

Monday, May 19, 1980
9:00 AM, Auditorium

Oral Session IA -- Plasma for Fusion Research I
Session Chairman: Milton D. Johnson

- IA1-2 INVITED PAPER: EBT RING PHYSICS
N. A. Uckan, Oak Ridge National Laboratory, Oak Ridge, Tennessee
- IA3 PELLET ABLATION STUDIES IN DANTE
V. Anderson, M. Gadeberg, P. B. Jensen and P. Nielsen, Association Euratom, Risø National Laboratory, Denmark
- IA4 PHYSICS RESULTS FROM THE FIRST SIX MONTHS OF ZT-40 OPERATION
A. R. Jacobson, D. A. Baker, C. J. Buchenauer, L. C. Burkhardt, J. M. Di Marco, J. N. Downing, C. A. Ekdahl, A. Haberstick, R. B. Howell, G. Miller, K. S. Thomas, R. G. Watt, Los Alamos Scientific Laboratory; S. Ortolani, University of Padua, Italy
- IA5 A THREE-METER STAGED THETA PINCH WITH A PERIODIC COMPRESSION COIL DRIVE
S. D. Knox, H. Meuth, F. L. Ribe, E. Sevillano, University of Washington, Seattle, Washington
- IA6 EBT-S EXPERIMENTS WITH UP TO 54 kW OF STEADY-STATE 28 GHz POWER
EBT Group, Oak Ridge National Laboratory, Oak Ridge, Tennessee
- IA7 A LARGE TANDEM MIRROR FACILITY, MFTF-B
K. I. Thomassen, Lawrence Livermore Laboratory, Livermore, California
- IA8 EFFECTS OF COLD GAS ON THE OPERATION OF MFTF-B
G. D. Porter, J. M. Gilmore, G. E. Gryczkowski, J. M. Khan, Lawrence Livermore Laboratory, Livermore, California

Monday, May 19, 1980
9:00 AM, Lakeshore Room

Oral Session IB -- Laser-Plasma Interaction I
Session Chairman: Steven J. Gitomer

- IB1 FULL-PARTICLE PIC COLLISIONAL CALCULATIONS OF ELECTRON TRANSPORT IN LASER PRODUCED PLASMAS
R. J. Mason, Los Alamos Scientific Laboratory, Los Alamos, New Mexico
- IB2 THE PREVALENCE OF CUTOFF DISTRIBUTIONS IN LASER FUSION
S. J. Gitomer and B. Bezzerides, Los Alamos Scientific Laboratory, Los Alamos, New Mexico
- IB3-4 INVITED PAPER: RECENT THEORETICAL WORK ON THE NONLINEAR BEHAVIOR OF STIMULATED SCATTERING INSTABILITIES IN LASER PLASMA INTERACTION
Joseph M. Kindel, Los Alamos Scientific Laboratory, Los Alamos, New Mexico
- IB5 1-D AND 2-D COMPUTATIONAL STUDIES ON IMPLOSION AND IGNITION OF LASER FUSION
S. Ido, T. Yabe, K. Nishihara, K. Mima, J. Okahara, A. Nishiguchi, C. Yamanaka, Osaka University, Osaka, Japan
- IB6 THE DEPENDENCE OF DENSITY PROFILE MODIFICATION ON EQUATION OF STATE
K. Lee, C. H. Aldrich, R. D. Jones, Los Alamos Scientific Laboratory, Los Alamos, New Mexico
- IB7 MECHANISMS FOR COMPRESSION SHOCK FORMATION IN LASER INDUCED PLASMA PROFILES
R. D. Jones, C. H. Aldrich, K. Lee, Los Alamos Scientific Laboratory, Los Alamos, New Mexico
- IB8 THE STUDY OF PROFILE MODIFICATIONS WITH HYBRID SIMULATION CODE
C. H. Aldrich, R. D. Jones, K. Lee, Los Alamos Scientific Laboratory, Los Alamos, New Mexico
- IB9 RELATIVISTIC AND NONLINEAR RADIATION INTERACTION BETWEEN LASER BEAMS AND PLASMAS
E. L. Kane, Science Applications, Inc., McLean, Virginia
- IB10 SUPERELASTIC LASER ENERGY CONVERSION - AN EXTREMELY FAST AND EFFICIENT NEW FORM OF IONIZATION AND PLASMA HEATING
R. M. Measures, P. G. Cardinal and P. Wizinowich, Institute for Aerospace Studies, Ontario, Canada

Monday, May 19, 1980
9:00 AM, Room 313

Oral Session IC -- Neutral Beams for Fusion Research
Session Chairman: J. Fink

- IC1 ELIMINATING HIGH VOLTAGE FROM HIGH ENERGY NEUTRAL BEAM INJECTORS VIA MEQALAC
J. Fink, J. Alessi, A.W. Maschke, Brookhaven National Laboratory, Upton, New York
- IC2 ANALYSIS OF H⁻ MAGNETRON SOURCES WITH FLAT AND CURVED CATHODES
J. Alessi, K. Prelec and T. Sluyters, Brookhaven National Laboratory, Upton, New York
- IC3 DOUBLE TRAP POST-EXTRACTION ELECTRODE DESIGN FOR ION BEAMS TO MINIMIZE BACKSTREAMING ELECTRONS
J.H. Wheaton, R.W. McGaffey, C.C. Tsai, Oak Ridge National Laboratory, Oak Ridge, Tennessee
- IC4-5 INVITED PAPER: CHARACTERISTICS OF MULTI-CUSP PLASMA GENERATORS
K.N. Leung, Lawrence Berkeley Laboratory, Berkeley, California
- IC6 NEUTRAL BEAM ION SOURCE TESTING WITH LOW ENERGY EXTRACTION
A.T. Forrester, D.M. Goebel, J.A. Eck, University of California at Los Angeles, Los Angeles, California

- IC7 A HIGH CURRENT DENSITY, HIGH TEMPERATURE, CAESIATED EMITTER
I.E. Kanter, M.D. Nahemow, J. H. Fink, Westinghouse Research Laboratories, Pittsburgh, Pennsylvania
- IC8 CHARACTERISTICS OF HIGH ENERGY (>50 keV) TRIODE ACCELERATORS FOR USE IN HIGH POWER NEUTRAL BEAM INJECTORS
M.M. Menon, C.C. Tsai, D.E. Schechter, J.H. Wheaton, P.M. Ryan, G.C. Barber, N.S. Ponte, R.E. Wright, R.R. Fezell, Oak Ridge National Laboratory, Oak Ridge, Tennessee
- IC9 A SYSTEM DESIGN AND COSTING CODE FOR LARGE SCALE NEUTRAL BEAM SYSTEMS
J.H. Kamperschroer, General Atomic Company, L.D. Stewart, Exxon Nuclear Company
- IC10 NEUTRAL BEAM TESTS OF THE ARMOR PLATE FOR THE DOUBLET III VACUUM VESSEL
A.P. Collieraine, J.F. Pipkins, L. Sevier, General Atomic Company, K.H. Berkner, Lawrence Berkeley Laboratory

Monday, May 19, 1980
9:00 AM, Room 224

Oral Session ID -- Plasma Waves, Instabilities & Antennas
Session Chairman: K.E. Lonngren

