990 Linear Accelerator Conference, Albuquerque, NM, September 10-14, 1990.

C. L. Olson, "Ion Beam Transport and Focusing," American Physical Society Division of Plasma Physics, Cincinnati, OH, November 12-16, 1990 (invited talk).

C. L. Olson, "Intense Ion Beam Transport in Neutral Gas," *Proceedings 1990 Linear Accelerator Conference*, Los Alamos National Laboratory Report No. LA-12004-C (Los Alamos, NM, March 1991), p. 396.

C. L. Olson, "Intense Ion Beam Transport and Focusing for ICF," 18th IEEE International Conference on Plasma Science, Williamsburg, VA, June 3-5, 1991 (invited talk).

C. L. Olson, "Gradient B Drift Magnetically Limiting Current," American Physical Society Division of Plasma Physics, Seattle, WA, November 16-20, 1992.

C. L. Olson, "Ion Beam Transport and Focusing for ICF," *Proceedings Third International Conference on Intense Ion-Beam Interactions with Matter* (Sandia National Laboratories, Albuquerque, NM, March 1993), p. 6.

C. L. Olson, "Beam Propagation in the Reactor Chamber," European Research Conference on Prospects for Heavy Ion Inertial Fusion, Aghia Pelaghia, Crete, September 23-October 1, 1993.

C. L. Olson, M. E. Cuneo, M. P. Desjarlais, D. L. Hanson, D. D. Hinshelwood, R. F. Hubbard, G. L. Kulcinski, M. Lampe, T. R. Lockner, J. E. Maenchen, M. G. Mazarakis, J. M. Neri, B. V. Oliver, J. C. Olson, R. E. Olson, P. F. Ottinger, R. R. Peterson, T. D. Pointon, J. W. Poukey, D. V. Rose, T. W. L. Sanford, S. P. Slinker, S. A. Slutz, S. J. Stephanakis, D. R. Welch, F. C. Young, "Beam Transport," 1993 Workshop on Status of ICF Research Programmes and Conceptual ICF Reactor Studies, Kernforschungszentrum Karlsruhe, Karlsruhe, Germany, October 18-20, 1993.

C. L. Olson, M. E. Cuneo, M. P. Desjarlais, D. L. Hanson, D. D. Hinshelwood, R. F. Hubbard, G. L. Kulcinski, M. Lampe, T. R. Lockner, J. E. Maenchen, M. G. Mazarakis, J. M. Neri, B. V. Oliver, J. C. Olson, R. E. Olson, P. F. Ottinger, R. R. Peterson, T. D. Pointon, J. W. Poukey, D. V. Rose, T. W. L. Sanford, S. P. Slinker, S. A. Slutz, S. J. Stephanakis, D. R. Welch, F. C. Young, "Beam Transport," 11th International Workshop on Laser Interaction and Related Plasma Phenomena, Monterey, CA, October 25-29, 1993.

C. L. Olson, D. D. Hinshelwood, R. F. Hubbard, M. Lampe, J. M. Neri, P. F. Ottinger, J. W. Poukey, D. V. Rose, S. P. Slinker, S. J. Stephanakis, D. R. Welch, F. C. Young, "Physics of Gas Breakdown for Ion Beam Transport in Gases," Sixth International Symposium on Heavy Ion Inertial Fusion, Frascati, Italy, May 24-29, 1993.

C. L. Olson, D. D. Hinshelwood, R. F. Hubbard, M. Lampe, J. M. Neri, P. F. Ottinger, J. W. Poukey, D. V. Rose, S. P. Slinker, S. J. Stephanakis, D. R. Welch, F. C. Young, "Physics of Gas Breakdown for Ion Beam Transport in Gases," *Nuovo Cimento A* 106, 1705 (1993).

C. L. Olson, J. W. Poukey, "Microdivergence in Intense Ion Beams Caused by Incomplete Charge Neutralization," American Physical Society Division of Plasma Physics Meeting, Tampa, FL, November 4-8, 1991.

C. L. Olson, J. W. Poukey, "Divergence in Intense Ion Beams Caused by Incomplete Charge Neutralization," Ninth International Conference on High Power Particle Beams, Washington, D.C., May 25-29, 1992.

C. L. Olson, J. W. Poukey, "Divergence in Intense Ion Beams Caused by Incomplete Charge Neutralization," *Proceedings Ninth International Conference on High-Power Particle Beams*, ed. by D. Mosher and G. Cooperstein (National Technical Information Service, Springfield, VA, 1993), vol. 2, p. 897.

C. L. Olson, T. W. L. Sanford, "Simulation of Charged-Particle Beam Transport in a Gas Using a Hybrid Particle-Fluid Plasma Model," *Physics of Fluids B* 5, 4144 (1993).

R. E. Olson, "Overview of Target Requirements for PBFA II," Eighth Target Fabrication Specialists' Meeting, Albuquerque, NM, September 23-26, 1991.

R. E. Olson, G. O. Allshouse, D. L. Cook, T. R. Lockner, M. G. Mazarakis, C. L. Olson, D. L. Smith, R. R. Peterson, D. Adler, D. Bruggink, R. L. Engelstad, H. Y. Khater, G. L. Kulcinski, E. G. Lovell, J. J. MacFarlane, E. A. Mogahed, G. A. Moses, S. Rutledge, M. E. Sawan, I. N. Sviatoslavsky, P. Wang, L. J. Wittenberg, "Light Ion Beam Approach to ICF Ignition, Gain, and Energy Production," Seventh International Conference on Emerging Nuclear Energy Systems, Makuhari, Chiba, Japan, September 20-24, 1993.

R. E. Olson, G. O. Allshouse, D. L. Cook, T. R. Lockner, M. G. Mazarakis, C. L. Olson, D. L. Smith, "The Light Ion LMF and Its Relevance to IFE," 15th IEEE Symposium on Fusion Engineering, Hyannis, MA, October 11-15, 1993.

R. E. Olson, G. O. Allshouse, D. L. Cook, T. R. Lockner, M. G. Mazarakis, C. L. Olson, D. L. Smith, "The Light Ion LMF and Its Relevance to IFE," *Proceedings 15th IEEE Symposium on Fusion Engineering* (IEEE, New York, 1993), vol. 1, p. 189.

P. F. Ottinger, D. Mosher, J. M. Neri, D. V. Rose, C. L. Olson, "Transport and Focusing Considerations for Light Ion ICF Systems," Ninth International Conference on High-Power Particle Beams, Washington, D. C., May 23-25, 1992 (invited talk).

P. F. Ottinger, D. Mosher, J. M. Neri, D. V. Rose, C. L. Olson, "Transport and Focusing Considerations for Light Ion ICF Systems," *Proceedings Ninth International Conference on High-Power Particle Beams*, ed. by D. Mosher and G. Cooperstein (National Technical Information Service, Springfield, VA, 1993), vol. 1, p. 60 (invited paper).

P. F. Ottinger, D. V. Rose, J. M. Neri, C. L. Olson, "Ballistic Transport and Solenoidal Focusing of Intense Ion Beams for Inertial Confinement Fusion," *Journal of Applied Physics* **72**, 395 (1992).

P

J. A. Panitz, A. L. Pregoner, R. A. Gerber, "Electrodynamic Ion Emission from Molten Lithium-Nitrate," *Journal of Vacuum Science and Technology A* **7**, 64 (1989).

M. F. Pasik, D. B. Seidel, R. S. Coats, M. L. Kiefer, T. D. Pointon, J. P. Quintenz, "A Method for Computing Fields Near the Origin of a Cylindrical Coordinate System in Time Domain Finite-Difference Electromagnetic Simulations," 14th International Conference on the Numerical Simulation of Plasmas, Annapolis, MD, September 3-6, 1991.

E. L. Patterson, N. E. Brown, G. E. Samlin, *Experiments on the Electron-Beam Radiolysis of Simulated Hanford Waste*, Sandia National Laboratories Report No. SAND92-1969 (December 1992).

E. L. Patterson, N. B. Jackson, S. M. Thornberg, G. E. Samlin, *Electron-Beam Radiolysis for Oil Spill Cleanup*, Sandia National Laboratories Report No. SAND92-1970 (December 1992).

F. C. Perry, "Development of a Laser Diagnostic System on PBFA II for Light Ion Beam Research," 16th IEEE International Conference on Plasma Science, Buffalo, NY, May 22-24, 1989.

F. C. Perry, "Possible Measurement of R-M and R-T Instabilities Using a Light Ion Beam Source and Holographic Interferometry," Lawrence Livermore National Laboratory, June 13, 1990.

F. C. Perry, "Holographic Techniques for Light-Ion Source and Target Research," 18th IEEE International Conference on Plasma Science, Williamsburg, VA, June 3-5, 1991.

F. C. Perry, "Determination of Absorbed Energy from Hydrodynamic Response," American Physical Society Division of Plasma Physics Meeting, Seattle, WA, November 16-20, 1992.

F. C. Perry, "Energy Deposition and Hydrodynamic Response of Materials," Conference on Biomedical Optics, Los Angeles, CA, January 16-22, 1993.

F. C. Perry, "Energy Deposition and Hydrodynamic Response of Materials," *Progress in Biomedical Optics, Proceedings of Laser Tissue Interaction IV*, ed. by S. L. Jacques, A. Katzir (Society of Photo-Optical Instrumentation Engineers, Bellingham, WA, 1993), vol. 1882, p. 132.

- F. C. Perry, D. D. Noack, "Energy Dependence and Hydrodynamic Response of PBFA-II Targets," Eighth Topical Conference on High-Temperature Plasma Diagnostics," Hyannis, MA, May 6-10, 1990.
- F. C. Perry, D. D. Noack, "Energy Dependence and Hydrodynamic Response of PBFA-II Targets," *Review Scientific Instruments* 61, 3149 (1990).
- F. C. Perry, W. E. Nelson, "Applications of Pulsed Energy Sources and Hydrodynamic Response to Materials Science," 20th IEEE International Conference on Plasma Science, Vancouver, B. C., June 7-9, 1993.
- T. D. Pointon, "Charge Exchange Effects in Ion Diodes," *Journal of Applied Physics* 66, 2879 (1989).
- T. D. Pointon, "Effect of Anode Plasma Processes on Applied-B Ion Diode Performance," 13th Conference on Numerical Simulation of Plasmas, Santa Fe, NM, September 17-20, 1989.
- T. D. Pointon, "Slanted Conducting Boundaries and Field Emission of Particles in an Electromagnetic Particle Simulation Code," *Journal Computational Physics* 96, 143 (1991).
- T. D. Pointon, "PLOTFFF, An Interactive Post-Processor for Particle-in-Cell Simulation Codes," Tenth Biennial CUBE Symposium, Pleasanton, CA, October 27-30, 1992.
- T. D. Pointon, "The Effect of Neutrals on Applied-B Ion Diode Performance," American Physical Society Division of Plasma Physics Meeting, Seattle, WA, November 16-20, 1992.
- T. D. Pointon, M. P. Desjarlais, "Recent Developments in 3-D Particle Simulations of Applied-B Ion Diodes," 18th IEEE International Conference on Plasma Science, Williamsburg, VA, June 3-5, 1991.
- T. D. Pointon, M. P. Desjarlais, "Controlling Beam Divergence in Applied-B Ion Diodes," 19th IEEE International Conference on Plasma Science, Tampa, FL, June 1-3, 1992.
- T. D. Pointon, M. P. Desjarlais, "Three-Dimensional Particle-in-Cell Simulation of Ion Diodes on PBFA II," 20th IEEE International Conference on Plasma Science, Vancouver, B.C., June 7-9, 1993.
- T. D. Pointon, D. B. Seidel, M. P. Desjarlais, "3-D Particle Simulations of Applied-B Ion Diodes," 17th IEEE International Conference on Plasma Science, Oakland, CA, May 21-23, 1990.
- A. L. Pregenzer, "Electrohydrodynamically Driven, Large-Area Liquid Metal Ion Sources for Inertial Confinement Fusion," International Conference on Ion Sources, Berkeley, CA, July 10-14, 1989.
- A. L. Pregenzer, "Electrohydrodynamically Driven, Large-Area Liquid Metal Ion Sources for Inertial Confinement Fusion," *Review Scientific Instruments* 61, 571 (1990).

A. L. Pregonzer, "High-Frequency Parametric Excitation of EHD Instabilities: Applications to Large-Area Ion Sources," XIVth International Symposium on Discharges and Electrical Insulation in Vacuum, Santa Fe, NM, September 17-20, 1990.

A. L. Pregonzer, "High-Frequency Parametric Excitation of EHD Instabilities: Applications to Large-Area Ion Sources," *Proceedings XIVth International Symposium on Discharges and Electrical Insulation in Vacuum*, Sandia National Laboratories Report No. SAND90-1927C (Albuquerque, NM, September 1990), p. 626.

A. L. Pregonzer, "High-Frequency Parametric Excitation of EHD Instabilities: Applications to Large-Area Ion Sources," *IEEE Transactions Plasma Science* **19**, 860 (1991).

A. L. Pregonzer, K. W. Bieg, T. R. Lockner, J. R. Woodworth, J. E. Bailey, R. S. Coats, M. P. Desjarlais, D. J. Johnson, R. J. Leeper, J. E. Maenchen, T. A. Mehlhorn, S. E. Rosenthal, C. L. Ruiz, W. A. Stygar, "Lithium Beam Experiments on PBFA II," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.

A. L. Pregonzer, K. W. Bieg, R. E. Olson, J. A. Panitz, "Ion Production from LiF-coated Field Emitter Tips," *Journal of Applied Physics* **67**, 7556 (1990).

A. L. Pregonzer, T. A. Mehlhorn, "Particle Simulations of Lithium Ion Beam Experiments on PBFA II," American Physical Society Spring Meeting, Washington, D.C., April 16-19, 1990.

A. L. Pregonzer, S. E. Rosenthal, "Theory of Electrohydrodynamic Ion Sources on PBFA II," 17th IEEE International Conference on Plasma Science, Oakland, CA, May 21-23, 1990.

A. L. Pregonzer, J. R. Woodworth, T. R. Lockner, S. E. Rosenthal, K. W. Bieg, M. P. Desjarlais, R. S. Coats, "Changes in Diode Operating Characteristics as a Function of Applied Magnetic Field Geometry," 16th IEEE International Conference on Plasma Science, Buffalo, NY, May 22-24, 1989.

K. R. Prestwich, "Erwin Marx Lecture," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989 (invited talk).

K. R. Prestwich, "Electron and Ion Beam Accelerators," in *The Physics of Particle Accelerators--Based in Part on U. S. Particle School Seminars and Courses in 1989 and 1990*, ed. by M. Month, M. Dienes (American Institute of Physics Press, New York, 1992), vol. 2, p. 1725.