- ID1 CURRENT DISTRIBUTION OF A CYLINDRICAL ANTENNA IN A WARM PLASMA
H. C. Hsieh, Iowa State University, Ames, Iowa
- ID2 NONLINEAR ELECTRON WAVES IN A WEAKLY MAGNETIZED, PARTIALLY IONIZED PLASMA
H. L. Pecselli, University of Iowa, Iowa City, Iowa
- ID3 SURFACE LINE TYING INHIBITION OF CROSS-FIELD PLASMA CONVECTION
N. Rynn, S. Fornaca, University of California-Irvine, Irvine, California
- ID4 TRANSMISSION OF POWER BY EVANESCENT WAVES THROUGH A PLASMA SLAB
D. Kalluri, R. C. Prasad, Birla Institute of Technology, Ranchi, India
- ID5-6 INVITED PAPER: EXPERIMENTS ON SPHERICAL ION-ACOUSTIC SOLITONS
Y. Nakamura, University of Tokyo, Tokyo, Japan
- ID7 IMPULSE RESPONSE OF A LOSSY MAGNETOPLASMA HALF-SPACE MOVING ALONG THE MAGNETIC FIELD
R. C. Prasad, D. Kalluri, Birla Institute of Technology, Ranchi, India
- ID8-9 INVITED PAPER: EXPERIMENTAL INVESTIGATIONS ON THE INTERACTION OF SOLITONS
Y. Nishida, Utsunomiya University, Utsunomiya, Japan, T. Nagasawa, Ashikaga Institute of Technology, Tochigi, Japan

Monday, May 19, 1980
9:00 AM, Room 212

Oral Session IE -- Thermionics and Plasma Diodes I
Session Chairman:

- IE1 QUARTZ GAUGE MEASUREMENTS OF INTENSE PULSED ION CURRENT DENSITIES FROM A PINCH-REFLEX DIODE ON THE PITHON GENERATOR
J. Maenchen, R. D. Genuario, V. Bailey, Physics International Company, D. Mosher, Naval Research Laboratory, S. A. Goldstein, JAVCOR
- IE2 ELECTRODE PLASMA EVOLUTION IN A MULTITERAWATT PINCH ION DIODE
R. D. Genuario, J. Maenchen, R. Stringfield, Physics International Company, G. Cooperstein, D. Mosher, S. Stephanakis, Naval Research Laboratory, S. A. Goldstein, JAVCOR
- IE3 THE CHANGING EMPHASIS OF THE DOE THERMIONIC PROGRAM
O. S. Merrill, Department of Energy, Washington, D.C.
- IE4 THERMIONIC ENERGY CONVERSION PROGRAM AT THERMO ELECTRON
F. N. Huffman, Thermo Electron Corporation, Waltham, Massachusetts
- IE5 TERRESTRIAL THERMIONIC POWER GENERATION AT RASOR ASSOCIATES
G. O. Fitzpatrick, E. J. Britt, Rasor Associates, Sunnyvale, California
- IE6 TERRESTRIAL APPLICATIONS USING A THERMIONIC ARRAY MODULE (TAM) COMBUSTOR
G. Miskolczy, F. N. Huffman, Thermo Electron Corporation, Waltham, Massachusetts
- IE7 ELECTRIC UTILITY AND COGENERATION SYSTEMS APPLICATIONS OF THERMIONIC ENERGY CONVERSION
R. S. Dick, E. J. Britt, G. O. Fitzpatrick, Rasor Associates, Sunnyvale, California
- IE8 POTENTIALITIES OF TEX TOPPING: A SIMPLIFIED VIEW OF PARAMETRIC EFFECTS
J. F. Morris, NASA Lewis Research Center, Cleveland, Ohio
- IE9 CHARACTERISTICS OF FLAME-HEATED CHEMICAL VAPOR DEPOSITED THERMIONIC CONVERTERS
D. B. Goodale, D. Lieb, P. Reagan, G. Miskolczy, F. N. Huffman, Thermo Electron, Waltham, Massachusetts
- IE10 NOVEL CONVERTER CONFIGURATIONS FOR THX DEVELOPMENT
L. L. Begg, M. S. Smith, B. Carlsmith, E.J. Britt, G. O. Fitzpatrick, Rasor Associates, Sunnyvale, California

Monday, May 19, 1980
9:00 AM, Room 311

Oral Session IF -- Magnetofluid Dynamics
Session Chairman: J. N. Chapman

- IF1 BOUNDARY AND INITIAL CONDITIONS FOR THE 1-DIMENSIONAL TRANSIENT COMPRESSIBLE MHD FLOW EQUATIONS
A. R. Ostling, MERD, Butte, Montana

- IF2 OPTIMAL DESIGN OF MULTIPLE LOADED DIAGONALLY CONNECTED MHD GENERATORS
Z. El-Derini, E. Doss, Argonne National Laboratory, Argonne, Illinois
- IF3 EFFECTS OF INLET TEMPERATURE NONUNIFORMITIES ON MHD GENERATOR EFFICIENCY
A. P. Fraas, Knoxville, Tennessee
- IF4-5 INVITED PAPER: EXPERIMENTAL RESULTS ON MHD COMBUSTOR/GENERATOR INTERACTION
W. L. Holt, M. H. Scott, University of Tennessee, Knoxville, Tennessee
- IF6 ENGINEERING CONSIDERATIONS FOR A MHD RETROFIT
H. C. Barnes, J. J. Sullivan, J. H. Noble, Boston, Massachusetts
- IF7 ASSESSMENT OF COAL/OIL FUEL FOR MHD TOPPING CYCLES
M. L. R. Murthy, J. C. Cutting, W. P. Trzaskoma, Gilbert Associates, Reading, Pennsylvania
- IF8 THE DESIGN AND CONSTRUCTION OF A LARGE SUPERCONDUCTING MHD MAGNET FOR THE COAL-FIRED FLOW FACILITY AT THE UNIVERSITY OF TENNESSEE SPACE INSTITUTE
S-T. Wang, L. E. Genes, R. C. Niemann, L. R. Turner, Argonne National Laboratory, Argonne, Illinois
- IF9 EXPERIMENTAL STUDY OF THE MAGNETIC RECONNECTION AND MAGNETIC ENERGY DISSIPATION IN THE CURRENT SHEETS
A. Frank, Lebedev Institute, Moscow, U.S.S.R.

Monday, May 19, 1980
9:00 AM, Room 109

Poster Session I6 -- Intense Electron and Ion Beams I

- IG1 MULTI-CHANNEL PROTON BEAM OVERLAP CALCULATIONS
T. P. Wright, Sandia Laboratories, Albuquerque, New Mexico
- IG2 VIRTUAL ANODE FORMATION BY AN INTENSE ION BEAM INCIDENT UPON A TRANSVERSE MAGNETIC FIELD.
S. H. Robertson, F. Wessel, University of California-Irvine, Irvine, California
- IG3 INJECTION AND CONTAINMENT OF AN ELECTRON CLOUD IN A BUMPY TORUS
A. Fisher, P. Gilad, F. Goldin, N. Rostoker, University of California-Irvine, Irvine, California
- IG4 THE DIODOTRON INSTABILITY IN THIN RELATIVISTIC ELECTRON BEAMS
M. E. Jones, M. A. Mostrom, Los Alamos Scientific Laboratory, Los Alamos, New Mexico
- IG5 RECENT ADVANCES IN COLLECTIVE ION ACCELERATION
A. Sternlieb, W. M. Destler, H. S. Uhm, M. Reiser, University of Maryland, College Park, Maryland
- IG6 COLLECTIVE CONTRIBUTION TO THE STOPPING POWER OF IONS IN A TWO-COMPONENT PLASMA
R. A. Cover, R & D Associates, Marina del Rey, California, G. Kalman, Boston College, Chestnut Hills, Massachusetts
- IG7 POTENTIAL FOR ANOMALOUS GENERATION OF HIGH-ENERGY DENSITY PLASMA TO DRIVE HYBRID INERTIAL CONFINEMENT DEVICES
L. E. Thode, J. R. Cary, M. E. Jones, M. A. Mostrom, B. S. Newberger, Los Alamos Scientific Laboratory, Los Alamos, New Mexico

Monday, May 19, 1980
9:00 AM, Room 213

Poster Session IH -- Gaseous Electronics, Arc Technology & Science, and Fusion Reactor Technology

- IH1 NUMERICAL SIMULATION OF A PLANAR VACUUM ARC
J. L. Shohet, University of Wisconsin, P. D. Pedrow, L. M. Burrage, McGraw-Edison Company, Franksville, Wisconsin
- IH2 LIMITATIONS ON THE MASS SEPARATION IN WEAKLY IONIZED PLASMA CENTRIFUGE
M. M. B. Wymakker, E. H. A. Granneman, Institute for Atomic and Molecular Physics, Amsterdam, The Netherlands
- IH3 A 10 kA 3ϕ INDUCTOR CONVERTER BRIDGE
R. E. Fuja, R. L. Kustom, Argonne National Laboratory, M. Ehsani, University of Wisconsin, Madison, Wisconsin
- IH4 CAVITY GASES FOR LIGHT ION BEAM FUSION REACTORS
G. M. Cooper, University of New Mexico, Albuquerque, New Mexico, R. R. Peterson, G. A. Moses, University of Wisconsin, Madison, Wisconsin
- IH5 A LARGE CRYOSORPTION PUMP FOR FUSION APPLICATIONS
S. W. Schwensterly, Oak Ridge National Laboratory, Oak Ridge, Tennessee
- IH6 A VERSATILE ION BEAM FACILITY FOR FUSION RESEARCH AND DEVELOPMENT
R. W. Stooksberry, J. R. Easoz, R. E. Gold, M. Griffiths, Westinghouse Electric Corporation

Monday, May 19, 1980
9:00 AM, Room 317

Poster Session II -- Nuclear-Pumped Lasers

- II1 EXCITED STATE REACTIONS OF Xe AND UF₆
R. A. Tilton, Miami University, Oxford, Ohio
- II2 Xe₂ NUCLEAR PUMPED FLASHLAMP
R. A. Walters, J. D. Cox, R. T. Schneider, University of Florida, Miami, Florida

- II3 STUDIES OF THE PROTON PUMPED Ar/N₂ LASER
L. G. Wiley, D. A. Hammer, Cornell University, Ithaca, New York
- II4 NUCLEAR PUMPED CO₂ TRANSFER LASER
M. J. Rowe, R. H. Liang, R. T. Schneider, University of Florida, Miami, Florida
- II5 NUCLEAR PUMPING CO₂
M. S. Zediker, G. H. Wiley, University of Illinois, Urbana, Illinois
- II6 NUCLEAR PUMPED FLUORESCENCE AND CHEMICAL SYNTHESIS EXPERIMENTS
M. Lecours, M. Prelas, University of Missouri, Columbia, Missouri
- II7 MACROSCOPIC QUANTUM PROPERTIES OF FERROMAGNETIC COLD PLASMA
K. Denno, New Jersey Institute of Technology, Newark, New Jersey

Monday, May 19, 1980
2:00 PM, Auditorium

Oral Session 2A -- Fusion Reactor Technology
Session Chairman: E. Greenspan

- 2A1 MHD STABILITIES OF STARFIRE COMMERCIAL REACTOR
T. Hino, R. Prater, General Atomic Company, San Diego, California, D. Ehst, K. Evans, Argonne National Laboratory, Argonne, Illinois
- 2A2 PLASMA POSITION AND SHAPE CONTROL IN THE STARFIRE COMMERCIAL REACTOR
R. Prater, T. Hino, General Atomic Company
- 2A3 OCLATOR (ONE COIL LOW ASPECT TOKAMAK REACTOR)
S. Yoshikawa, Princeton University, Princeton, New Jersey
- 2A4 D-T ASSISTED Cat-D SAFFIRES
E. Greenspan, G. H. Wiley, University of Illinois, Urbana, Illinois
- 2A5 FRDP MOVING PLASMOID REACTOR STUDIES
J. D. Galambos, J. G. Gilligan, E. Greenspan, G. H. Wiley, University of Illinois, Urbana, Illinois
- 2A6 HYPERFUSE: A HYPERVELOCITY INERTIAL CONFINEMENT SYSTEM FOR FUSION ENERGY PRODUCTION AND FISSION WASTE TRANSMUTATION
H. Makowitz, J. R. Powell, R. Wiswall, Brookhaven National Laboratory, Upton, New York
- 2A7 STEPPING UP LASER-PELLET FUSION TECHNOLOGY FOR ENERGY/POWER PRODUCTION
S. M. Ayub, Karachi, Pakistan
- 2A8 VERY LARGE INERTIAL CONFINEMENT FUSION BREEDER REACTOR SYSTEMS
E. F. Marwick, Lane Tech

Monday, May 19, 1980
2:00 PM, Lakeshore Room

Oral Session 2B -- Plasma Heating
Session Chairman: Hulbert Hsuan

- 2B1 LOWER-HYBRID RF COUPLING AND ION HEATING ON THE VERSATOR II TOKAMAK
S. Knowlton, M. Porkolab, S. C. Luckhardt, Massachusetts Institute of Technology, Cambridge, Massachusetts
- 2B2-3 INVITED PAPER: ELECTRON CYCLOTRON HEATING AND PREIONIZATION EXPERIMENTS IN THE ISX-B TOKAMAK
R. M. Gilgenbach, M. E. Read, K. E. Hackett, R. Lucey, B. Huf, V. L. Granatstein, K. R. Chu, Naval Research Laboratory, Washington, D.C., A. C. England, C. M. Loring, J. B. Wilgen, R. Isler, K. E. Burrell, O. C. Eldridge, M. Hacker, H. C. Howe, P. King, E. Lazarus, A. Kulchar, M. Murakami, Y-K. M. Peng, R. Richards, Oak Ridge National Laboratory, Oak Ridge, Tennessee
- 2B4-5 INVITED PAPER: RF CURRENT GENERATION EXPERIMENT ON ACT-1
K. L. Wong, R. Horton, M. Ono, Princeton University, Princeton, New Jersey
- 2B6 CURRENT GENERATION EXPERIMENTS ON THE VERSATOR II TOKAMAK WITH LOWER-HYBRID WAVES
S. C. Luckhardt, M. Porkolab, S. Knowlton, Massachusetts Institute of Technology, Cambridge, Massachusetts
- 2B7 NONLINEAR EFFECTS IN THE COUPLING OF HIGH POWER LOWER HYBRID WAVES BY WAVEGUIDE ARRAYS
R. W. Motley, W. M. Hooke, Princeton University, Princeton, New Jersey
- 2B8 HIGH POWER ICRF EXPERIMENTS IN THE PRINCETON LARGE TORUS
P. L. Colestock, S. L. Davis, D. Q. Hwang, H. R. Thompson, Princeton University, Princeton, New Jersey
- 2B9-10 INVITED PAPER: DEVELOPMENT OF GYROTRONS FOR ECRH
M. E. Read, Naval Research Laboratory, Washington, D.C.
- 2B11 EXCITATION OF AXISYMMETRIC MODES IN DOUBLET DISCHARGES
J. L. Luxon, T. H. Jensen, A. M. Sleeper, General Atomic Company, San Diego, California
- 2B12 DEVELOPING CAPABILITY OF NEUTRAL BEAM HEATING FOR LARGE TOKAMAKS
B. M. Ma, Iowa State University, Ames, Iowa
- 2B13 NEUTRON PRODUCTION IN THE AFWL SHIVA ELECTROMAGNETICALLY DRIVEN PINCH
W. L. Baker, J. H. Degnan, G. F. Kluttu, D. A. Kloc, R. A. Nuttelman, R. E. Reinovsky, R. J. Sand, D. M. Woodall, Air Force Weapons Laboratory, Kirtland AFB, New Mexico