K. R. Prestwich, J. J. Ramirez, R. W. Stinnett, D. L. Johnson, C. L. Olson, M. J. Clauser, T. A. Mehlhorn, M. P. Desjarlais, G. O. Allshouse, J. P. Corley, D. L. Hanson, M. E. Cuneo, P. F. McKay, J. W. Poukey, S. E. Rosenthal, S. A. Slutz, J. P. Quintenz, D. L. Cook, J. P. VanDevender, R. R. Peterson, R. Engelstad, J. W. Powers, "Design of a Light Ion Beam Driver for Laboratory Microfusion Facility," Eighth International Conference on High-Power Particle Beams, Novosibirsk, USSR, July 2-5, 1990 (invited talk).

K. R. Prestwich, J. J. Ramirez, R. W. Stinnett, D. L. Johnson, C. L. Olson, M. J. Clauser, T. A. Mehlhorn, M. P. Desjarlais, G. O. Allshouse, J. P. Corley, D. L. Hanson, M. E. Cuneo, P. F. McKay, J. W. Poukey, S. E. Rosenthal, S. A. Slutz, J. P. Quintenz, D. L. Cook, J. P. VanDevender, R. R. Peterson, R. Engelstad, J. W. Powers, "Design of a Light Ion Beam Driver for Laboratory Microfusion Facility," *Proceedings Eighth International Conference on High-Power Particle Beams*, ed. by B. N. Breizman and B. A. Knyazev (World Scientific, NJ, 1991), vol. 1, p. 143 (invited paper).

Q

J. P. Quintenz, "Advances in Light Ion Fusion Research (PBFA II)," American Physical Society Spring Meeting, Washington, D.C., April 20-24, 1992 (invited talk).

J. P. Quintenz, "The Sandia Light Ion Approach to the Laboratory Microfusion Facility (LMF)," 1993 Workshop on Status of ICF Research Programmes and Conceptual ICF Reactor Studies, Kernforschungszentrum Karlsruhe, Karlsruhe, Germany, October 18-20, 1993 (invited talk).

J. P. Quintenz, "Recent Developments in Ion Beam Divergence Reduction and Focusing in Applied-B Ion Diodes," American Physical Society Division of Plasma Physics Meeting, St. Louis, MO, November 1-5, 1993 (invited talk).

J. P. Quintenz, R. G. Adams, G. O. Allshouse, L. D. Bacon, J. E. Bailey, D. D. Bloomquist, G. A. Chandler, R. S. Coats, D. L. Cook, M. E. Cuneo, M. S. Derzon, M. P. Desjarlais, R. J. Dukart, A. B. Filuk, R. A. Gerber, T. A. Haill, D. J. Johnson, M. L. Kiefer, R. J. Leeper, T. R. Lockner, M. K. Matzen, E. J. McGuire, T. A. Mehlhorn, C. W. Mendel, L. P. Mix, A. R. Moats, C. L. Olson, R. E. Olson, T. D. Pointon, T. J. Renk, G. E. Rochau, S. E. Rosenthal, C. L. Ruiz, D. B. Seidel, S. A. Slutz, R. W. Stinnett, W. A. Stygar, M. A. Sweeney, G. C. Tisone, "Light Ion Beam ICF Overview," Sixth International Workshop on Atomic Physics for Ion-Driven Fusion, Santa Fe, NM, November 8-12, 1993 (invited talk).

J. P. Quintenz, R. G. Adams, L. D. Bacon, J. E. Bailey, D. D. Bloomquist, G. A. Chandler, R. S. Coats, D. L. Cook, M. E. Cuneo, M. S. Derzon, M. P. Desjarlais, R. J. Dukart, A. B. Filuk, R. A. Gerber, T. A. Haill, D. J. Johnson, M. L. Kiefer, R. J. Leeper, T. R. Lockner, M. K. Matzen, E. J. McGuire, T. A. Mehlhorn, C. W. Mendel, L. P. Mix, C. L. Olson, R. E. Olson, T. D. Pointon, T. J. Renk, G. E. Rochau, S. E. Rosenthal, C. L. Ruiz, D. B. Seidel, S. A. Slutz, R. W. Stinnett, W. A. Stygar, M. A. Sweeney, G. C. Tisone, "Light Ion Beam ICF Program Overview," 11th International Conference on Laser Interaction and Related Plasma Phenomena, Monterey, CA, October 25-29, 1993 (invited talk).

J. P. Quintenz, R. G. Adams, G. O. Allshouse, L. D. Bacon, J. E. Bailey, D. D. Bloomquist, G. A. Chandler, R. S. Coats, D. L. Cook, M. E. Cuneo, M. S. Derzon, M. P. Desjarlais, P. L. Dreike, R. J. Dukart, R. A. Gerber, T. A. Green, T. A. Haill, D. L. Hanson, T. W. Hussey, D. J. Johnson, R. P. Kensek, M. L. Kiefer, N. A. Krall, R. J. Leeper, T. R. Lockner, J. E. Maenchen, M. K. Matzen, D. H. McDaniel, E. J. McGuire, P. F. McKay, T. A. Mehlhorn, C. W. Mendel, Jr., L. P. Mix, A. R. Moats, T. J. Nash, W. E. Nelson, C. L. Olson, R. E. Olson, T. D. Pointon, T. J. Renk, G. E. Rochau, P. D. Rockett, S. E. Rosenthal, C. L. Ruiz, M. E. Savage, D. B. Seidel, S. A. Slutz, R. W. Stinnett, W. A. Stygar, M. A. Sweeney, G. C. Tisone, J. P. VanDevender, J. R. Woodworth, "Progress in Light Ion Fusion," International Atomic Energy Agency Workshop on Inertial Confinement Fusion Drivers, Osaka, Japan, April 15-19, 1991 (invited talk).

J. P. Quintenz, G. O. Allshouse, L. D. Bacon, J. E. Bailey, G. A. Chandler, R. S. Coats, D. L. Cook, M. E. Cuneo, M. S. Derzon, M. P. Desjarlais, P. L. Dreike, R. J. Dukart, R. A. Gerber, T. A. Haill, D. L. Hanson, T. W. Hussey, D. J. Johnson, N. A. Krall, R. J. Leeper, T. R. Lockner, J. E. Maenchen, M. K. Matzen, D. H. McDaniel, E. J. McGuire, P. F. McKay, T. A. Mehlhorn, C. W. Mendel, Jr., L. P. Mix, A. R. Moats, T. J. Nash, W. E. Nelson, C. L. Olson, R. E. Olson, T. D. Pointon, T. J. Renk, G. E. Rochau, P. D. Rockett, S. E. Rosenthal, C. L. Ruiz, M. E. Savage, D. B. Seidel, S. A. Slutz, R. W. Stinnett, W. A. Stygar, M. A. Sweeney, G. C. Tisone, J. P. VanDevender, J. R. Woodworth, "Progress in Light Ion Fusion," *Proceedings of International Atomic Energy Agency Workshop on Inertial Confinement Fusion Drivers* (IAEA, Vienna, 1992), p. 67 (invited paper).

J. P. Quintenz, L. D. Bacon, J. E. Bailey, M. P. Desjarlais, A. B. Filuk, T. A. Haill, D. L. Hanson, D. J. Johnson, R. W. Lemke, L. P. Mix, T. D. Pointon, S. A. Slutz, "Reducing Beam Divergence in Applied-B Ion Diodes," American Physical Society Division of Plasma Physics Meeting, Seattle, WA, November 16-20, 1992.

J. P. Quintenz, J. E. Bailey, K. W. Bieg, D. D. Bloomquist, D. L. Cook, J. T. Crow, R. S. Coats, M. S. Derzon, M. P. Desjarlais, P. L. Dreike, R. A. Gerber, T. W. Hussey, D. J. Johnson, W. A. Johnson, R. P. Kensek, G. W. Kuswa, J. R. Lee, R. J. Leeper, T. R. Lockner, J. E. Maenchen, D. H. McDaniel, P. F. McKay, T. A. Mehlhorn, C. W. Mendel, Jr., L. P. Mix, E. L. Neau, C. L. Olson, T. D. Pointon, A. L. Pregonzer, T. J. Renk, G. E. Rochau, S. E. Rosenthal, C. L. Ruiz, L. X. Schneider, S. A. Slutz, R. W. Stinnett, W. A. Stygar, M. A. Sweeney, G. C. Tisone, B. N. Turman, J. P. VanDevender, J. R. Woodworth, "Status of the PBFA-II Light Ion Beam Fusion Program," Particle Accelerator Conference, Chicago, IL, March 20-23, 1989 (invited talk).

J. P. Quintenz, J. E. Bailey, K. W. Bieg, D. D. Bloomquist, D. L. Cook, J. T. Crow, R. S. Coats, M. S. Derzon, M. P. Desjarlais, P. L. Dreike, R. A. Gerber, T. W. Hussey, D. J. Johnson, W. A. Johnson, R. P. Kensek, G. W. Kuswa, J. R. Lee, R. J. Leeper, T. R. Lockner, J. E. Maenchen, D. H. McDaniel, P. F. McKay, T. A. Mehlhorn, C. W. Mendel, L. P. Mix, E. L. Neau, C. L. Olson, T. D. Pointon, A. L. Pregonzer, W. A. Stygar, M. A. Sweeney, G. C. Tisone, B. N. Turman, J. P. VanDevender, J. R. Woodworth, "Status of the PBFA-II Light Ion Beam Fusion Program," *Proceedings 1989 IEEE Particle Accelerator Conference*, ed. by F. Bennett and J. Kopta (IEEE, New York, 1989), vol. 2, p. 752 (invited paper).

J. P. Quintenz, R. S. Coats, M. P. Desjarlais, "Applications of the QUICKSILVER 3-D Electromagnetic Particle-in-Cell Code for the Simulation of Intense Particle Beam Diodes and Pulsed Power Devices," Russian-U.S. Technology Exchange in Computations and Computer Science, Livermore, CA, October 19, 1992.

J. P. Quintenz, M. P. Desjarlais, N. A. Krall, T. A. Mehlhorn, C. W. Mendel, C. L. Olson, T. D. Pointon, S. E. Rosenthal, D. B. Seidel, S. A. Slutz, J. E. Bailey, R. S. Coats, D. L. Cook, D. J. Johnson, M. L. Kiefer, R. J. Leeper, T. R. Lockner, J. E. Maenchen, L. P. Mix, A. L. Pregonzer, R. W. Stinnett, W. A. Stygar, J. P. VanDevender, "Theory of Applied-B Ion Diodes," Eighth International Conference on High-Power Particle Beams, Novosibirsk, USSR, July 2-5, 1990 (invited talk).

J. P. Quintenz, M. P. Desjarlais, N. A. Krall, T. A. Mehlhorn, C. W. Mendel, C. L. Olson, T. D. Pointon, S. E. Rosenthal, D. B. Seidel, S. A. Slutz, J. E. Bailey, R. S. Coats, D. L. Cook, D. J. Johnson, M. L. Kiefer, R. J. Leeper, T. R. Lockner, J. E. Maenchen, L. P. Mix, A. L. Pregonzer, R. W. Stinnett, W. A. Stygar, J. P. VanDevender, "Theory of Applied-B Ion Diodes," *Proceedings Eighth International Conference on High-Power Particle Beams*, ed. by B. N. Breizman and B. A. Knyazev (World Scientific, NJ, 1991), p. 116 (invited paper).

J. P. Quintenz, M. P. Desjarlais, T. D. Pointon, S. A. Slutz, D. B. Seidel, T. A. Mehlhorn, R. S. Coats, M. L. Kiefer, N. A. Krall, L. D. Bacon, "Theory of Instability Generated Divergence of Intense Ion Beams from Applied-B Ion Diodes," *Proceedings IEEE* 80, 971 (1992).

J. P. Quintenz, M. P. Desjarlais, T. D. Pointon, S. A. Slutz, D. B. Seidel, T. A. Mehlhorn, R. S. Coats, M. L. Kiefer, N. A. Krall, L. D. Bacon, "Correction to Theory of Instability Generated Divergence of Intense Ion Beams from Applied-B Ion Diodes," *Proceedings IEEE* 81, 308 (1993).

J. P. Quintenz, M. L. Kiefer, W. A. Johnson, T. D. Pointon, R. S. Coats, D. B. Seidel, "Application of the 3-D, Electromagnetic, Particle-in-Cell Code QUICKSILVER," 13th Conference on Numerical Simulation of Plasmas, Santa Fe, NM, September 17-20, 1989.

J. P. Quintenz, C. W. Mendel, D. H. McDaniel, W. W. Simpson, D. M. Zagar, "A Simple Model of the Current-Toggling Plasma Opening Switch for Circuit Codes," Sixth Plasma Opening Switch Workshop, Albuquerque, NM, August 24-25, 1989.

J. P. Quintenz, C. W. Mendel, M. E. Savage, "A Numerical Investigation of the Electron Launcher Voltage Probe," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.

J. P. Quintenz, C. W. Mendel, M. E. Savage, "Potential for Using an Electron Launcher Voltage Probe as an Electron Flow Diagnostic in a Magnetically Insulated Transmission Line," 20th IEEE International Conference on Plasma Science, Vancouver, B. C., June 7-9, 1993.

J. P. Quintenz, D. B. Seidel, "Diodes and Magnetic Insulation," Chapter 3 in *Computer Applications in Plasma Science and Engineering*, ed. by A. T. Drobot (Springer-Verlag, New York, 1991), p. 42.

R

J. J. Ramirez, "Very High Pulse Energy Accelerators," Particle Accelerator Conference, Chicago, IL, March 20-23, 1989 (invited talk).

J. J. Ramirez, "Very High Pulse Energy Accelerators," *Proceedings 1989 IEEE Particle Accelerator Conference*, ed. by F. Bennett and J. Kopta (IEEE, New York, 1989), vol. 3, 1446.

J. J. Ramirez, "Light Ion Beam Drivers for ICF," Ninth International Workshop on Laser Interaction and Related Plasma Phenomena, Monterey, CA, November 6-8, 1989.

J. J. Ramirez, D. L. Cook, J. K. Rice, M. K. Matzen, D. L. Johnson, J. D. Boyes, C. L. Olson, K. R. Prestwich, M. J. Clauser, T. A. Mehlhorn, R. W. Stinnett, G. O. Allshouse, G. L. Kulcinski, G. A. Moses, R. R. Peterson, R. L. Engelstad, "Intense Light Ion Beams Provide a Robust, Commercial Driver Path Towards Ignition, Gain, and Commercial Fusion Energy," International Atomic Energy Agency Workshop on Inertial Confinement Fusion Drivers, Osaka, Japan, April 15-19, 1991 (invited talk).

J. J. Ramirez, D. L. Cook, J. K. Rice, M. K. Matzen, D. L. Johnson, J. D. Boyes, C. L. Olson, K. R. Prestwich, M. J. Clauser, T. A. Mehlhorn, R. W. Stinnett, G. O. Allshouse, G. L. Kulcinski, G. A. Moses, R. R. Peterson, R. L. Engelstad, "Intense Light Ion Beams Provide a Robust, Commercial Driver Path Towards Ignition, Gain, and Commercial Fusion Energy," *Laser and Particle Beams* **11**, 423 (1993) (invited paper).