Monday, May 19, 1980
2:00 PM, Room 313

Oral Session 2C -- Intense Electron & Ion Beams I
Session Chairman: W. W. Salisbury

- 2C1 SCALING LAWS FOR ION BEAM LOSSES IN PLASMA CHANNELS
D. G. Colombant, S. A. Goldstein, Naval Research Laboratory, Washington, D.C.
- 2C2 ICF NEUTRALIZED LIGHT ION BEAM STUDIES WITH BALLISTIC FOCUSING, TIME COMPRESSION AND LOW TEMPERATURE SOURCE
D. B. Chang, W. W. Salisbury, Occidental Research Corporation, Irvine, California
- 2C3 FUSION TARGETS DRIVEN BY LIGHT IONS
S. Jorna, Occidental Research Corporation, Irvine, California, N. Metzler, University of California, San Diego, California
- 2C4-5 INVITED PAPER: STATUS OF COLLECTIVE ION ACCELERATION WITH LINEAR ELECTRON BEAMS
C. L. Olson, Sandia Laboratories, Albuquerque, New Mexico
- 2C6 PROPAGATION OF NEUTRALIZED LIGHT-ION BEAMS
W. B. Thompson, Occidental Research Corporation, Irvine, California, S. Jorna, Occidental Research Corporation, Irvine, California
- 2C7 AN INJECTOR BASED ON ELECTRIC INSULATION FOR THE CONTROLLED BALLISTIC FOCUSING OF LIGHT ION BEAMS
D. A. Phelps, S. Jorna, R. Schuttler, C. B. Wharton, Occidental Research Corporation, Irvine, California
- 2C8 AN ACCELERATOR FOR IDEAL TIME COMPRESSION OF .5 MeV LIGHT-ION BEAMS
W. Richardson, D. A. Phelps, V. Fargo, S. Somerstein, W. W. Salisbury, Occidental Research Corporation
- 2C9 LARGE AREA ALKALI ION SOURCE FOR THE ORC LIGHT ION BEAM INJECTOR
C. B. Wharton, H. Chung, A. Fisher, D. Phelps, G. L. Ferrentino, Occidental Research Corporation, Irvine, California

Monday, May 19, 1980
2:00 PM, Room 224

Oral Session 2D -- Plasma Focus I
Session Chairman: Bruce Freeman

- 2D1 FAST H.V PULSE POWERED PLASMA FOCUS
M. J. Rhee, University of Maryland, College Park, Maryland
- 2D2 NEUTRON YIELDS FROM AN EXPLOSIVE GENERATOR POWERED PLASMA FOCUS
R. S. Caird, D. J. Erickson, B. L. Freeman, C. M. Fowler, H. N. Kruse, Los Alamos Scientific Laboratory, Los Alamos, New Mexico
- 2D3 NEUTRON DIAGNOSTICS OF EXPLOSIVE GENERATOR POWERED PLASMA FOCUS
H. W. Kruse, P. J. Kruse, D. E. Bartram, K. C. Crossdell, Los Alamos Scientific Laboratory, Los Alamos, New Mexico
- 2D4 NEUTRONIC PROPERTIES OF PLASMA FOCUS AT HIGH AND LOW ENERGY LEVELS
K. Hubner, J. P. Rager, B. V. Robouch, K. Steinmetz, Association EURATOM, Italy
- 2D5 PLASMA DYNAMICS OF THE PINCH PHASE IN THE FRASCATI 1 MJ PLASMA FOCUS DERIVED FROM SHADOWGRAPHY
L. Bilbao, H. Bruzzone, V. Ya. Nikulin, J. P. Rager, Association EURATOM, Italy
- 2D6 EXPERIMENTS WITH LITHIUM TARGETS IN A HIGH ENERGY PLASMA FOCUS
H. Conrads, J. P. Rager, B. V. Robouch, K. Steinmetz, Association EURATOM, Italy
- 2D7 INVESTIGATION OF INSTABILITIES IN THE PLASMA-FOCUS DEVICES IN WARSAW
S. J. Denus, Institute of Plasma Physics and Laser Microfusion, Warsaw, Poland

Monday, May 19, 1980
2:00 PM, Room 212

Oral Session 2E -- Thermionics and Plasma Diodes II
Session Chairman:

- 2E1 AN IMPROVED ANALYTICAL MODEL FOR IGNITED MODE THERMIONIC CONVERTERS
J. B. McVey, E. J. Britt, Rasor Associates, Sunnyvale, California
- 2E2 CESIUM DIODE VOLT-AMPERE CHARACTERISTIC ANALYSIS
T. M. Smith, M. L. Stoescu, ENCOTH Corporation, Princeton, New Jersey
- 2E3 REVIEW OF 1D AND 2D TRANSPORT EQUATIONS APPLIED TO THE ANALYSIS OF THERMIONIC CONVERTERS
T. M. Smith, D. E. Smith, M. L. Stoescu, ENCOTH Corporation, Princeton, New Jersey
- 2E4 ELECTRON ENERGY LOSS IN THE PLASMA OF THERMIONIC CONVERTERS
R. A. Nichols, L. E. Hemquist, M. L. Stoescu, ENCOTH Corporation, Princeton, New Jersey
- 2E5 COLLISIONAL RANDOMIZATION OF ELECTRON BEAMS
M. L. Stoescu, R. A. Nichols, T. M. Smith, ENCOTH Corporation, Princeton, New Jersey
- 2E6 INVESTIGATION OF NEGATIVE ION FORMATION IN A SIMULATED THERMIONIC DIODE
D. G. Kuehn, L. M. Chanin, University of Minnesota, Minneapolis, Minnesota
- 2E7 LOWEST AUTODETACHING STATES OF Cs⁻
B. Laskowski, Rasor Associates, Sunnyvale, California