J. J. Ramirez, K. R. Prestwich, D. L. Johnson, J. P. Corley, G. J. Denison, J. A. Alexander, T. L. Franklin, P. J. Pankuch, T. W. L. Sanford, T. J. Sheridan, L. L. Torrison, G. A. Zawadzkas, "Performance of the Hermes-III Gamma Ray Simulator," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.

J. J. Ramirez, K. R. Prestwich, D. L. Johnson, J. P. Corley, G. J. Denison, J. A. Alexander, T. L. Franklin, P. J. Pankuch, T. W. L. Sanford, T. J. Sheridan, L. L. Torrison, G. A. Zawadzkas, "Performance of the Hermes-III Gamma Ray Simulator," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 26.

- J. J. Ramirez, K. R. Prestwich, I. D. Smith, "High-Power, Short-Pulse Generators Based on Induction Voltage Adders," *Proceedings IEEE* **80**, 946 (1992).
- J. J. Ramirez, K. R. Prestwich, R. W. Stinnett, D. L. Johnson, C. L. Olson, G. O. Alshouse, M. J. Clauser, V. Harper-Slaboszewicz, T. W. L. Sanford, J. D. Boyes, T. A. Mehlhorn, L. J. Lorence, D. L. Hanson, M. E. Cuneo, R. R. Peterson, R. L. Engelstad, J. W. Power, H. Y. Khater, M. E. Sawan, E. G. Lovell, G. A. Moses, "A Light Ion Beam Driver for the Laboratory Microfusion Facility," Ninth Topical Conference on the Technology of Fusion Energy, Oak Brook, IL, October 7-11, 1990.
- J. J. Ramirez, K. R. Prestwich, R. W. Stinnett, D. L. Johnson, C. L. Olson, G. O. Alshouse, M. J. Clauser, V. Harper-Slaboszewicz, T. W. L. Sanford, J. D. Boyes, T. A. Mehlhorn, L. J. Lorence, D. L. Hanson, M. E. Cuneo, R. R. Peterson, R. L. Engelstad, J. W. Power, H. Y. Khater, M. E. Sawan, E. G. Lovell, G. A. Moses, "A Light Ion Beam Driver for the Laboratory Microfusion Facility," *Fusion Technology* **19**, Part 2A, 664 (1991).
- J. J. Ramirez, R. W. Stinnett, D. L. Johnson, C. L. Olson, T. A. Mehlhorn, J. T. Crow, J. P. Quintenz, K. R. Prestwich, M. P. Desjarlais, R. E. Olson, G. O. Allshouse, T. H. Martin, J. P. VanDevender, D. L. Cook, S. A. Slutz, K. B. Coachman, T. R. Lockner, B. N. Turman, S. A. Goldstein, J. N. Olsen, R. R. Peterson, R. L. Engelstad, "Design Issues for a Light Ion Beam LMF Driver," *Fusion Technology* **15**, 350 (1989).
- T. D. Raymond, C. Reiser, R. G. Adams, R. B. Mitchie, "Pulse-Train Amplification in KrF," Conference on Lasers and Electro-Optics (CLEO '89), Baltimore, MD, April 24-28, 1989.
- K. W. Reed, S. N. Kempka, G. J. Weber, R. W. Wavrik, H. C. Harjes, M. T. Buttram, B. N. Turman, E. L. Neau, L. E. Martinez, J. L. Adcock, G. E. Laderach, M. E. Butler, J. G. Stewart, "Channel Cooling Techniques for Repetitively Pulsed Magnetic Switches," 19th IEEE Power Modulator Symposium, San Diego, CA, June 26-28, 1990.
- K. W. Reed, S. N. Kempka, G. J. Weber, R. W. Wavrik, H. C. Harjes, M. T. Buttram, B. N. Turman, E. L. Neau, L. E. Martinez, J. L. Adcock, G. E. Laderach, M. E. Butler, J. G. Stewart, "Channel Cooling Techniques for Repetitively Pulsed Magnetic Switches," *Conference Record of the 19th IEEE Power Modulator Symposium*, ed. by L. Luessen (IEEE, New York, 1990), p. 192.
- D. Rej, H. Davis, R. Fehl, G. Johnston, R. Muenchausen, W. Waganaar, F. C. Perry, W. E. Nelson, "Thin Film Deposition with Intense Ion Beams," 20th IEEE International Conference on Plasma Science, Vancouver, B. C., June 7-9, 1993.
- T. J. Renk, "Flashboards as a Plasma Source for Plasma Opening Switch Applications," *Journal Applied Physics* **65**, 2652 (1989).
- T. J. Renk, *Analysis of Data from a Test of PBFA-II Plasma Opening Switch Geometries on Blackjack 5*, Sandia National Laboratories Report No. SAND89-1538 (Albuquerque, NM, March 1990).

T. J. Renk, *Plasma-Filled Applied-B_z Ion Diode Experiments on LION Using a Plasma Opening Switch*, Sandia National Laboratories Report No. SAND89-2901 (Albuquerque, NM, July 1990).

T. J. Renk, P. L. Dreike, G. C. Tisone, "Development of the BOLVAPS/LIBORS Lithium Ion Source for the PBFA-II Accelerator," American Physical Society Spring Meeting, Washington, D.C., April 16-19, 1990.

T. J. Renk, P. L. Dreike, G. C. Tisone, G. A. Chandler, R. R. Johnston, K. P. Lamppa, B. F. Clark, "BOLVAPS/LIBORS Lithium Source Experiments on PBFA II," 17th IEEE International Conference on Plasma Science, Oakland, CA, May 21-23, 1990.

T. J. Renk, R. R. Johnston, P. L. Dreike, G. C. Tisone, J. E. Maenchen, "BOLVAPS/LIBORS Experiments on PBFA II," 16th IEEE International Conference on Plasma Science, Buffalo, NY, May 22-24, 1989.

T. J. Renk, R. R. Johnston, G. E. Rochau, M. P. Desjarlais, S. E. Rosenthal, T. R. Lockner, "Plasma-Filled Ion Diode Experiments on PBFA II," 18th IEEE International Conference on Plasma Science, Williamsburg, VA, June 3-5, 1991.

T. J. Renk, G. C. Tisone, R. G. Adams, B. F. Clark, F. C. Reyes, J. E. Bailey, A. B. Filuk, M. P. Desjarlais, D. J. Johnson, A. L. Carlson, P. W. Lake, "LEVIS Active Anode Lithium Ion Source Development on PBFA II," 20th IEEE International Conference on Plasma Science, Vancouver, B. C., June 7-9, 1993.

T. J. Renk, G. C. Tisone, R. G. Adams, B. F. Clark, F. C. Reyes, J. E. Bailey, A. B. Filuk, M. P. Desjarlais, D. J. Johnson, A. L. Carlson, P. W. Lake, "LEVIS Ion Source Experiments on PBFA-II," American Physical Society Division of Plasma Physics, St. Louis, MO, November 1-5, 1993.

T. J. Renk, G. C. Tisone, R. G. Adams, D. J. Johnson, M. Lopez, B. F. Clark, J. Schroeder, "LEVIS Ion Source Experiments on PBFA II," American Physical Society Division of Plasma Physics Meeting, Seattle, WA, November 16-20, 1992.

T. J. Renk, G. C. Tisone, R. G. Adams, M. Lopez, B. F. Clark, J. Schroeder, J. E. Bailey, A. B. Filuk, A. L. Carlson, "LEVIS Lithium Ion Source Experiments on PBFA II," 19th IEEE International Conference on Plasma Science, Tampa, FL, June 1-3, 1992.

T. J. Renk, G. C. Tisone, M. Lopez, B. F. Clark, J. Schroeder, "LEVIS Ion Source Experiments on PBFA II," American Physical Society Division of Plasma Physics Meeting, Tampa, FL, November 4-8, 1991.

G. E. Rochau, "Review of PBFA II Opening Switch Experiments Delta-2 and Epsilon-1 Test Series," Sixth Plasma Opening Switch Workshop, Albuquerque, NM, August 24-25, 1989.

G. E. Rochau, "Future Experimental Plans on PBFA II," Sixth Plasma Opening Switch Workshop, Albuquerque, NM, August 24-25, 1989.

G. E. Rochau, "MIP Source Configuration and Performance Without Loads on PBFA II," Seventh Plasma Opening Switch Workshop, Albuquerque, NM, April 24-25, 1990.

- G. E. Rochau, "MIP Performance with Blade Loads and Ion Diodes," Seventh Plasma Opening Switch Workshop, Albuquerque, NM, April 24-25, 1990.
- G. E. Rochau, "Performance of the Current Toggle POS on PBFA II," Seventh Plasma Opening Switch Workshop, Albuquerque, NM, April 24-25, 1990.
- G. E. Rochau, "Future Experimental Plans on PBFA II," Seventh Plasma Opening Switch Workshop, Albuquerque, NM, April 24-25, 1990.
- G. E. Rochau, D. H. McDaniel, C. W. Mendel, M. A. Sweeney, W. B. S. Moore, G. R. Mowrer, W. W. Simpson, D. M. Zagar, "Performance of Magnetically-Injected-Plasma Opening Switches for the Particle Beam Fusion Accelerator II (PBFA II)," Eighth International Conference on High-Power Particle Beams, Novosibirsk, USSR, July 2-5, 1990.
- G. E. Rochau, D. H. McDaniel, C. W. Mendel, M. A. Sweeney, W. B. S. Moore, G. R. Mowrer, W. W. Simpson, D. M. Zagar, "Performance of Magnetically-Injected-Plasma Opening Switches for the Particle Beam Fusion Accelerator II (PBFA II)," *Proceedings Eighth International Conference on High-Power Particle Beams*, ed. by B. N. Breizman and B. A. Knyazev (World Scientific, NJ, 1991), vol. 1, p. 386.
- G. E. Rochau, D. H. McDaniel, C. W. Mendel, M. A. Sweeney, W. B. S. Moore, G. R. Mowrer, W. W. Simpson, D. M. Zagar, T. Grasser, C. D. McDougal, "Performance of Plasma Opening Switches for the Particle Beam Fusion Accelerator II (PBFA II)," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.
- G. E. Rochau, D. H. McDaniel, C. W. Mendel, M. A. Sweeney, W. B. S. Moore, G. R. Mowrer, W. W. Simpson, D. M. Zagar, T. Grasser, C. D. McDougal, "Performance of Plasma Opening Switches for the Particle Beam Fusion Accelerator II (PBFA II)," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 251.
- G. E. Rochau, D. H. McDaniel, C. W. Mendel, M. A. Sweeney, W. B. S. Moore, G. R. Mowrer, D. M. Zagar, "Performance of Magnetically-Injected-Plasma Opening Switches on the Particle Beam Fusion Accelerator II (PBFA II)," 17th IEEE Conference on Plasma Science, Oakland, CA, May 21-23, 1990.
- P. D. Rockett, "Plans and Bases for Future Ion Beam-Matter Interaction Experiments," Third International Conference on Intense Ion-Beam Interactions with Matter, Albuquerque, NM, November 7-8, 1990.
- P. D. Rockett, "Plans and Bases for Future Ion Beam-Matter Interaction Experiments," *Proceedings Third International Conference on Intense Ion-Beam Interactions with Matter* (Sandia National Laboratories, Albuquerque, NM, March 1993), p. 45.
- P. D. Rockett, J. A. Hunter, R. P. Kensek, R. E. Olson, G. D. Kubiak, K. W. Berger, "XUV Conversion Efficiency in a Low-Intensity KrF Laser Plasma for Projection Lithography," Topical Meeting on Soft X-Ray Projection Lithography, Monterey, CA, April 10-12, 1991.

- P. D. Rockett, J. A. Hunter, R. P. Kensek, R. E. Olson, G. D. Kubiak, K. W. Berger, "XUV Conversion Efficiency in a Low-Intensity KrF Laser Plasma for Projection Lithography," *Soft X-Ray Projection Lithography*, vol. 12 of 1991 OSA Technical Digest Series, ed by J. Bokor (Optical Society of America, Washington, D. C., 1991), p. 76.
- P. D. Rockett, J. A. Hunter, R. E. Olson, G. D. Kubiak, K. W. Berger, R. Schmitt, "A Laser-Plasma VUV Source for Projection X-Ray Lithography at 13.9 nm," Optical Society of America Annual Meeting ILS '92, Albuquerque, NM, September 20-25, 1992.
- P. D. Rockett, J. A. Hunter, R. E. Olson, W. C. Sweatt, G. D. Kubiak, R. L. Schmitt, K. W. Berger, "Characterization of an Excimer-Laser Generated VUV Source for Soft X-Ray Projection Lithography," *Soft X-Rays in the 21st Century Conference*, Provo, Utah, February 10-13, 1992.
- P. D. Rockett, J. A. Hunter, R. E. Olson, W. C. Sweatt, G. D. Kubiak, K. W. Berger, R. L. Schmitt, H. Shields, M. Powers, D. L. Windt, "Investigation of Discharge-Laser-Driven Plasmas as Sources for SXPL," *Topical Meeting on Soft X-Ray Projection Lithography*, Monterey, CA, May 10-12, 1993.
- P. D. Rockett, J. A. Hunter, R. E. Olson, W. C. Sweatt, G. D. Kubiak, K. W. Berger, R. L. Schmitt, H. Shields, M. Powers, D. L. Windt, "Investigation of Discharge-Laser-Driven Plasmas as Sources for SXPL," *Soft X-Ray Projection Lithography*, vol. 18 of 1993 OSA Technical Digest Series, ed. by A. M. Hawryluk, R. H. Stulen (Optical Society of America, Washington, D. C., 1993), p. 163.
- P. D. Rockett, J. L. Porter, "A Broadband Condenser Optic for the Efficient Collection of Soft X-Ray Radiation," 17th IEEE International Conference on Plasma Science, Oakland, CA, May 21-23, 1990.
- N. F. Roderick, S. S. Payne, R. E. Peterkin, M. H. Frese, T. W. Hussey, "Two-Dimensional Single Fluid MHD Simulations of Plasma Opening Switches," *International Workshop on Physics and Techniques of High Power Opening Switches*, Novosibirsk, USSR, July 1-2, 1989.
- N. F. Roderick, S. S. Payne, R. E. Peterkin, M. H. Frese, T. W. Hussey, "Two-Dimensional Single Fluid MHD Simulations of Plasma Opening Switches," *Proceedings International Workshop on Physics and Techniques of High Power Opening Switches*, ed. by V. Bystritski (Tomsk Institute of High Current Electronics, Tomsk, USSR, 1989), p. 12.
- A. E. Rodriguez, W. L. Morgan, K. J. Touryan, M. W. Moeny, T. H. Martin, "An Air Breakdown Kinetic Model," *Journal of Applied Physics* 70, 2015 (1991).
- D. V. Rose, D. D. Hinshelwood, P. F. Ottinger, J. M. Neri, C. L. Olson, "Power Efficiency Tuning for Light-Ion-Beam ICF Transport," *American Physical Society Division of Plasma Physics Meeting*, St. Louis, MO, November 1-5, 1993.
- A. Rosen, P. J. Stabile, F. J. Zuvatern, G. M. Loubriel, W. D. Helgeson, M. W. O'Malley, D. L. McLaughlin, "8.5MW GaAs Pulsed Biased Switch Optically Controlled by 2-D Laser Diode Array," *Photonics Technology Letters* 2, 525 (1990).

- A. Rosen, F. J. Zuvatern, editors, *High-Power Optically-Activated Solid State Switches* (Artech House, Boston, 1993).
- S. E. Rosenthal, "Consequences to an Ion Diode of a Partially Opened POS," Sixth Plasma Opening Switch Workshop, Albuquerque, NM, August 24-25, 1989.
- S. E. Rosenthal, "Simulation Study of Applied-B Ion Diodes with Plasma Prefill," 17th IEEE International Conference on Plasma Science, Oakland, CA, May 21-23, 1990.
- S. E. Rosenthal, "Characterization of Electron Flow in Negative and Positive Polarity Linear Induction Accelerators," XIVth International Symposium on Discharges and Electrical Insulation in Vacuum, Santa Fe, NM, September 17-20, 1990.
- S. E. Rosenthal, "Characterization of Electron Flow in Negative and Positive Polarity Linear Induction Accelerators," *IEEE Transactions on Plasma Science* 19, 822 (1991).
- S. E. Rosenthal, "Simulation Study of Magnetically Insulated Power Coupling to the Applied-B Ion Diode," 19th IEEE International Conference on Plasma Science, Tampa, FL, June 1-3, 1992.
- S. E. Rosenthal, "Improving Power Flow in Multiple-Cathode Magnetically Insulated Transmission Lines," 20th IEEE International Conference on Plasma Science, Vancouver, B.C., June 7-9, 1993.
- S. E. Rosenthal, C. W. Mendel, "Characterization of Electron Flow in Positive Polarity Linear-Induction Accelerators," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.
- S. E. Rosenthal, C. W. Mendel, "Characterization of Electron Flow in Positive Polarity Linear Induction Accelerators," XIVth Symposium on Discharges and Electrical Insulation in Vacuum, Santa Fe, NM, September 17-20, 1990.
- S. E. Rosenthal, C. W. Mendel, "Characterization of Electron Flow in Positive Polarity Linear Induction Accelerators," *Proceedings XIVth Symposium on Discharges and Electrical Insulation in Vacuum*, Sandia National Laboratories Report No. SAND90-1927C (Albuquerque, NM, September 1990), p. 589.
- D. C. Rovang, "3.5 Tesla Field Coil Design for PBFA II to Open at 3 MA," Seventh Plasma Opening Switch Workshop, Albuquerque, NM, April 24-25, 1990.
- D. C. Rovang, "Pulsed Magnetic Field Coil Engineering at Sandia National Laboratories using MSC-EMAS and MSC-NASTRAN," MacNeal-Schwendler Corporation 1992 World User's Conference, Dearborn, MI, May 18-22, 1992.
- D. C. Rovang, "Advances in the Engineering of High Field Applied-B Ion Diodes for ICF," Tenth Topical Meeting on the Technology of Fusion Energy, Boston, MA, June 7-12, 1992.
- D. C. Rovang, "Advances in the Engineering of High Field Applied-B Ion Diodes for ICF," *Fusion Technology* 21, 1571 (1992).

C. L. Ruiz, "Nuclear Activation Diagnostics for Plasma Opening Switches," 20th IEEE International Conference on Plasma Science, Vancouver, B.C., June 7-9, 1993.

C. L. Ruiz, R. J. Leeper, F. A. Schmidlapp, G. W. Cooper, D. J. Malbrough, "Absolute Calibration of a Total Yield Indium Activation Detector for DD and DT Neutrons," Ninth Topical Conference on High-Temperature Plasma Diagnostics, Santa Fe, NM, March 15-19, 1992.

C. L. Ruiz, R. J. Leeper, F. A. Schmidlapp, G. W. Cooper, D. J. Malbrough, "Absolute Calibration of a Total Yield Indium Activation Detector for DD and DT Neutrons," *Review Scientific Instruments* 63, 4889 (1992).

S

M. E. Savage, "SuperMite Triggered POS Experiments," Seventh Plasma Opening Switch Workshop, Albuquerque, NM, April 24-25, 1990.

M. E. Savage, G. W. Cooper, W. W. Simpson, "Ion Time-of-Flight Spectroscopy of a Plasma Opening Switch Operating at 250 Nanosecond Conduction Time," American Physical Society Division of Plasma Physics, Seattle, WA, November 16-20, 1992.

M. E. Savage, C. W. Mendel, G. W. Cooper, W. W. Simpson, D. M. Zagar, "Future Plans for MITE," Seventh Plasma Opening Switch Workshop, Albuquerque, NM, April 24-25, 1990.

M. E. Savage, C. W. Mendel, T. W. Grasser, W. W. Simpson, D. M. Zagar, "Time-Resolved Voltage Measurements in Terawatt Magnetically Insulated Transmission Lines," *Review Scientific Instruments* 61, 3812 (1990).

M. E. Savage, C. W. Mendel, J. P. Quintenz, G. W. Cooper, W. W. Simpson, T. W. Grasser, D. M. Zagar, "The Electron Launching Voltage Monitor," Sixth Plasma Opening Switch Workshop, Albuquerque, NM, August 24-25, 1989.

M. E. Savage, C. W. Mendel, J. P. Quintenz, "Time-Resolved Voltage Measurements in Magnetically Insulated Transmission Lines," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.

M. E. Savage, C. W. Mendel, W. W. Simpson, "Long Conduction Time Plasma Opening Switch Research at Sandia National Laboratories," Eighth IEEE Pulsed Power Conference, San Diego, CA, June 17-19, 1991.

M. E. Savage, W. W. Simpson, G. W. Cooper, M. A. Usher, "Long Conduction Time Plasma Opening Switch Experiments at Sandia National Laboratories," Ninth International Conference on High Power Particle Beams, Washington, D.C., May 25-29, 1992.

M. E. Savage, W. W. Simpson, G. W. Cooper, M. A. Usher, "Long Conduction Time Plasma Opening Switch Experiments at Sandia National Laboratories," *Proceedings Ninth International Conference on High-Power Particle Beams*, ed. by D. Mosher and G. Cooperstein (National Technical Information Service, Springfield, VA, 1993), vol. 1, p. 621.

M. E. Savage, W. W. Simpson, M. A. Usher, "Operation of Sandia's Long Conduction Time Plasma Opening Switch into High Impedance Loads," 19th IEEE International Conference on Plasma Science, Tampa, FL, June 1-3, 1992.

M. E. Savage, W. W. Simpson, M. A. Usher, "Results from Long Conduction Time Plasma Opening Switch Experiments at Sandia National Laboratories," Ninth IEEE Pulsed Power Conference, Albuquerque, NM, June 21-23, 1993.

M. E. Savage, W. W. Simpson, M. A. Usher, "Results from Long Conduction Time Plasma Opening Switch Experiments at Sandia National Laboratories," *Digest of Technical Papers, Ninth IEEE Pulsed Power Conference*, ed. by W. L. Baker and K. R. Prestwich (IEEE, New York, 1993), vol. 1, p. 110.

E. Schamiloglu, R. W. Stinnett, "Guest Editorial" (for special issue on vacuum discharge plasmas), *IEEE Transactions Plasma Science* **19**, 681 (1991).

D. A. Schneider, J. H. Aubert, R. A. Assink, "Detemination of Deuterium Gas Pressure in Plastic Targets by Nuclear Magnetic Resonance," Eighth Target Fabrication Specialists' Meeting, Albuquerque, NM, September 23-26, 1991.

L. X. Schneider, S. R. Babcock, G. E. Laderach, "Lifetime Testing of Commercially Available 3 μ F, 100 kV Pulsed-Power Capacitors," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.

L. X. Schneider, S. R. Babcock, G. E. Laderach, "Lifetime Testing of Commercially Available 3 μ F, 100 kV Pulsed-Power Capacitors," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 902.

L. X. Schneider, W. A. Johnson, E. L. Neau, S. R. Babcock, "A Pulsed-Power Upgrade Study of PBFA II Based on a Closed Disk Transmission System," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.

L. X. Schneider, W. A. Johnson, E. L. Neau, S. R. Babcock, "A Pulsed-Power Upgrade Study of PBFA II Based on a Closed Disk Transmission System," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by B. H. Bernstein and (IEEE, New York, 1989), p. 214.

D. B. Seidel, "QUICKSILVER--A 3-D Particle Simulation Code and Its Applications to the Study of Applied-B Ion Diodes," American Physical Society Division of Plasma Physics Meeting, Cincinnati, OH, November 12-16, 1990 (invited talk).

D. B. Seidel, R. S. Coats, M. L. Kiefer, T. D. Pointon, L. P. Mix, "Portable File Format (PFF): A Compact, Machine-Independent File Format for Simulation Data," Ninth CUBE Symposium, Santa Fe, NM, November 27-30, 1990.

- D. B. Seidel, M. L. Kiefer, R. S. Coats, T. D. Pointon, J. P. Quintenz, W. A. Johnson, "Multitasking the 3-D Electromagnetic Particle-in-Cell Code QUICKSILVER," 13th Conference on Numerical Simulation of Plasmas," Santa Fe, NM, September 17-20, 1989.
- D. B. Seidel, M. L. Kiefer, R. S. Coats, T. D. Pointon, J. P. Quintenz, W. A. Johnson, "Recent Developments in the Three-Dimensional, Electromagnetic, Particle-in-Cell Code, QUICKSILVER," 17th IEEE International Conference on Plasma Science, Oakland, CA, May 21-23, 1990.
- D. B. Seidel, M. L. Kiefer, R. S. Coats, T. D. Pointon, J. P. Quintenz, W. A. Johnson, "The 3-D, Electromagnetic, Particle-in-Cell Code, QUICKSILVER," Europhysics Conference on Computational Physics, Amsterdam, Netherlands, September 10-13, 1990.
- D. B. Seidel, M. L. Kiefer, R. S. Coats, T. D. Pointon, J. P. Quintenz, W. A. Johnson, "The 3-D, Electromagnetic, Particle-in-Cell Code, QUICKSILVER," *International Journal of Modern Physics C*, ed. by A. Tenner (World Scientific, Singapore, 1991), vol. 2, p. 475.
- D. B. Seidel, M. L. Kiefer, R. S. Coats, T. D. Pointon, J. P. Quintenz, W. A. Johnson, "QUICKSILVER, a 3-D, Time Domain, Finite-Difference Code for the Electromagnetic Simulation of Complex Structures," Topical Meeting on Electrical Performance of Electronic Packaging, Tucson, AZ, April 22-24, 1992.
- D. B. Seidel, T. D. Pointon, M. P. Desjarlais, R. S. Coats, M. L. Kiefer, J. P. Quintenz, W. A. Johnson, "3-D Particle Simulations of Applied-B Ion Diodes," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.
- D. J. Sharp, H. C. Harjes, G. A. Mann, "Electrophoretically Applied Dielectrics for Amorphous Metal Foils in Pulsed Power Saturable Reactors," Materials Research Society Symposium, San Diego, CA, April 25-26, 1989.
- I. R. Shokair, J. S. Wagner, *Gridless Electrostatic Field Solver for Particle Simulation Codes in Cylindrical Geometry*, Sandia National Laboratories Report No. SAND90-1249 (Albuquerque, NM, June 1990).
- R. A. Sierra, J. C. Hsia, G. C. Tisone, "Performance of a 100-MW Peak Power, 100-Joule Pulsed Dye Laser, Lasers 1989 Conference, New Orleans, LA, December 3-8, 1989.
- S. A. Slutz, "Electron Loss, Ion Energy Spread, and Ion Divergence in Magnetically-Insulated Diodes," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.
- S. A. Slutz, "Ion Divergence and the Stability of Magnetically-Insulated Diodes," Eighth International Conference on High-Power Particle Beams, Novosibirsk, USSR, July 2-5, 1990.
- S. A. Slutz, "Ion Divergence and the Stability of Magnetically-Insulated Diodes," *Proceedings Eighth International Conference on High-Power Particle Beams*, ed. by B. N. Breizman and B. A. Knyazev (World Scientific, NJ, 1991), vol. 1, p. 511.
- S. A. Slutz, "Ion Divergence Generated by Nonuniform Current Density of Intense Ion Beams," *Physics of Fluids B* 4, 2645 (1992).

- S. A. Slutz, "Theory of High Current Density Multistage Ion Acceleration," Physics of High Energy Density in Matter, Hirschegg, Klein-Walsertal, Austria, January 31-February 5, 1993.
- S. A. Slutz, "Ion Emission from Anode Foils During Multistage Acceleration of Intense Ion Beams," *Physics of Fluids B* 5, 209 (1993).
- S. A. Slutz, "Analytic Optimization of Ion Driven Hohlraums," Sixth International Workshop on Atomic Physics for Ion-Driven Fusion, Santa Fe, NM, November 8-12, 1993.
- S. A. Slutz, M. P. Desjarlais, "Theory of Multi-Stage Intense Ion Beam Acceleration," *Journal of Applied Physics* 67, 6705 (1990).
- S. A. Slutz, D. J. Johnson, J. T. Crow, "The Operation of a Uniformly Insulated Extraction Applied-B Ion Diode," *Journal of Applied Physics* 68, 2555 (1990).
- S. A. Slutz, W. A. Johnson, "Electromagnetic Stability of High-Power Ion Diode Equilibria and Ion Divergence," American Physical Society Division of Plasma Physics Meeting, Tampa, FL, November 4-8, 1991.
- S. A. Slutz, W. A. Johnson, "The Effect of a Virtual Cathode on the Electromagnetic Stability of High-Power Ion Diodes," *Physics of Fluids B* 4, 1349 (1992).
- S. A. Slutz, J. W. Poukey, "Simulations of Multistage Intense Ion Beam Acceleration," Ninth International Conference on High Power Particle Beams, Washington, D.C., May 25-29, 1992.
- S. A. Slutz, J. W. Poukey, "Simulations of Multistage Intense Ion Beam Acceleration," *Proceedings Ninth International Conference on High-Power Particle Beams*, ed. by D. Mosher and G. Cooperstein (National Technical Information Service, Springfield, VA, 1993), vol. 3, p. 1801.
- C. H. Smith, B. N. Turman, H. C. Harjes, "Insulations for Metallic Glasses in Pulsed Power Systems," 19th IEEE Power Modulator Symposium, San Diego, CA, June 26-28, 1990.
- C. H. Smith, B. N. Turman, H. C. Harjes, "Insulations for Metallic Glasses in Pulsed Power Systems," *Conference Record of the 19th IEEE Power Modulator Symposium*, ed. by L. Luessen (IEEE, New York, 1990), p. 174.
- D. L. Smith, M. G. Mazarakis, L. F. Bennett, T. R. Lockner, R. E. Olson, G. O. Allshouse, J. D. Boyes, "A Pulsed Power Design for the Linear Inductive Accelerator Modules for the Laboratory Microfusion Facility," Ninth IEEE Pulsed Power Conference, Albuquerque, NM, June 21-23, 1993.
- D. L. Smith, M. G. Mazarakis, L. F. Bennett, T. R. Lockner, R. E. Olson, G. O. Allshouse, J. D. Boyes, "A Pulsed Power Design for the Linear Inductive Accelerator Modules for the Laboratory Microfusion Facility," *Digest of Technical Papers, Ninth IEEE Pulsed Power Conference*, ed. by W. L. Baker and K. R. Prestwich (IEEE, New York, 1993), vol. 1, p. 419.