- 2E8 POSITIVE AND NEGATIVE CESIUM IONS FROM A PLASMA DIODE
L. K. Hansen, H. Y. Woo, Rasor Associates, Sunnyvale, California
- 2E9 SIMPLIFIED ELECTRON-ATOM IONIZATION-RECOMBINATION THEORY WITH APPLICATION TO THERMIONIC CONVERSION
J. L. Lawless, Princeton University, Princeton, New Jersey
- 2E10 UNSTEADY AND LASER-ENHANCED THERMIONIC ENERGY CONVERSION: A NUMERICAL STUDY
J. L. Lawless, Princeton University, Princeton, New Jersey
- 2E11 INVESTIGATION OF THE PLASMA CONDUCTIVITY IN THE ADVANCED THERMIONIC ENERGY CONVERTER
C. N. Manikopoulos, Rutgers University
- 2E12 PLASMATRON, STRUCTURED ELECTRODE, AND PLASMA STUDIES
G. L. Hatch, Rasor Associates, Sunnyvale, California

Monday, May 19, 1980
2:00 PM, Room 109

Poster Session 2G -- Plasma Diagnostics; Computer Control & Data Acquisition

- 2G1 MEASUREMENTS ON A HIGH DENSITY, LASER INITIATED Z-PINCH
L. A. Jones, S. Singer, K. Finken, Los Alamos Scientific Laboratory, Los Alamos, New Mexico
- 2G2 COMPUTATIONAL INTERPRETATION OF LASER-INITIATED Z-PINCH DIAGNOSTICS
I. R. Lindemuth, T. A. Oliphant, J. H. Brownell, Los Alamos Scientific Laboratory, Los Alamos, New Mexico
- 2G3 HIGH DENSITY Z-PINCH PARAMETER STUDIES
T. A. Oliphant, J. H. Brownell, I. R. Lindemuth, Los Alamos Scientific Laboratory, Los Alamos, New Mexico
- 2G4 A STUDY OF INJECTED IMPURITIES ON THE ALCATOR A TOKAMAK
S. L. Allen, W. H. Moos, John Hopkins University, E. S. Marmor, J. E. Rice, Massachusetts Institute of Technology, Cambridge Massachusetts
- 2G5 CODING APERTURE APPLIED TO X-RAY IMAGING
J. Brunol, Faculte des Sciences d'Orsay, Orsay, France, R. Sauneuf, J. P. Bex, Centre d'Etudes de Lineil, Villeneuve-Saint-Georges, France
- 2G6 THE ULTRAVIOLET (UV) SPECTROSCOPY DIAGNOSTICS AT THE VERSATOR II TOKAMAK
K. I. Chen, Massachusetts Institute of Technology, Cambridge, Massachusetts
- 2G7 MEASUREMENTS OF ELECTRON CYCLOTRON RADIATION FROM A MAGNETIC MIRROR MACHINE
R. F. Ellis, G. Tsakiris, Z. Wang, D. Boyd, University of Maryland, College Park, Maryland
- 2G8 BISPECTRAL STUDY OF DRIFT WAVE TURBULENCE
Y. C. Kim, J. M. Beall, E. J. Powers, University of Texas, Austin, Texas
- 2G9 NEUTRAL ALKALI METAL BEAM FOR HEAVY PARTICLE PROBE DIAGNOSTIC SYSTEMS
K. Pourzeael, J. R. Goyer, K. A. Connor, Rensselaer Polytechnic Institute, Troy, New York
- 2G10 RADIAL SPACE POTENTIAL AND ELECTRON TEMPERATURE MEASUREMENTS IN THE CENTRAL CELL OF TMX WITH A HEAVY ION BEAM PROBE
G. A. Hallock, R. L. Hickok, M. C. Jennings, Rensselaer Polytechnic Institute, Troy, New York, R. S. Hornady, Lawrence Livermore Laboratory, Livermore, California
- 2G11 RESTRICTED-ANGLE ION SENSOR
J. W. Robinson, Pennsylvania State University, University Park, Pennsylvania
- 2G12 DATA SYSTEM FOR THE PROTO-CLEO TORSATRON
J. H. Harris, J. A. Derr, T. D. Mantei, J. L. Shohet, University of Wisconsin, Madison, Wisconsin

Monday, May 19, 1980
2:00 PM, Room 213

Poster Session 2H -- Neutral Beams for Fusion Research I

- 2H1 MEASUREMENT OF NEUTRAL BEAM PARAMETERS ON A FOCUSED NEUTRAL BEAM SYSTEM WITH DOPPLER SHIFT SPECTROSCOPY
C. F. Burrell, K. H. Berkner, W. A. Cooper, W. F. Steele, Lawrence Berkeley Laboratory, Berkeley, California
- 2H2 STUDIES ON THE LBL "10-AMP" NEUTRAL BEAM NEUTRALIZER
N. E. Abt, C. F. Burrell, W. S. Cooper, W. B. Kunkel, Lawrence Berkeley Laboratory, Berkeley, California
- 2H3 AN IMPROVED OVERCURRENT PROTECTION CIRCUIT FOR NEUTRAL BEAM SOURCES
W. F. Praeg, Argonne National Laboratory, Argonne, Illinois
- 2H4 LONG PULSE ION SOURCE FOR NEUTRAL BEAM HEATING APPLICATIONS
P. M. Ryan, G. C. Barber, W. K. Dagenhart, R. R. Feezell, W. L. Gardner, H. H. Haselton, J. Kim, M. M. Menon, H. S. Ponte, D. E. Schechter, W. L. Stirling, C. C. Tsai, J. H. Wheaton, R. E. Wright, Oak Ridge National Laboratory, Oak Ridge, Tennessee
- 2H5 ION SOURCE DEVELOPMENT FOR PDx AND ISx-B UPGRADE
W. L. Gardner, G. C. Barber, C. W. Blue, W. K. Dagenhart, R. R. Feezell, H. H. Haselton, J. Kim, M. M. Menon, H. S. Ponte, P. M. Ryan, D. E. Schechter, D. O. Sparks, W. L. Stirling, C. C. Tsai, J. H. Wheaton, R. E. Wright, Oak Ridge National Laboratory, Oak Ridge, Tennessee

Monday, May 19, 1980
2:00 PM, Room 317

Poster Session 2I -- Plasma for Fusion Research I

- 211 MAGNETIC FIELD CURVATURE IN TORSATRONS/STELLARATORS
D. T. Anderson, J. L. Shohet, University of Wisconsin, Madison, Wisconsin
- 212 PLASMA GUN INJECTION IN THE PROTO-CLEO STELLARATOR
D. J. Hoffman, J. N. Talmadge, J. D. Treffert, J. L. Shohet, University of Wisconsin, Madison, Wisconsin
- 213 RADIATED POWER FROM THE RENTOR TOKAMAK
T. R. Price, K. A. Connor, Rensselaer Polytechnic Institute, Troy, New York
- 214 ECRH PREIONIZATION AND MEASUREMENTS OF LOOP VOLTAGE ON TOKAPOLE II
D. A. Shepard, S. C. Prager, J. C. Sprott, University of Wisconsin, Madison, Wisconsin
- 215 RECENT HIGH-BETA WORK ON WISCONSIN TOROIDAL OCTUPOLE
A. G. Kellman, J. Halle, R. S. Post, S. C. Prager, E. A. Rose, E. G. Strait, University of Wisconsin, Madison, Wisconsin
- 216 EQUILIBRIUM STUDIES AND PLASMA DIAGNOSTICS ON VERSATOR II
K. E. Hackett, G. Bekefi, K. I. Chen, W. S. Crane, A. S. Fisher, T. R. Gentile, D. Hinselwood, S. Knowlton, S. C. Luckhardt, F. S. McDermott, M. Porkolab, B. Richards, A. Sapirostein, Massachusetts Institute of Technology, Cambridge, Massachusetts
- 217 ION BEAM PROBE STUDY OF EBT SCALING
F. M. Bienfisek, K. A. Connor, R. L. Hickok, Rensselaer Polytechnic Institute, Troy, New York
- 218 CURRENT-CHANNEL BEHAVIOR IN THE PROTO-CLEO TORSATOR
T. D. Mantel, J. H. Harris, J. N. Talmadge, J. L. Shohet, University of Wisconsin, Madison, Wisconsin
- 219 ENERGETIC FUSION-PRODUCT ENERGY-LOSS RATES DUE TO NUCLEAR FORCE INTERACTION
C. K. Choi, M. Y. Hsiao, G. H. Wiley, University of Illinois, Urbana, Illinois