J. R. Smith, J. W. Poukey, M. E. Cuneo, D. L. Hanson, S. E. Rosenthal, M. A. Bernard, "Electron Flow in the SABRE Linear Induction Adder in Positive Polarity," 1993 Particle Accelerator Conference, Washington, D.C., May 17-20, 1993.

J. R. Smith, J. W. Poukey, M. E. Cuneo, D. L. Hanson, S. E. Rosenthal, M. A. Bernard, "Electron Flow in the SABRE Linear Induction Adder in Positive Polarity," *Proceedings 1993 Particle Accelerator Conference*, ed. by S. T. Corneliussen (IEEE, New York, 1993), vol. 1, p. 694.

P. A. Steen, D. H. McDaniel, "2 1/2-D, Particle-in-Cell Simulations for the Magnetically Injected Plasma Switch in PBFA II," Defense Nuclear Agency Advanced Pulsed Power Conference, Albuquerque, NM, July 31-August 3, 1990.

P. A. Steen, D. H. McDaniel, "2 1/2-D, Particle-in-Cell Simulations for the Magnetically Injected Plasma Switch in PBFA II," *Proceedings Advanced Pulsed Power Conference*, DNA Technical Report No. DASIAC TR-90-006 (Defense Nuclear Agency, Alexandria, VA, 1990), p. 5-88.

R. W. Stinnett, "Ion Diode and Accelerator Status at Sandia National Laboratories," Third International Conference on Intense Ion-Beam Interactions with Matter, Albuquerque, NM, November 7-8, 1990.

R. W. Stinnett, "Ion Diode and Accelerator Status at Sandia National Laboratories," *Proceedings Third International Conference on Intense Ion-Beam Interactions with Matter* (Sandia National Laboratories, Albuquerque, NM, March 1993), p. 63.

R. W. Stinnett, J. E. Bailey, K. W. Bieg, R. S. Coats, G. A. Chandler, M. S. Derzon, M. P. Desjarlais, P. L. Dreike, R. A. Gerber, D. J. Johnson, R. J. Leeper, T. R. Lockner, J. E. Maenchen, T. A. Mehlhorn, A. L. Pegenzer, J. P. Quintenz, T. J. Renk, S. E. Rosenthal, C. L. Ruiz, S. A. Slutz, W. A. Stygar, G. C. Tisone, J. R. Woodworth, Y. Maron, "Ion Beam Generation and Focusing on PBFA II," Eighth International Conference on High Power Particle Beams, Novosibirsk, USSR, July 2-5, 1990 (invited talk).

R. W. Stinnett, J. E. Bailey, K. W. Bieg, R. S. Coats, G. A. Chandler, M. S. Derzon, M. P. Desjarlais, P. L. Dreike, R. A. Gerber, D. J. Johnson, R. J. Leeper, T. R. Lockner, J. E. Maenchen, T. A. Mehlhorn, A. L. Pegenzer, J. P. Quintenz, T. J. Renk, S. E. Rosenthal, C. L. Ruiz, S. A. Slutz, W. A. Stygar, G. C. Tisone, J. R. Woodworth, Y. Maron, "Ion Beam Generation and Focusing on PBFA II," *Proceedings Eighth International Conference on High-Power Particle Beams*, ed. by B.N. Breizman and B. A. Knyazev (World Scientific, NJ, 1991), vol. 1, p. 167 (invited paper).

R. W. Stinnett, T. A. Green, D. J. Johnson, T. R. Lockner, T. A. Mehlhorn, J. E. Bailey, A. B. Filuk, L. P. Mix, J. Panitz, P. Schwoebel, "LiF Ion Source Performance on PBFA II," Ninth International Conference on High-Power Particle Beams, Washington, D.C., May 22-25, 1992.

- R. W. Stinnett, T. A. Green, D. J. Johnson, T. R. Lockner, T. A. Mehlhorn, J. E. Bailey, A. B. Filuk, L. P. Mix, J. Panitz, P. Schwoebel, "LiF Ion Source Performance on PBFA II," *Proceedings Ninth International Conference on High-Power Particle Beams*, ed. by D. Mosher and G. Cooperstein (National Technical Information Service, Springfield, VA, 1993), vol. 2, p. 788.
- R. W. Stinnett, T. R. Lockner, D. J. Johnson, J. E. Bailey, R. A. Gerber, T. A. Green, D. L. Hanson, R. P. Kensek, R. J. Leeper, T. J. Nash, C. L. Ruiz, J. Panitz, P. Schwoebel, "Li⁺ Production from Thin LiF Films on PBFA II," American Physical Society Division of Plasma Physics Meeting, Tampa, FL, November 4-8, 1991.
- R. W. Stinnett, T. R. Lockner, D. J. Johnson, R. S. Coats, T. A. Mehlhorn, M. P. Desjarlais, K. W. Bieg, A. L. Pregoner, J. R. Woodworth, R. J. Leeper, J. E. Maenchen, C. L. Ruiz, W. A. Stygar, J. E. Bailey, R. P. Kensek, J. P. Quintenz, S. E. Rosenthal, "Ion Diode Experiments on PBFA II," International Workshop on Physics and Techniques of High Power Opening Switches, Novosibirsk, USSR, July 1-2, 1989 (invited talk).
- R. W. Stinnett, T. R. Lockner, D. J. Johnson, R. S. Coats, T. A. Mehlhorn, M. P. Desjarlais, K. W. Bieg, A. L. Pregoner, J. R. Woodworth, R. J. Leeper, J. E. Maenchen, C. L. Ruiz, W. A. Stygar, J. E. Bailey, R. P. Kensek, J. P. Quintenz, S. E. Rosenthal, "Ion Diode Experiments on PBFA II," *Proceedings International Workshop on Physics and Techniques of High Power Opening Switches*, ed. by V. Bystritski (Tomsk Institute of High Current Electronics, Tomsk, USSR, 1989), p. 35 (invited paper).
- R. W. Stinnett, T. R. Lockner, D. J. Johnson, R. S. Coats, T. A. Mehlhorn, M. P. Desjarlais, K. W. Bieg, A. L. Pregoner, J. R. Woodworth, R. J. Leeper, J. E. Maenchen, C. L. Ruiz, W. A. Stygar, J. E. Bailey, R. P. Kensek, J. P. Quintenz, S. E. Rosenthal, S. A. Slutz, D. L. Hanson, P. F. McKay, "Progress in Ion Beam Research at Sandia National Laboratories," 16th IEEE International Conference on Plasma Science, Buffalo, NY, May 22-24, 1989 (invited talk).
- R. W. Stinnett, D. C. McIntyre, R. Buchleit, J. B. Greenly, M. O. Thompson, "IBEST: Ion Beam Surface Treatment for Enhanced Materials Properties," Sixth International Workshop on Atomic Physics for Ion-Driven Fusion, Santa Fe, NM, November 8-12, 1993.
- R. W. Stinnett, D. C. McIntyre, J. B. Greenly, "The Use of Pulsed, Intense Ion Beams for Thermal Surface Treatment," 20th IEEE International Conference on Plasma Science, Vancouver, B. C., June 7-9, 1993 (invited talk).
- R. W. Stinnett, D. C. McIntyre, J. B. Greenly, M. O. Thomson, *The Use of Pulsed, Intense Ion Beams for Material Surface Treatment*, Sandia National Laboratories Report No. SAND93-1638 (Albuquerque, NM, July 1993).
- R. W. Stinnett, E. L. Neau, J. Greenly, "Surface Treatment with Pulsed Ion Beams," American Physical Society Division of Plasma Physics Meeting, Seattle, WA, November 16-20, 1992.

C. Struckman, G. W. Kuswa, "Energetic Materials as Ion Sources for Pulsed Power Diodes," 18th IEEE International Conference on Plasma Science, Williamsburg, VA, June 3-5, 1991.

K. W. Struve, B. N. Turman, "Potential Ceramics Processing Applications with High-Energy Electron Beams," 20th IEEE International Conference on Plasma Science, Vancouver, B. C., June 7-9, 1993.

W. A. Stygar, H. C. Ives, R. P. Kensek, E. R. Brock, D. L. Fehl, D. G. Ghiglia, J. A. Halbleib, V. Harper-Slaboszewicz, M. A. Hedemann, G. A. Mastin, M. A. Palmer, B. Peyton, R. Reyes, K. Allen, J. Cuny, C. R. McClenahan, P. Teytor, "Saturn X-Ray Framing Camera," Defense Nuclear Agency Instrumentation for Nuclear Weapons Effects Testing Conference, Monterey, CA, June 5-8, 1989.

W. A. Stygar, H. C. Ives, R. P. Kensek, E. R. Brock, D. L. Fehl, D. G. Ghiglia, J. A. Halbleib, V. Harper-Slaboszewicz, M. A. Hedemann, G. A. Mastin, M. A. Palmer, B. Peyton, R. Reyes, K. Allen, J. Cuny, C. R. McClenahan, P. Teytor, "Saturn X-Ray Framing Camera," *Proceedings Defense Nuclear Agency Instrumentation for Nuclear Weapons Effects Testing Conference*, (DNA, Alexandria, 1990), p. 3.

W. A. Stygar, L. P. Mix, R. J. Leeper, "Optimized Rutherford-Scattering Geometries for Intense Ion Beam Diagnostics," *Review Scientific Instruments* 62, 1527 (1991).

W. A. Stygar, L. P. Mix, R. J. Leeper, J. E. Maenchen, D. F. Wenger, C. R. Mattson, D. J. Johnson, Y. Maron, "Ion Movie Camera for Particle Beam Fusion Experiments," Ninth Topical Conference on High-Temperature Plasma Diagnostics, Santa Fe, NM, March 15-19, 1992.

W. A. Stygar, L. P. Mix, R. J. Leeper, J. E. Maenchen, D. F. Wenger, C. R. Mattson, D. J. Johnson, Y. Maron, "Ion Movie Camera for Particle Beam Fusion Experiments," *Review Scientific Instruments* 63, 4860 (1992).

W. A. Stygar, L. P. Mix, R. J. Leeper, T. A. Mehlhorn, J. E. Maenchen, E. R. Brock, D. E. Hebron, D. J. Johnson, T. R. Lockner, W. E. Nelson, F. V. Reyes, "Energy-Resolved Imaging of the PBFA-II Ion Beam," 16th IEEE International Conference on Plasma Science, Buffalo, NY, May 22-24, 1989.

M. A. Sweeney, "Future Theoretical Plans," Sixth Plasma Opening Switch Workshop, Albuquerque, NM, August 24-25, 1989.

M. A. Sweeney, "Summary of Sixth POS Workshop," Sixth Plasma Opening Switch Workshop, Albuquerque, NM, August 24-25, 1989.

M. A. Sweeney, "Future Theoretical Plans," Seventh Plasma Opening Switch Workshop, Albuquerque, NM, April 24-25, 1990.

M. A. Sweeney, "Summary of Seventh POS Workshop," Seventh Plasma Opening Switch Workshop, Albuquerque, NM, April 24-25, 1990.

M. A. Sweeney, "The Phi Target Can Produce Detectable Neutrons at Low Beam Power," Magnetic Target Fusion Workshop, Phillips Laboratory, Albuquerque, NM, September 27, 1991 (invited talk).

M. A. Sweeney, "Comparative Assessment Study of Aboveground Intense Soft X-Ray Technology," report to Roger Hagengruber, dated October 14, 1993.

M. A. Sweeney, M. H. Frese, J. J. Watrous, "Dynamics of the Magnetically-Injected-Plasma Source on the Particle Beam Fusion Accelerator PBFA II," 20th IEEE International Conference on Plasma Science, Vancouver, B.C., June 7-9, 1993.

M. A. Sweeney, D. H. McDaniel, C. W. Mendel, G. E. Rochau, W. B. S. Moore, G. R. Mowrer, W. W. Simpson, D. M. Zagar, T. Grasser, C. D. McDougal, "Plasma Opening Switch Experiments on PBFA II," 16th IEEE International Conference on Plasma Science, Buffalo, NY, May 22-24, 1989 (invited talk).

M. A. Sweeney, D. H. McDaniel, C. W. Mendel, G. E. Rochau, W. B. S. Moore, G. R. Mowrer, W. W. Simpson, D. M. Zagar, "Plasma Opening Switch Research at Sandia National Laboratories," Annual Meeting, New Mexico Academy of Science, September 22-23, 1989 (invited talk).

M. A. Sweeney, D. H. McDaniel, C. W. Mendel, G. E. Rochau, W. B. S. Moore, G. R. Mowrer, W. W. Simpson, D. M. Zagar, "Plasma Opening Switch Research at Sandia National Laboratories," *New Mexico Journal of Science* 29, p. 126 (New Mexico Academy of Science, NM, 1989).

M. A. Sweeney, W. E. Nelson, "Simulation of Vapor Formation for the LEVIS Lithium Ion Source," American Physical Society Division of Plasma Physics Meeting, Seattle, WA, November 16-20, 1992.

M. A. Sweeney, W. E. Nelson, "Simulation of Vapor Formation for the LEVIS Lithium Ion Source," Workshop on Dynamic Response of Materials to Pulsed Heating," Los Alamos National Laboratories, NM, January 22-26, 1993.

M. A. Sweeney, W. E. Nelson, "Simulation of Vapor Formation for the LEVIS Lithium Ion Source," 20th IEEE International Conference on Plasma Science, Vancouver, B.C., June 7-9, 1993.

M. A. Sweeney, E. L. Patterson, G. E. Samlin, "Study of Energy Deposition in an Electron-Beam-Pumped Laser Facility," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.

M. A. Sweeney, E. L. Patterson, G. E. Samlin, "Measured and Calculated Calorimeter Deposition in a Long Pulse Electron-Beam-Pumped Laser Facility," 17th IEEE International Conference on Plasma Science, Oakland, CA, May 21-23, 1990.

M. A. Sweeney, E. L. Patterson, G. E. Samlin, "Study of Energy Deposition in the Electron-Beam-Pumped Laser Facility HAWK," *Journal of Applied Physics* 68, 2577 (1990).

M. A. Sweeney, G. E. Rochau, M. H. Frese, "Numerical Study of Plasma Injection in the Magnetically-Injected-Plasma Opening Switch," American Physical Society Division of Plasma Physics Meeting, Cincinnati, OH, November 12-16, 1990.

M. A. Sweeney, G. E. Rochau, M. H. Frese, B. V. Weber, P. Steen, "Study of Plasma Distribution from a Magnetically-Injected Plasma Source," American Physical Society Division of Plasma Physics Meeting, Tampa, FL, November 4-8, 1991.

M. A. Sweeney, G. E. Rochau, G. R. Mowrer, M. H. Frese, B. V. Weber, "Study of Plasma Injection in the PBFA-II Opening Switch and Analysis of Microwave Measurements," 18th IEEE International Conference on Plasma Science, Williamsburg, VA, June 3-5, 1991.

T

G. C. Tisone, R. G. Adams, B. F. Clark, K. P. Lamppa, J. Schroeder, "Laser-Produced Ionized and Neutral Vapor Layers for Ion Sources for Applied-B Ion Diodes on the PBFA-II Accelerator," International Conference on Lasers 1992, Houston, TX, December 7-10, 1992.

G. C. Tisone, R. G. Adams, B. F. Clark, K. P. Lamppa, J. Schroeder, "Laser-Produced Ionized and Neutral Vapor Layers for Ion Sources for Applied-B Ion Diodes on the PBFA-II Accelerator," *Proceedings International Conference on Lasers 92*, ed. by C. P. Wang (STS Press, McLean, VA, 1993), p. 662.

G. C. Tisone, K. W. Bieg, P. L. Dreike, "Generation of Lithium Ions for Ion Sources Using the 670.8-nm Resonant Transition of Lithium," International Conference on Ion Sources, Berkeley, CA, July 10-14, 1989.

G. C. Tisone, K. W. Bieg, P. L. Dreike, "Generation of Lithium Ions for Ion Sources Using the 670.8-nm Resonant Transition of Lithium," *Review Scientific Instruments* **61**, 562 (1990).

G. C. Tisone, B. F. Clark, K. P. Lamppa, T. J. Renk, J. Schroeder, "LEVIS, A Two Laser Lithium Ion Source for Applied-B Ion Diodes on the PBFA II Accelerator," American Physical Society Division of Plasma Physics Meeting, Seattle, WA, November 16-20, 1992.

G. C. Tisone, M. E. Cuneo, T. R. Lockner, "Laser Formation of Lithium Plasma Ion Source for High Current Ion Diodes," ILS-08 Interdisciplinary Laser Science Conference, Monterey, CA, September 22-26, 1991.

G. C. Tisone, M. J. Hurst, B. F. Clark, "A 100-Joule, Tuned Laser for Ionization of Lithium in a PBFA-II Ion Source," 1989 Conference on Lasers and Electro-Optics, Baltimore, MD, April 24-28, 1989.

- G. C. Tisone, T. J. Renk, D. J. Johnson, R. A. Gerber, R. G. Adams, "Laser Formation of Lithium Plasma Ion Sources for Applied-B Ion Diodes on the PBFA-II Accelerator," Ninth International Conference on High Power Particle Beams, Washington, D.C., May 23-25, 1992.
- G. C. Tisone, T. J. Renk, D. J. Johnson, R. A. Gerber, R. G. Adams, "Laser Formation of Lithium Plasma Ion Sources for Applied-B Ion Diodes on the PBFA-II Accelerator," *Proceedings Ninth International Conference on High-Power Particle Beams*, ed. by D. Mosher and G. Cooperstein (National Technical Information Service, Springfield, VA, 1993), vol. 2, p. 800.
- T. G. Trucano, D. E. Grady, R. E. Olson, A. V. Farnsworth, "Computational Analysis of Debris Formation in SXPL Laser-Plasma Sources," Optical Society of America Conference on Soft X-Ray Projection Lithography, Monterey, CA, May 10-12, 1993.
- T. G. Trucano, D. E. Grady, R. E. Olson, A. V. Farnsworth, "Computational Analysis of Debris Formation in SXPL Laser-Plasma Sources," *Technical Digest, Conference Edition, Soft X-Ray Projection Lithography* (Optical Society of America, Washington, D.C., 1993), p. 109.
- T. G. Trucano, D. Grady, R. E. Olson, A. V. Farnsworth, "Computational Analysis of Debris Formation in SXPL Laser-Plasma Sources," *OSA Proceedings on Soft X-Ray Projection Lithography*, ed. by A. M. Hawryluk and R. H. Stulen (Optical Society of America, Washington, D.C., 1993), vol. 18, p. 146.
- B. N. Turman, D. R. Humphreys, C. N. Richards, "Interstage Closure Times for the Rimfire Multistage Gas Switch," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.
- B. N. Turman, D. R. Humphreys, C. N. Richards, "Interstage Closure Times for the Rimfire Multistage Gas Switch," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 555.
- B. N. Turman, A. E. Rodriguez, K. J. Touryan, "Experimental and Analytical Study of Laser Triggering in the Rimfire Switch," Eighth IEEE Pulsed Power Conference, San Diego, CA, June 17-19, 1991.
- B. N. Turman, A. E. Rodriguez, K. J. Touryan, "Experimental and Analytical Study of Laser Triggering in the Rimfire Switch," *Digest of Technical Papers, Eighth IEEE Pulsed Power Conference*, ed. by K. R. Prestwich and R. White (IEEE, New York, 1991), p. 319.
- M. Tuszewski, W. Wagenaar, D. Rej, M. P. Desjarlais, "Plasma Density Measurements in a Magnetically Insulated Ion Diode," 20th IEEE International Conference on Plasma Science, Vancouver, BC, June 7-9, 1993.

V

- J. P. VanDevender, "Light Ion Driven ICF," American Association for Advancement of Science Annual Meeting, San Francisco, CA, January 14-19, 1989 (invited talk).

J. P. VanDevender, "Status of Light Ion Approach to Inertial Confinement Fusion," Fusion Power Associates Annual Meeting, Washington, D. C., June 1-2, 1989 (invited talk).

J. P. VanDevender, "Pulsed Power Switching for Inertial Confinement Fusion with Light Ion Beams," International Workshop on Physics and Techniques of High Power Opening Switches, Novosibirsk, USSR, July 1-2, 1989 (invited talk).

J. P. VanDevender, "Pulsed Power Switching for Inertial Confinement Fusion with Light Ion Beams," *Proceedings International Workshop on Physics and Techniques of High Power Opening Switches*, ed. by V. Bystritski (Tomsk Institute of High Current Electronics, Tomsk, USSR, 1989), p. 77 (invited paper).

J. P. VanDevender, "Physics and Applications of Pulsed Power Research and Accelerator Technology," 17th IEEE international Conference on Plasma Science, Oakland, CA, May 21-23, 1990 (invited talk).

J. P. VanDevender, "Research Requirements for Pulsed Power Applications," XIVth International Symposium on Discharges and Electrical Insulation in Vacuum, Santa Fe, NM, September 17-20, 1990 (invited talk).

J. P. VanDevender, "Research Requirements for Pulsed Power Applications," *Proceedings XIVth International Symposium on Discharges and Electrical Insulation in Vacuum*, Sandia National Laboratories Report No. SAND90-1927C (Albuquerque, NM, September 1990), p. 644 (invited paper).

J. P. VanDevender, "Plasma Physics Issues for Inertial Fusion with Light Ion Beams," 44th Annual Gaseous Electronics Conference, Albuquerque, NM, October 22-25, 1991 (invited talk).

J. P. VanDevender, editor, "Prolog to the Special Section on Pulsed Power Technology," *Proceedings IEEE* 80, 931 (1992).

J. P. VanDevender, R. G. Adams, G. O. Allshouse, J. E. Bailey, K. W. Bieg, D. D. Bloomquist, R. S. Coats, D. L. Cook, G. E. Chandler, M. E. Cuneo, M. S. Derzon, M. P. Desjarlais, P. L. Dreike, R. A. Gerber, D. L. Hanson, W. A. Johnson, G. W. Kuswa, J. R. Lee, R. J. Leeper, T. R. Lockner, J. E. Maenchen, M. K. Matzen, D. H. McDaniel, P. F. McKay, T. A. Mehlhorn, C. W. Mendel, L. P. Mix, C. L. Olson, R. E. Olson, T. D. Pointon, A. L. Pregoner, K. R. Prestwich, J. P. Quintenz, J. J. Ramirez, T. J. Renk, J. K. Rice, G. E. Rochau, S. E. Rosenthal, C. L. Ruiz, D. B. Seidel, S. A. Slutz, R. W. Stinnett, W. A. Stygar, M. A. Sweeney, G. C. Tisone, J. R. Woodworth, "Inertial Confinement Fusion with Light Ion Beams," 13th International Conference on Plasma Physics and Controlled Nuclear Fusion Research, Washington, D.C., October 1-6, 1990 (invited talk).

J. P. VanDevender, R. G. Adams, G. O. Allshouse, J. E. Bailey, K. W. Bieg, D. D. Bloomquist, G. A. Chandler, R. S. Coats, D. L. Cook, M. E. Cuneo, M. S. Derzon, M. P. Desjarlais, P. L. Dreike, R. A. Gerber, D. L. Hanson, D. R. Humphreys, T. W. Hussey, D. J. Johnson, D. L. Johnson, W. A. Johnson, G. W. Kuswa, J. R. Lee, R. J. Leeper, T. R. Lockner, J. E. Maenchen, M. K. Matzen, D. H. McDaniel, P. F. McKay, T. A. Mehlhorn, C. W. Mendel, L. P. Mix, C. L. Olson, R. E. Olson, T. D. Pointon, A. L. Pregonzer, K. R. Prestwich, J. P. Quintenz, J. J. Ramirez, T. J. Renk, J. K. Rice, G. E. Rochau, S. E. Rosenthal, C. L. Ruiz, D. B. Seidel, S. A. Slutz, R. W. Stinnett, W. A. Stygar, M. A. Sweeney, G. C. Tisone, J. R. Woodworth, "Inertial Confinement Fusion with Light Ion Beams," *13th Conference Proceedings, Plasma Physics and Controlled Nuclear Fusion Research 1990* (IAEA, Vienna, 1991), vol. 3, p. 3 (invited paper).

J. P. VanDevender, J. E. Bailey, K. W. Bieg, D. L. Cook, M. P. Desjarlais, R. A. Gerber, S. A. Goldstein, R. A. Hamil, G. T. Holman, D. J. Johnson, D. L. Johnson, P. R. Johnson, W. A. Johnson, R. J. Leeper, T. R. Lockner, T. H. Martin, P. F. McKay, J. E. Maenchen, D. H. McDaniel, T. A. Mehlhorn, C. W. Mendel, Jr., W. B. S. Moore, E. L. Neau, S. S. Payne, K. J. Penn, J. W. Poukey, A. L. Pregonzer, K. R. Prestwich, J. P. Quintenz, J. J. Ramirez, T. J. Renk, C. L. Ruiz, G. E. Rochau, S. E. Rosenthal, W. W. Simpson, S. A. Slutz, R. W. Stinnett, W. A. Stygar, M. A. Sweeney, J. T. Crow, B. N. Turman, J. M. Wilson, J. R. Woodworth, D. M. Zagar, "Progress Towards Inertial Fusion with Light Ion Beams at Sandia National Laboratories," *12th Conference Proceedings, Plasma Physics and Controlled Nuclear Fusion Research 1988* (IAEA, Vienna, 1989), vol. 3, p. 99 (invited paper).

J. P. VanDevender, H. J. Bluhm, "Light Ion Accelerators for ICF," in *Nuclear Fusion by Inertial Confinement: A Comprehensive Treatise*, ed. by G. Verlarde, Y. Ronen, J. M. Martinez (CRC Press, Ann Arbor, MI, 1993), p. 455.

S. K. Vosburg, C. L. Ruiz, G. W. Cooper, F. A. Schmidlapp, *An Experimental Investigation of Radioactivity Induced by Ions Associated with the Operation of Pulsed-Power Accelerators*, Sandia National Laboratories Report No. SAND92-2075 (Albuquerque, NM, March 1993).

S. K. Vosburg, C. L. Ruiz, F. Ghanbari, G. W. Cooper, F. A. Schmidlapp, "An Experimental Investigation of Radioactivity Induced by Ions Associated with the Operation of Pulsed Power Accelerators," 20th IEEE International Conference on Plasma Science, Vancouver, B. C., June 7-9, 1993.

W

P. Wang, J. J. McFarlane, G. A. Moses, J. E. Bailey, "Theoretical Spectroscopic Analysis of Intense Ion Beam-Plasma Interaction in the PBFA-II Gas Cell," Ninth International Conference on High Power Particle Beams, Washington, D.C., May 25-29, 1992.

- P. Wang, J. J. McFarlane, G. A. Moses, J. E. Bailey, "Theoretical Spectroscopic Analysis of Intense Ion Beam-Plasma Interaction in the PBFA-II Gas Cell," *Proceedings Ninth International Conference on High-Power Particle Beams*, ed. by D. Mosher and G. Cooperstein (National Technical Information Service, Springfield, VA, 1993), vol. 2, p. 1397.
- J. J. Watrous, D. Mosher, J. M. Neri, P. F. Ottinger, C. L. Olson, J. T. Crow, R. R. Peterson, "Wire-Guided Transport of Intense Ion Beams," *Journal of Applied Physics* **69**, 639 (1991).
- B. V. Weber, D. H. McDaniel, G. E. Rochau, "Plasma Density Measurements in PBFA-II Opening Switch Configurations," 17th IEEE International Conference on Plasma Science, Oakland, CA, May 21-23, 1990.
- J. M. Wilson, G. L. Donovan, "Improvement in Synchronization of the PBFA-II Accelerator with Laser-Triggered Gas Switches," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.
- J. M. Wilson, G. L. Donovan, "Improvement in Synchronization of the PBFA-II Accelerator with Laser-Triggered Gas Switches," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 197.
- H. N. Woodall, D. H. McDaniel, C. W. Mendel, G. E. Rochau, D. M. Zagar, W. W. Simpson, N. P. Zuchowski, "MITE-Plasma Opening Switches (POS) Experiments," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989.
- H. N. Woodall, D. H. McDaniel, C. W. Mendel, G. E. Rochau, D. M. Zagar, W. W. Simpson, N. P. Zuchowski, "Long Conduction Time Plasma Opening Switch Experiments on MITE," 17th IEEE International Conference on Plasma Science, Oakland, CA, May 21-23, 1990.
- H. N. Woodall, N. P. Zuchowski, B. Monroe, M. Usher, "POS Experiments on MITE," Sixth Plasma Opening Switch Workshop, Albuquerque, NM, August 24-25, 1989.
- J. R. Woodworth, B. Hoselton, G. Mowrer, C. D. McDougal, W. H. Jaramillo, "Laboratory Spectroscopy of Plasma from MIP Plasma Boards," Sixth Plasma Opening Switch Workshop, Albuquerque, NM, August 24-25, 1989.
- J. R. Woodworth, A. L. Pregonzer, R. G. Adams, T. R. Lockner, R. A. Gerber, D. J. Johnson, W. H. Jaramillo, M. M. Dillon, R. S. Coats, M. Halliburton, P. Primm, G. A. Torres, G. Ziska, T. Atwood, "Liquid-Anode Lithium Ion Source Experiments on PBFA II," 17th IEEE International Conference on Plasma Science, Oakland, CA, May 21-23, 1990.
- J. R. Woodworth, A. L. Pregonzer, K. W. Bieg, T. R. Lockner, R. A. Gerber, D. J. Johnson, R. J. Leeper, J. E. Maenchen, T. A. Mehlhorn, C. L. Ruiz, W. A. Stygar, R. P. Kensek, W. H. Jaramillo, P. R. Johnson, K. J. Penn, M. Halliburton, "Lithium Ion Beam Experiments on PBFA II," 16th IEEE International Conference on Plasma Science, Buffalo, NY, May 22-24, 1989.