Tuesday, May 20, 1980
9:00 AM, Auditorium

Oral Session 3A -- Intense Electron & Ion Beams III
Session Chairman: J. R. Conrad

- 3A1 CHARACTERIZATION OF A MAGNETICALLY INSULATED ION DIODE AT 0.1 TW
J. M. Neri, D. A. Hammer, G. Ginot, Cornell University, Ithaca, New York
- 3A2 PLASMA LENS SYNCHROTRON
A. A. Irani, Accelerator Fusion Research Corporation, Upton, New York
- 3A3-4 INVITED PAPER: SOME THEORETICAL ASPECTS OF LIGHT ION BEAM TRANSPORT IN Z-DISCHARGE CHANNEL
P. F. Ottinger, JAYCOR, Alexandria, Virginia
- 3A5 ION BEAM GENERATION EXPERIMENTS ON THE AURORA ACCELERATOR
R. A. Meger, G. Cooperstein, A. T. Drobot, S. A. Goldstein, D. Mosher, F. C. Young, Naval Research Laboratory, S. E. Graybill, G. A. Huttlin, K. G. Kerris, A. G. Stewart, Harry Diamond Laboratories, Adelphi, Maryland
- 3A6 NUMERICAL SIMULATION OF ION PRODUCTION FROM THE AURORA DIODE
A. T. Drobot, Science Applications, Inc., McLean Virginia, R. J. Barker, S. A. Goldstein, JAYCOR, Alexandria, Virginia
- 3A7 APPLICATION OF AURORA TO ION BEAM GENERATION
S. E. Graybill, G. A. Huttlin, K. G. Kerris, A. G. Stewart, Harry Diamond Laboratories, Adelphi, Maryland
- 3A8 NUCLEAR DIAGNOSIS OF ION BEAMS FROM AURORA
F. C. Young, R. A. Meger, Naval Research Laboratories, Washington, D.C.

Tuesday, May 20, 1980
9:00 AM, Lakeshore Room

Oral Session 3B -- Plasma for Fusion Research II
Session Chairman: R. E. Rostenbach

- 3B1-2 INVITED PAPER: PROPAGATION AND ABSORPTION OF ELECTROMAGNETIC WAVES NEAR THE ELECTRON CYCLOTRON FREQUENCY AND MICROWAVE HEATING IN ELMO BUMPY TORUS
D. B. Batchelor, Oak Ridge National Laboratory, Oak Ridge, Tennessee
- 3B3 NEUTRAL BEAM SYSTEMS FOR MFTF-B
A. W. Molvik, R. H. Bulmer, L. C. Pittenger, G. D. Porter, Lawrence Livermore Laboratory, Livermore, California
- 3B4 NEUTRON SAWTOOTH OSCILLATIONS IN DEUTERIUM NEUTRAL BEAM HEATED PLT DISCHARGES
J. D. Strachan, D. Eames, H. P. Eubank, R. J. Goldstein, L. Grisham, J. S. Hosea, J. Hovey, D. Johnson, G. Schilling, Princeton University, Princeton, New Jersey
- 3B5 EXPERIMENTAL SIMULATION OF GASEOUS DIVERTOR
M. Hsu, M. Yamada, P. Barrett, Princeton University, Princeton, New Jersey
- 3B6 TOKAMAK SPACE POTENTIAL MEASUREMENTS USING A HEAVY ION BEAM PROBE
C. L. Fiore, W. C. Jennings, R. L. Hickok, Rensselaer Polytechnic Institute, Troy, New York

- 3B7 PLASMA-ELECTRODE INTERACTIONS IN AN ELECTRIC FIELD BUMPY TORUS PLASMA
J. Reece Roth, University of Tennessee, Knoxville, Tennessee
- 3B8 A RECYCLING MODEL FOR IMPURITIES IN TOKAPOLE II
N. S. Brickhouse, C. D. Burton, R. N. Dexter, University of Wisconsin, Madison, Wisconsin

Tuesday, May 20, 1980
9:00 AM, Room 313

Oral Session 3C -- Laser-Plasma Interaction II
Session Chairman: Edgar A. McLean

- 3C1 GREEN LIGHT EXPERIMENTS ON THE ARGUS FACILITY
E. M. Campbell, F. Ze, V. Rupert, D. Phillion, Lawrence Livermore Laboratory, Livermore, California
- 3C2 PROPOSED IMPROVEMENTS IN DENSITY DIAGNOSIS OF LASER FUSION TARGETS
S. M. Lane, E. M. Campbell, D. L. Matthews, N. M. Ceglio, J. T. Larsen, C. D. Orth, Lawrence Livermore Laboratory, Livermore, California
- 3C3-4 INVITED PAPER: ABLATIVE ACCELERATION OF TARGETS FOR LASER FUSION
B. H. Ripin, Naval Research Laboratory, Washington, D.C.
- 3C5 SHIVA AND ARGUS LASER PROGRAM EXPERIMENTS INVOLVING X-RAY SPECTROSCOPY
D. L. Matthews, L. Koppel, R. L. Keuffman, E. M. Campbell, Lawrence Livermore Laboratory, Livermore, California
- 3C6 FAST ION VELOCITY SPECTRA FROM LASER IRRADIATED THIN PLASTIC FOILS
G. D. Tsakiris, K. Eidman, R. Petsch, R. Sigel, Max-Planck Institute, Germany
- 3C7 ENERGY PARTITION AND TEMPERATURE DISTRIBUTION ON CO₂ LASER IRRADIATED MICROBALLONS
M. D. J. Burgess, G. D. Enright, R. Fedosejevs, C. Joshi, M. C. Richardson, D. M. Villeneuve, National Research Council, Canada
- 3C8 PREDOMINANT VIOLET EMISSION FROM LASER-PRODUCED Na PLASMA
M. E. Koch, K. K. Verma, W. C. Stwalley, University of Iowa, Iowa City, Iowa
- 3C9 GENERATION OF ACOUSTIC PULSES IN WATER BY LASER INDUCED BREAKDOWN
F. Schwirzke, D. J. Armstrong, J. H. Cocovitch, Naval Postgraduate School, Monterey, California
- 3C10 MULTIPLE-PULSE COUPLING OF METAL TARGETS TO DF LASER BEAMS
W. E. Maher, D. B. Nichols, R. B. Hall, Boeing Aerospace Corporation, Seattle, Washington
- 3C11 INDUCTIVE ENERGY TRANSFER EXPERIMENTS FOR THE AFWL SHIVA
D. L. Smith, R. P. Henderson, R. A. Reinovsky, Air Force Weapons Laboratory, Kirtland AFB, New Mexico