J. R. Woodworth, A. L. Pregoner, K. W. Bieg, T. R. Lockner, D. J. Johnson, R. A. Gerber, T. J. Renk, W. H. Jaramillo, "Liquid-Anode Ion Source Experiments on PBFA II," American Physical Society Division of Plasma Physics Meeting, Anaheim, CA, November 13-17, 1989.

Y

F. C. Young, D. D. Hinshelwood, R. F. Hubbard, M. Lampe, J. M. Neri, C. L. Olson, P. F. Ottinger, D. V. Rose, S. P. Slinker, S. J. Stephanakis, D. R. Welch, "Current Neutralization of Intense MeV Proton Beam Transport in Laboratory Plasmas," *Physical Review Letters* **70**, 2573 (1993).

F. C. Young, J. M. Neri, S. J. Stephanakis, J. E. Maenchen, "Ion Species Measurements for Pinch-Reflex Ion Diodes," American Physical Society Division of Plasma Physics Meeting, Seattle, WA, November 16-20, 1992.

Z

F. J. Zuvatern, G. M. Loubriel, B. B. McKenzie, M. W. O'Malley, R. A. Hamil, L. P. Schanwald, H. P. Hjarlmarson, "Photoconductive Semiconductor Switch Recovery," Seventh IEEE Pulsed Power Conference, Monterey, CA, June 11-14, 1989 (invited talk),

F. J. Zuvatern, G. M. Loubriel, B. B. McKenzie, M. W. O'Malley, R. A. Hamil, L. P. Schanwald, H. P. Hjarlmarson, "Photoconductive Semiconductor Switch Recovery," *Digest of Technical Papers, Seventh IEEE Pulsed Power Conference*, ed. by R. White and B. H. Bernstein (IEEE, New York, 1989), p. 412 (invited paper).

F. J. Zuvatern, G. M. Loubriel, D. L. McLaughlin, W. D. Helgeson, M. W. O'Malley, "Electrical and Optical Properties of High Gain GaAs Switches," SPIE Optically Activated Switching II Conference, Los Angeles, CA, January 20-21, 1992.

F. J. Zuvatern, G. M. Loubriel, D. L. McLaughlin, W. D. Helgeson, M. W. O'Malley, "Electrical and Optical Properties of High Gain GaAs Switches," *Optically Activated Switching II*, SPIE Series vol. 1632, ed. by G. M. Loubriel (Society of Photo-Optical Instrumentation Engineers, Bellingham, WA, 1992), p. 152.

F. J. Zuvatern, G. M. Loubriel, M. W. O'Malley, W. D. Helgeson, D. L. McLaughlin, "High Gain Photoconductive Semiconductor Switching," Eighth IEEE Pulsed Power Conference, San Diego, CA, June 11-14, 1991 (invited talk).

F. J. Zuvatern, G. M. Loubriel, M. W. O'Malley, W. D. Helgeson, D. L. McLaughlin, "High Gain Photoconductive Semiconductor Switching," *Digest of Technical Papers, Eighth IEEE Pulsed Power Conference*, ed. by K. R. Prestwich and R. White (IEEE, New York, 1991), p. 23 (invited paper).

F. J. Zuvatern, G. M. Loubriel, M. W. O'Malley, W. D. Helgeson, D. L. McLaughlin, G. J. Denison, "Characteristics of Current Filamentation in High Gain Photoconductive Semiconductor Switching," 20th IEEE Power Modulator Symposium, Myrtle Beach, S.C., June 23-25, 1992.

F. J. Zuvatern, G. M. Loubriel, M. W. O'Malley, W. D. Helgeson, D. L. McLaughlin, G. J. Denison, "Characteristics of Current Filamentation in High Gain Photoconductive Semiconductor Switching," *Proceedings 20th IEEE Power Modulator Symposium*, ed. by B. Gray (IEEE, New York, 1992), p. 305.

F. J. Zuvatern, G. M. Loubriel, M. W. O'Malley, D. L. McLaughlin, W. D. Helgeson, "Rise Time and Recovery of GaAs Photoconductive Semiconductor Switches," SPIE Optically Activated Switching Conference, Boston, MA, November 5-6, 1990.

F. J. Zuvatern, G. M. Loubriel, M. W. O'Malley, D. L. McLaughlin, W. D. Helgeson, "Rise Time and Recovery of GaAs Photoconductive Semiconductor Switches," *Optically Activated Switching*, SPIE Series vol. 1378, ed. by F. J. Zuvatern (Society of Photo-Optical Instrumentation Engineers, Bellingham, WA, 1991), p. 271.

F. J. Zuvatern, G. M. Loubriel, M. W. O'Malley, L. P. Schanwald, W. D. Helgeson, D. L. McLaughlin, B. B. McKenzie, "Photoconductive Semiconductor Switch Experiments for Pulsed Power Applications," *IEEE Trans. Elect. Devices* 37, 2472 (1990).

F. J. Zuvatern, G. M. Loubriel, M. W. O'Malley, L. P. Schanwald, D. L. McLaughlin, "Recovery of High Field GaAs Photoconductive Semiconductor Switches," 19th IEEE Power Modulator Symposium, San Diego, CA, June 26-28, 1990.

F. J. Zuvatern, G. M. Loubriel, M. W. O'Malley, L. P. Schanwald, D. L. McLaughlin, "Recovery of High Field GaAs Photoconductive Semiconductor Switches," *Conference Record of the 19th IEEE Power Modulator Symposium*, ed. by L. Luessen (IEEE, New York, 1990), p. 385.

Distribution

- | | |
|--|--|
| <p>1 Armstrong Laboratory, AL CC
 Attn: B. Godfrey
 2509 Kennedy Circle
 Brooks Air Force Base
 Texas 78235-5118</p> | <p>1 Duke University
 School of Engineering
 Attn: R. A. Gross
 305 Teer Building
 P. O. Box 90271
 Durham, NC 27708-0271</p> |
| <p>2 AT&T Bell Laboratories, Inc.
 Attn: W. F. Brinkman
 P. A. Fleury
 600 Mountain Avenue
 Murray Hill, NJ 07974</p> | <p>1 Cornell University
 228 Newman Lab
 Attn: M. Tigner
 Ithaca, NY 14853</p> |
| <p>1 Auburn University
 Attn: M. F. Rose
 Auburn, AL 36849</p> | <p>4 Cornell University
 Laboratory of Plasma Studies
 Attn: R. N. Sudan
 D. A. Hammer
 B. R. Kusse
 J. B. Greenly
 369 Upson Hall
 Ithaca, NY 14853</p> |
| <p>1 Bechtel Corporation
 Attn: H. K. Forsen
 P. O. Box 3965
 San Francisco, CA 94119</p> | |
| <p>1 Brookhaven National Laboratory
 Attn: J. R. Powell, Jr.
 T-318
 Upton, NY 11973</p> | <p>5 Defense Nuclear Agency
 Attn: M. Atkins
 J. E. Leiss
 G. K. Soper
 M. Gillespie
 Major J. D. Benson
 Washington, DC 20305</p> |
| <p>2 California Institute of Technology
 Department of Physics
 Attn: S. E. Koonin
 R. F. Christy
 MS 106-38
 Pasadena, CA 91125</p> | <p>9 Defense Nuclear Agency/RAST
 Attn: J. M. Pierre, DFRA
 R. Gullickson, RAEM
 P. Hebert, RAST
 LCDR T. Hoover, TDTR
 T. Kennedy, TDTR
 D. Linger, DFTD
 Maj J. Rowley, TDSP
 R. Schneider, RAST
 K. Ware, RAST
 6801 Telegraph Avenue
 Alexandria, VA 22310</p> |
| <p>1 Columbia University
 Department of Applied Physics
 Attn: G. A. Navratil, Chairman
 202 SW Mudd Bldg.
 500 W 120th Street
 New York, NY 10027</p> | |

1	Fusion Power Associates Attn: S. O. Dean 2 Professional Drive, Suite 248 Gaithersburg, MD 20879	2	MIT Plasma Fusion Center Attn: G. Bekefi R. R. Parker 167 Albany Street Cambridge, MA 02139
1	Harry Diamond Laboratories US Army Research Laboratory Attn: M. G. Mattie 2800 Powder Mill Road Adelphi, MD 20783-1145	1	MIT Electrical Engineering Department Attn: J. P. Ruina Cambridge, MA 02139
1	Harvard University Department of Biochemistry & Molecular Biology Attn: P. M. Doty Cambridge, MA 02138	3	Maxwell Laboratories / Balboa Attn: A. C. Kolb W. Rix L. Braverman 8888 Balboa Avenue San Diego, CA 92123
1	Harvard University Division of Applied Sciences Attn: G. F. Carrier 311 Pierce Hall Cambridge, MA 02138	1	Maxwell Laboratories/S-Cubed Attn: E. Waismann P. O. Box 1620 La Jolla, CA 92038
2	Kaman Sciences Corp. Attn: R. L. Wagner J. S. T. Chang 1500 Garden of the Gods Road P. O. Box 7463 Colorado Springs, CO 80933	1	Mission Research Corporation Attn: C. L. Longmire 735 State Street Santa Barbara, CA 93102
1	Krall Associates Attn: N. A. Krall 1070 America Way Del Mar, CA 92014	1	Mission Research Corporation Attn: D. R. Welch 1720 Randolph Road SE Albuquerque, NM 87106
1	Lodestar Research Corp. Attn: R. E. Aamodt 2400 Central Avenue, P-5 Boulder, CO 80301	2	National Science Foundation Division of Physics Attn: R. Eisenstein W. Harris Washington, DC 20550
1	Logicon R&D Associates Attn: I. M. Vitkovitsky 2100 Washington Blvd. Arlington, VA 22204	1	National Research Council Attn: L. M. Hunt Staff Director 2101 Constitution Avenue Washington, DC 20418

- 8 Naval Research Laboratory
Attn: S. E. Bodner, Code 6700
T. P. Coffey, Code 1000
G. Cooperstein, Code 6700
R. E. Meger, Code 4750
D. Mosher, Code 4770
P. F. Ottinger, Code 6700
S. Stephanakis, Code 6700
F. C. Young, Code 6770
4555 Overlook Avenue SW
Washington, DC 20375-5000
- 1 North Carolina State University
Attn: D. J. Dudziak
Department of Nuclear Engineering
P. O. Box 7909
Raleigh, NC 27695
- 2 Oak Ridge National Laboratory
Attn: D. W. Swain
A. W. Trivelpiece
P. O. Box 2008
Oak Ridge, TN 37831
- 1 Ohio State University
Attn: P. J. Turchi
328 Boltz Hall
Aero-Astro Engineering Department
2036 Neil Avenue Mall
Columbus, OH 43210
- 3 Phillips Laboratory
Attn: W. L. Baker, PL/WSE
T. W. Hussey, PL/WSP
Technical Library, SUL
1550 Aberdeen Drive SE
Kirtland Air Force Base
Albuquerque, NM 87117-5776
- 2 Physics International Co.
Attn: M. Kolpin
C. H. Stallings
2700 Merced Street
San Leandro, CA 94577
- 1 Princeton Plasma Physics Laboratory
Attn: R. C. Davidson
Office of Director
P. O. Box 451
Princeton, NJ 08544
- 2 Pulse Sciences, Inc.
Attn: I. D. Smith
P. W. Spence
600 McCormick Street
San Leandro, CA 94557-6718
- 1 Sidney G. Reed
11104 Waycroft Way
Rockville, MD 20852
- 1 W. J. Schafer & Associates, Inc.
Attn: D. C. Straw
1600 Randolph Court SE, #207
Albuquerque, NM 87106
- 2 Science Applications Intl. Corporation
Applied Physics Operations
Attn: A. T. Drobot, VP
W. O. Allen
1710 Goodridge Drive
Mail Stop 2-3-1
McLean, VA 22102
- 1 F. R. Scott, EPRI
4805 Terra Granada Drive #2-B
Walnut Creek, CA 94595
- 1 Stanford Linear Accelerator Center
Stanford University
Attn: W. B. Hermannsfeldt
P. O. Box 4349
Stanford, CA 94309
- 1 State University of New York Buffalo
Attn: W. J. Sarjeant
Electrical and Computer Eng. Dept.
Bonner Hall, Room 312
Buffalo, NY 14260

- 2 Strategic Defense Initiatives Org.
Office of the Secretary of Defense
Attn: D. Judd, CS
J. Hammond, T/DE
Washington, DC 20301-7100
- 1 Texas Tech University
Department of Electrical Engineering
Attn: M. Kristiansen
Mail Stop 3102
Lubbock, Texas 79409
- 1 Titan Technologies
Attn: R. B. Miller
2309 Renard SE, Suite 2000
Albuquerque, NM 87106
- 3 TRW, Inc.
Advanced Technology Laboratory
Attn: W. Simmons
J. Maniscalco
J. D. Gordon
One Space Park
Redondo Beach, CA 90278
- 3 US Department of Energy
Albuquerque Operations Office
Attn: K. A. Carlson, Area Manager
J. H. Chafin, OCC
D. L. Krenz, OESH
P. O. Box 5400
Albuquerque, NM 87115
- 1 US Department of Energy
Defense Programs
Attn: V. H. Reis
DP-1, 4A-019/FORS
Washington, DC 20585
- 1 US Department of Energy
Office of Research & Development
Attn: E. H. Beckner
DP-10, 4A-014/FORS
Washington, DC 20545
- 12 US Department of Energy
Office of Research and Technology
Attn: M. M. Sluyter
G. M. Chenevert
G. J. D'Alessio
R. Robenselfner
C. Henning
C. B. Hilland
D. L. Johnson
R. A. Jones
T. A. Hail
A. L. Peratt
J. Lawson
T. Saito
DP-11, Mail Stop C-417/GTN
Washington, DC 20545
- 1 US Department of Energy
Office of Fusion Energy
Attn: D. H. Crandall
DP-16, Mail Stop G-242/GTN
Washington, DC 20545
- 1 US Department of Energy
Office of Military Applications
and Stockpile Support
Attn: RADM C. J. Beers, Jr.
DP-20, Mail Stop A-367/GTN
Washington, DC 20545
- 1 US Department of Energy
Office of Planning and
Resource Management
Attn: D. B. Leclaire
DP-40, Mail Stop A-483/GTN
Washington, DC 20545
- 1 US Department of Energy
Office of Security Affairs
Attn: Director of Classification
DP-321, Mail Stop C-371/GTN
Washington, DC 20545

- 1 US Department of Energy
Office of Facilities
Attn: R. L. Dintaman
DP-652, C-430/GTN
Washington, DC 20585
- 1 US Department of Energy
Office of Energy Research
Attn: M. A. Krebs
ER-1, Mail Stop 7B-058/FORS
Washington, DC 20585
- 1 US Department of Energy
Office of Basic Energy Sciences
Attn: (Vacant)
ER-10, Mail Stop J-304/GTW
Washington, DC 20585
- 1 US Department of Energy
Advanced Energy Projects Division
Attn: W. M. Polansky
ER-16, Mail Stop G-347/GTN
Washington, DC 20545
- 1 US Department of Energy
Office High Energy & Nuclear Physics
Attn: W. N. Hess
ER-20, Mail Stop G-304/GTN
Washington, DC 20545
- 1 US Department of Energy
Office of Fusion Energy
Attn: N. A. Davies
ER-50, Mail Stop J-204/GTN
Washington, DC 20545
- 1 US Department of Energy
ITER and Technologies Division
Attn: T. R. James (Acting)
ER-53, Mail Stop J-208/GTN
Washington, DC 20545
- 3 US Department of Energy
Office of Fusion Energy
Attn: D. H. Crandall, DP-16
W. F. Dove, ER-54
R. McKnight, ER-54
M. A. Wilson, ER-54
ER-54, Mail Stop G-242/GTN
Washington, DC 20545
- 1 US Department of Energy
Office of International Research
and Development Policy
Attn: R. S. Price
PO-711, Mail Stop 7G-046/FORS
Washington, D. C. 20585
- 1 United Technologies Research Center
Attn: A. J. DeMaria
Research Center
Silver Lane
East Hartford, CT 06108
- 1 University of Arizona
Dept. Electrical & Computer Eng.
Attn: D. G. Dudley
Tucson, AZ 85721
- 6 University of California
Lawrence Berkeley Laboratory
Attn: K. H. Berkner
R. O. Bangerter
W. A. Barletta
A. Faltens
A. M. Sessler
J. R. Alonso
1 Cyclotron Road
Berkeley, CA 94720

- 8 University of California
Lawrence Livermore Natl. Laboratory
Attn: E. M. Campbell, L473
D. W. Hewett, L472
W. J. Hogan, L481
J. D. Kilkenny, L473
J. D. Lindl, L472
B. G. Logan, L481
G. H. Miller, L020
E. Storm, L488
P. O. Box 808
Livermore, CA 94550
- 9 University of California
Los Alamos National Laboratory
Attn: M. Cray, F645
N. M. Hoffman, F645
J. D. Immele, A105
P. B. Lyons, K571
G. R. Magelssen, F645
R. J. Mason, F645
L. A. Rosocha, J564
D. G. Wilson, F645
S. M. Younger, E527
P. O. Box 1663
Los Alamos, NM 87544
- 1 University of California at Irvine
Physics Department
Attn: N. Rostoker
Irvine, CA 92717-4575
- 1 University California at Los Angeles
School Eng. & Applied Science
Attn: R. W. Conn
405 Hilgard Avenue
Los Angeles, CA 90024
- 2 University California at Los Angeles
Physics Department
Attn: J. M. Dawson
B. D. Fried
405 Hilgard Avenue
Los Angeles, CA 90024
- 2 University of California at San Diego
Department of Physics, B-019
Attn: M. N. Rosenbluth
K. A. Brueckner
9500 Gilman Drive
La Jolla, CA 92093-0354
- 1 University of California Santa Barbara
Dean, College of Engineering
Attn: V. Narayanamurti
Santa Barbara, CA 93106
- 1 University of Illinois
Department of Nuclear Engineering
214 NEL
Attn: G. H. Miley
103 S. Goodwin Avenue
Urbana, IL 61801
- 1 University of Maryland
Institute Physical Science and
Technology
Attn: T. Eastman
College Park, MD 20742
- 1 University of Michigan
Department Nuclear Engineering
Attn: R. Gilgenbach
Cooley Building
2355 Bonisteel Blvd.
Ann Arbor, MI 48109
- 1 University of New Mexico
Attn: J. E. Thompson
Dean, College of Engineering
107 Farris Engineering Building
Albuquerque, NM 87131
- 1 University of New Mexico
Dept. Chemical & Nuclear Eng.
Attn: G. W. Cooper
Farris Engineering Center 209
Albuquerque, NM 87131

- 1 University of New Mexico
Department Electrical and Computer
Engineering
Attn: S. Humphries
Albuquerque, NM 87131
- 3 University of Rochester
Laboratory for Laser Energetics
Attn: R. L. McCrory
J. M. Soures
C. P. Verdon
250 East River Road
Rochester, NY 14623
- 1 University of Rochester
Attn: R. L. Sproull
President Emeritus & Prof. of Physics
Bausch and Lomb Building
Rochester, NY 14627-0171
- 5 University of Wisconsin
Nuclear Engineering Department
Attn: G. L. Kulcinski
J. J. MacFarlane
G. A. Moses
R. R. Peterson
P. Wang
1500 Johnson Drive
Madison, WI 53706

- 4 I. V. Kurchatov Institute of Atomic Energy
Attn: B. B. Kadomtsev
A. Yu. Dnestrovskij
B. Kadomtsev
Valentin P. Smirnov
Kurchatov sq. 1
123182, Moscow, Russia
- 1 Max-Planck-Institut für Quantenoptik
Attn: Jürgen Meyer-ter-Vehn
Ludwig-Prandtl-Str. 10
D-8046 Garching, Germany
- 2 Institute of Laser Engineering
Osaka University
Attn: Kazuo A. Tanaka
Shuji Miyamoto
Yamada-Oka 206, Suita
Osaka, 565 Japan
- 1 Applied Physics Division
I. V. Kurchatov Institute of Atomic Energy
Attn: Andrei Ushakov
123182, Moscow, Russia
- 4 AWE
Attn: Nigel Fenner
Michael Goodman
Brian Thomas
Peter Thompson
Aldermaston, Reading, RG7 4PR
Berkshire, England
- 2 The Blackett Laboratory
Imperial College
Attn: Peter Choi
Malcolm Haines
Prince Consort Rd, London SW7 2BZ
United Kingdom
- 1 European Science Foundation
Attn: Hans Karow
1, quai Lezay-Marnesia
F-67080 Strasbourg Cedex, France
- 1 Institute of Electrophysics
Attn: Gennady A. Mesyats
34, Komsomolskaya Str. 620219
Ekaterinburg, Russia
- 1 High Energy Density Research Center
Attn: Gennady I. Kanel
Ivan Tahorskaya 13/19
Moscow, Russia 127412
- 3 Institute of High Current Electronics
Attn: Sergei P. Bugaev
Vitalii M. Bystriskii
A. A. Kim
4, Akademicheskoy Ave.
Tomsk 634055, Russia
- 4 KfK, Karlsruhe
Attn: Hansjoachim Bluhm
Walter Bauer
G. Kessler
Peter Hoppe
P.O. Box 3640
Karlsruhe D-7513, Germany
- 1 Tomsk Inst. of Nuclear Physics
Attn: Ya. E. Krasik
P.O. Box 25
Tomsk 634055
Lenina 2, Russia
- 1 Warsaw University of Technology
Attn: Waldemar Scharf
Institute of Radioelectronics
Nowowiejska 15/19
PL 00-665 Warsaw, Poland
- 1 Weizmann Institute of Science
Attn: Yitzhak Maron
Department of Nuclear Physics
Rehovot, 76100, Israel

1	MS 0101	1	C. P. Robinson	10	MS 1191	9502	J. P. Quintenz
1	MS 0102	2	J. C. Crawford	1	MS 1191	9502	Dayfile
1	MS 1427	1100	P. L. Mattern	1	MS 1181	9503	K. R. Prestwich
1	MS 0601	1128	T. D. Raymond	1	MS 1182	9505	R. W. Stinnett
1	MS 1423	1128	J. R. Woodworth	1	MS 1193	9511	T. H. Martin
1	MS 1407	1811	D. K. Derzon	1	MS 1178	9512	R. A. Hamil
1	MS 1407	1812	D. A. Schneider	1	MS 1178	9512	J. A. Alexander
1	MS 1407	1815	J. H. Aubert	1	MS 1178	9512	J. P. Corley
1	MS 1407	1815	W. F. McNamara	1	MS 1188	9512	R. G. Adams
1	MS 1407	1815	P. S. Sawyer	1	MS 1188	9512	C.-H. Ching
1	MS 0537	2314	P. L. Dreike	1	MS 1188	9512	B. F. Clark
1	MS 0149	4000	D. L. Hartley	1	MS 1188	9512	B. Preppernau
1	MS 0127	4503	G. W. Kuswa	1	MS 1188	9512	G. C. Tisone
1	MS 1180	4700	J. P. VanDevender	1	MS 1188	9512	J. S. Wagner
1	MS 0463	5000	R. L. Hagengruber	1	MS 1182	9521	B. N. Turman
1	MS 0465	5100	J. F. Ney	1	MS 1193	9531	J. E. Maenchen
1	MS 0458	5137	J. B. Gerardo	1	MS 1193	9531	M. T. Crawford
1	MS 0458	5132	J. R. Asay	1	MS 1193	9531	M. E. Cuneo
1	MS0458	5139	J. S. Rottler	1	MS 1193	9531	W. E. Fowler
1	MS 0567	5341	A. L. Pregenzer	1	MS 1193	9531	D. L. Hanson
1	MS 0724	6000	J. B. Woodard	1	MS 1193	9531	D. J. Johnson
1	MS 1129	6428	P. D. Rockett	1	MS 1193	9531	K. P. Lamppa
1	MS 0741	6471	G. E. Rochau	1	MS 1193	9531	M. G. Mazarakis
1	MS1335	6800	S. A. Goldstein	1	MS 1193	9531	P. R. Menge
1	MS 0175	7447	R. B. Craner	1	MS 1193	9531	T. J. Renk
1	MS 0151	9000	G. Yonas	1	MS 1193	9531	D. C. Rovang
1	MS 0321	9200	E. H. Barsis	1	MS 1193	9531	T. W. L. Sanford
1	MS 0819	9231	T. G. Trucano	1	MS 1187	9533	T. A. Mehlhorn
1	MS 1165	9300	J. E. Powell	1	MS 1187	9533	A. B. Filuk
1	MS 1170	9302	G. A. Zawadzkas	1	MS 1105	9533	T. R. Lockner
1	MS 1155	9303	W. Beezhold	1	MS 1192	9533	T. P. Pointon
1	MS 1178	9310	J. J. Ramirez	1	MS 1192	9536	D. D. Bloomquist
1	MS 1159	9311	M. A. Hedemann	1	MS 1193	9536	G. L. Donovan
1	MS 1168	9321	P. F. McKay	1	MS 1184	9537	R. L. Williams
1	MS 1153	9323	M. T. Buttram	1	MS 1184	9539	J. D. Boyes
1	MS 1153	9323	G. J. Denison	1	MS 1184	9539	R. J. Garcia
1	MS 1153	9323	G. M. Loubriel	1	MS 1184	9539	D. L. Smith
1	MS 1153	9323	F. J. Zuvatern	1	MS 1184	9539	R. W. Wavrik
1	MS 1179	9341	J. R. Lee	1	MS 1186	9541	C. L. Olson
1	MS 1179	9341	J. A. Halbleib	1	MS 1186	9541	M. P. Desjarlais
1	MS 1179	9341	R. P. Kensek	1	MS 1186	9541	R. W. Lemke
1	MS 0431	9400	S. G. Varnado	1	MS 1186	9541	B. M. Marder
1	MS 1190	9500	D. L. Cook	1	MS 1186	9541	J. W. Poukey
1	MS 1195	9501	C. T. Wiuff	1	MS 1186	9541	S. E. Rosenthal
				1	MS 1186	9541	I. R. Shokair
				1	MS1186	9541	S. A. Slutz

10	MS 1186	9541	M. A. Sweeney	1	MS 0163	9800	J. Polito
1	MS 1195	9542	J. P. Quintenz	1	MS 0131	12120	K. W. Bieg
1	MS 1186	9542	R. S. Coats	1	MS 0131	12600	Vacant
1	MS 1186	9542	M. L. Kiefer	1	MS 0413	12660	L. G. Perrine
1	MS 1186	9542	L. P. Mix	1	MS 9017	8523-2	Central Technical Files
1	MS 1186	9542	M. F. Pasik	5	MS 0899	13415	Technical Library
1	MS 1186	9542	D. B. Seidel	1	MS 0619	12615	Print Media
1	MS 1152	9543	E. L. Neau	2	MS 0100	7613-2	Document Process- ing for DOE/OSTI
1	MS 1152	9543	H. C. Harjes				
1	MS 1152	9543	K. W. Reed				
1	MS 1152	9543	L. X. Schneider				
1	MS 1187	9571	M. K. Matzen				
1	MS 1187	9571	G. O. Allshouse				
1	MS 1187	9571	M. R. Douglas				
1	MS 1187	9571	R. J. Dukart				
1	MS 1187	9571	D. R. Humphreys				
1	MS 1187	9571	E. J. McGuire				
1	MS 1187	9571	R. E. Olson				
1	MS 1194	9573	D. H. McDaniel				
1	MS 1194	9573	J. T. Crow				
1	MS 1194	9573	C. Deeney				
1	MS 1194	9573	C. W. Mendel				
1	MS 1194	9573	W. B. S. Moore				
1	MS 1194	9573	G. Mowrer				
1	MS 1194	9573	T. J. Nash				
1	MS 1194	9573	J. L. Porter				
1	MS 1194	9573	M. E. Savage				
1	MS 1194	9573	J. F. Seamen				
1	MS 1194	9573	W. W. Simpson				
1	MS 1194	9573	R. B. Spielman				
1	MS 1194	9573	D. W. Zagar				
1	MS 1196	9577	R. J. Leeper				
1	MS 1105	9577	J. E. Bailey				
1	MS 1105	9577	G. T. Baldwin				
1	MS 1105	9577	A. L. Carlson				
1	MS 1105	9577	G. A. Chandler				
1	MS 1105	9577	M. S. Derzon				
1	MS 1105	9577	D. L. Fehl				
1	MS 1105	9577	D. E. Hebron				
1	MS 1196	9577	A. R. Moats				
1	MS 1105	9577	D. D. Noack				
1	MS 1105	9577	C. L. Ruiz				
1	MS 1105	9577	W. A. Stygar				
1	MS 0865	9753	W. A. Johnson				