Tuesday, May 20, 1980
9:00 AM, Room 224

Oral Session 3D -- Plasma Diagnostics
Session Chairman: B. H. Ripin

- 3D1 HIGH TEMPERATURE, HIGH DENSITY Z-PINCH DEVICES FOR PLASMA RESEARCH
S. Singer, J. H. Brownell, K. Finken, L. A. Jones, I. R. Lindemuth, T. A. Oliphant, Los Alamos Scientific Laboratory, Los Alamos, New Mexico
- 3D2 FAR INFRARED FARADAY ROTATION MEASUREMENT OF ZT-40 POLOIDAL FIELD
M. D. Bausman, P. R. Forman, F. C. Jahoda, K. A. Klare, Los Alamos Scientific Laboratory, Los Alamos, New Mexico
- 3D3 THEORY AND SIMULATION OF FAST ION GENERATION FROM LASER-PRODUCED PLASMAS
A. Sternlieb, H. S. Uhm, University of Maryland, College Park, Maryland
- 3D4 IN SITU CALIBRATION TECHNIQUE FOR SOFT X-RAY DETECTORS
S. Hiroe, University of Nagoya, Nagoya, Japan, G. R. Haste, Oak Ridge National Laboratory, Oak Ridge, Tennessee
- 3D5-6 INVITED PAPER: DIAGNOSTICS FOR INTENSE MeV PULSED LIGHT-ION BEAMS
F. C. Young, Naval Research Laboratory, Washington, D.C.
- 3D7 HARD AND SOFT X-RAY MEASUREMENTS ON EBT-S
D. L. Hillis, G. R. Haste, Oak Ridge National Laboratory, Oak Ridge, Tennessee
- 3D8 OPTICAL AND X-RAY SPECTROSCOPY IN THE PRESENCE OF FAST-CHARGED PARTICLES
R. Jayakumar, H. M. Fleischmann, Cornell University, Ithaca, New York

Tuesday, May 20, 1980
9:00 AM, Room 212

Oral Session 3E -- Computer Methods, Computer Control & Data Acquisition
Session Chairman: H. R. Lewis

- 3E1 DESIGN AND IMPLEMENTATION OF DOUBLET DATA ARCHIVAL AND RETRIEVAL SYSTEM (DDARS)
G. W. Shepard, S. Karin, General Atomic Company, San Diego, California
- 3E2 AN OPTIMALLY CONTROLLED TFTR DISCHARGE
M. A. Firestone, Princeton University, Princeton, New Jersey

- 3E3 HIERARCHICAL, DISTRIBUTED COMPUTER CONTROL SYSTEM FOR THE ANTARES LASER
D. Call, Los Alamos Scientific Laboratory, Los Alamos, New Mexico
- 3E4 COMPUTER SIMULATION OF PULSED PARTICLE BEAM DEVICES
A. Sternlieb, University of Maryland, College Park, Maryland
- 3E5 TRIDIF, A TRIANGULAR MESH MAGNETIC DIFFUSION CODE
J. R. Freeman, Sandia Laboratories, Albuquerque, New Mexico
- 3E6 PHYSICS OF PLASMA-PHOTO-CHEMISTRY, VIA MICROSCALE PLASMA ACCELERATORS, BY SPACE-TIME LG-SPLINE DIAOPTICS OF LARGE-SCALE QUANTUM RELATIVISTIC ENERGY-INFORMATION SYMMETRIC AND SUPER-SYMMETRIC SYSTEMS AND NETWORKS
J. A. Sarmiento-Campora, Instituto de Automatica, Sistemas e Informatica, Argentina
- 3E7 COMPUTER AIDED EXTRACTOR DESIGN FOR THE RIG TO HIGH INTENSITY ION SOURCE
J. Hauser, D. Eppel, Institut fur Physik, Geesthacht, Germany, F. Tanzer, Universitat Giessen, Giessen, Germany
- 3E8 NUMERICAL SIMULATION OF DYNAMIC AIR ARC BEHAVIOR WITH RESPECT TO REACTION KINETICS
H. T. Sommer, Desert Research Institute, Nevada
- 3E9 THE REPRESENTATION OF SHOCK-LIKE SOLUTIONS IN AN EULERIAN MESH
G. Knorr, University of Iowa, Iowa City, Iowa
- 3E10 REPRESENTATION OF THE DISPERSION MATRIX FOR A SHARP-BOUNDARY VLASOV-FLUID SCREM PINCH
H. Ralph Lewis, T. G. Hewitt, Los Alamos Scientific Laboratory, Los Alamos, New Mexico
- 3E11 EXPANSION OF THE ELECTRICAL CONDUCTIVITY σ AND ITS USE FOR THE CALCULATION OF σ IN A PLASMA
R. L. M. Chen, Emory University, Atlanta, Georgia

Tuesday, May 20, 1980
9:00 AM, Room 224

Oral Session 3F -- Plasma Focus II, and Thermionics & Plasma Diodes III
Session Chairman: Dennis Erikson

- 3F1 ANISOTROPY OF THE NEUTRON FLUX FROM A LOW ENERGY PLASMA FOCUS
G. Casin, M. Esper, H. Kelly, M. Milanese, Laboratorio del Fisica del Plasma, Buenos Aires, Argentina
- 3F2-3 INVITED PAPER: GENERATION OF MA/cm² ELECTRON AND ION BEAMS BY PLASMA FOCUS DISCHARGES
V. Nardi, Stevens Institute of Technology, Hoboken, New Jersey
- 3F4 INTENSE ION BEAMS BY DENSE PLASMA FOCUS
Y. Kitagawa, Y. Yamada, A. Ishizaki, M. Naito, M. Yokoyama, C. Yamanaka, Osaka University, Osaka, Japan
- 3F5 INTENSE CHARGED PARTICLE BEAMS EJECTED FROM A PLASMA FOCUS
G. M. Moten, Old Dominion University, Norfolk, Virginia
- 3F6 PLASMA FOCUS ION MEASUREMENTS BY TIME-OF-FLIGHT
R. L. Gullikson, J. W. McClure, W. L. Pickles, D. F. Price, T. E. Wainwright, M. D. Williams, Lawrence Livermore Laboratory, Livermore, California
- 3F7 ION AND ELECTRON CURRENT MEASUREMENTS IN A PLASMA FOCUS DEVICE
G. Gerdin, W. Stygar, F. Venneri, University of Illinois, Urbana, Illinois
- 3F8 THERMIONIC CONVERTER WITH A THICK CESIUM OXIDE COLLECTOR
L. K. Hansen, H. Y. Woo, Rason Associates, Sunnyvale, California
- 3F9 CALCULATION OF THERMIONIC CONVERTER CURRENT-VOLTAGE CHARACTERISTICS IN THE OBSTRUCTED REGION
C. C. Wang, Thermo Electron Corporation, Waltham, Massachusetts
- 3F10 FORMATION OF A DOUBLE SHEATH IN A THERMIONIC CONVERTER
C. C. Wang, Thermo Electron Corporation, Waltham, Massachusetts

Tuesday, May 20, 1980
9:00 PM, Room 109

Poster Session 3G -- Intense Electron and Ion Beams II

- 3G1 LINEAR THEORY OF THE TWO-STREAM INSTABILITY FOR DISTRIBUTED BEAMS PROPAGATING IN COLLISIONAL PLASMA
B. S. Newberger, L. E. Thode, Los Alamos Scientific Laboratory, Los Alamos, New Mexico
- 3G2 A RELATIVISTIC ELECTRON BEAM GENERATOR FOR PLASMA HEATING EXPERIMENTS
J. V. Parker, R. L. Sheffield, K. B. Riepe, M. D. Montgomery, Los Alamos Scientific Laboratory, Los Alamos, New Mexico, R. White, J. Harrison, J. Shannon, Maxwell Laboratories, San Diego, California
- 3G3 GENERATION OF HIGHLY COLLIMATED, INTENSE RELATIVISTIC ELECTRON BEAMS USING A MAGNETIZED, FOILLESS DIODE
M. D. Montgomery, J. V. Parker, K. B. Riepe, R. L. Sheffield, Los Alamos Scientific Laboratory, Los Alamos, New Mexico
- 3G4 LIFETIME STUDIES OF REPETITIVELY PULSED ELECTRON BEAM ANODE FOILS
J. W. Ginn, M. T. Buttram, Sandia Laboratories, Albuquerque, New Mexico
- 3G5 PARTICLE BEAM GENERATION BY MERGENCE/RECONNECTION
E. C. Cnare, T. J. Burgess, R. J. Kaye, M. Cowan, Sandia Laboratories, Albuquerque, New Mexico, D. M. Woodall, University of New Mexico, Albuquerque, New Mexico

- 3G6 A NEW APPROACH TO PLASMA CONFINEMENT AND HEATING FOR FUSION
A. K. Sinha, COMSAT Corporation
- 3G7 COLLIDING-BEAMS FUSION REVISITED
E. Greenspan, G. H. Wiley, University of Illinois, Urbana, Illinois

Tuesday, May 20, 1980
9:00 PM, Room 213

Poster Session 3H -- Plasma Waves, Instabilities & Antennas I

- 3H1 MHD EQUILIBRIUM AND STABILITY ANALYSIS OF ISX-B PLASMAS
J. K. Munro, Jr., L. A. Charlton, D. K. Lee, D. W. Swain, Oak Ridge National Laboratory, Oak Ridge, Tennessee
- 3H2 SELF-SIMILAR PHENOMENA IN PLASMA PHYSICS
K. E. Lonngren, S. F. Johnson, University of Iowa, Iowa City, Iowa, R. A. Axford, University of Illinois, Urbana, Illinois, D. D. Holm, Los Alamos Scientific Laboratory, Los Alamos, New Mexico
- 3H3 A NEW MECHANISM FOR ELECTROMAGNETIC EMISSION AND ANOMALOUS RESISTIVITY FROM EQUAL AND OPPOSITELY DIRECTLY ELECTRON BEAMS INTERACTING WITH HEAVY IONS
J. R. Roth, I. Alexeff, J. D. Birdwell, University of Tennessee, Knoxville, Tennessee, R. Mallavarpu, Reynolds Metals Company, Sheffield, Alabama
- 3H4 THE INTEGRAL METHOD IN LINEAR PLASMA THEORY
G. Knorr, University of Iowa, Iowa City, Iowa
- 3H5 PONDEROMOTIVE FORCE EFFECTS BELOW THE SECOND ELECTRON-CYCLOTRON RESONANCE
M. Shoucri, H. H. Kuehl, University of Southern California, Los Angeles, California
- 3H6 FEEDBACK STABILIZATION OF THE TRAPPED ELECTRON INSTABILITY
M. A. Makowski, G. A. Emmert, University of Wisconsin, Madison, Wisconsin
- 3H7 CONVECTIVE CELLS AND THEIR RELATIONSHIP TO VORTEX DIFFUSION IN THE WISCONSIN LEVITATED OCTUPOLE
A. B. Ehrhardt, University of Wisconsin, Madison, Wisconsin

Tuesday, May 20, 1980
9:00 AM, Room 317

Poster Session 3I -- Intense Electron and Ion Beams III

- 3I1 INTERACTION OF AN INTENSE REB WITH A REDUCED DENSITY, CONDUCTING CHANNEL IN THE ATMOSPHERE
J. R. Greig, M. Raleigh, R. B. Fiorito, J. D. Sethian, R. F. Fernsler, L. Allen, Naval Research Laboratory, Washington, D.C.
- 3I2 REDUCED DENSITY CURRENT CARRYING CHANNELS FOR TRANSPORTING CHARGED PARTICLE BEAMS
M. Raleigh, J. C. Hallie, R. E. Pechacek, R. B. Fiorito, E. Latkin, J. R. Greig, Naval Research Laboratory, Washington, D.C.
- 3I3 FURTHER STUDIES OF A B₀ MAGNETICALLY INSULATED ION DIODE
T. Renk, R. Pal, G. Rondeau, M. Gershonowitz, D. A. Hammer, R. N. Sudan, Cornell University, Ithaca, New York
- 3I4 PROPAGATION CHARACTERISTICS OF AN INTENSE ION BEAM IN VACUUM AND GASES
R. Pal, T. Renk, D. A. Hammer, R. N. Sudan, Cornell University, Ithaca, New York
- 3I5 EXPERIMENTAL STUDY OF THE PINCHED BEAM ION DIODE
F. L. Sandel, JAVCOR, Inc., Alexandria, Virginia
- 3I6 PRELIMINARY VACUUM TRANSPORT EXPERIMENTS ON THE ETA
G. Craig, J. C. Clark, T. J. Fessenden, R. E. Haster, Y. K. Neil, Lawrence Livermore Laboratory, Livermore, California, A. C. Paul, Lawrence Berkeley Laboratory, Berkeley, California
- 3I7 STUDIES OF ION RANGES IN ICF TARGET MATERIALS
T. A. Mehlhorn, Sandia Laboratories, Albuquerque, New Mexico

Tuesday, May 20, 1980
2:00 PM, Auditorium

Oral Session 4A -- Magnetic Fusion
Session Chairman: James T. Woo

- 4A1 KINK AND DISPLACEMENT INSTABILITIES IN IMPLoding WIRE ARRAYS
F. S. Felber, N. Rostoker, Maxwell Laboratories, San Diego, California
- 4A2 DEVELOPMENT OF AN AC CABLE TEST FACILITY FOR PULSED SUPERCONDUCTING COILS
S. H. Kim, R. P. Smith, R. L. Kustom, W. F. Praeg, Argonne National Laboratory, Argonne, Illinois
- 4A3 LINUS IMPLoding LIQUID METAL LINER FUSION SYSTEM STUDIES
P. J. Turchi, A. L. Cooper, D. J. Jenkins, E. P. Scannell, J. Cameron, R. Lanham, Naval Research Laboratory, Washington, D.C.
- 4A4 LIMITATIONS ON THE EFFECTIVENESS OF THE ROTATIONALLY STABILIZED LINER CONCEPT IMPOSED BY THE DEVELOPMENT OF HIGH-m INSTABILITIES
R. C. Mjoelsness, H. M. Ruppel, Los Alamos Scientific Laboratory, Los Alamos, New Mexico

- 4A5 CURRENT PEAKING AND VERTICAL ELONGATION IN DOUBLET III
R. D. Stambaugh, R. P. Blau, J. C. Deboo, J. S. Degrossie, S. Ejima, R. L. Freeman, J. L. Luxon, M. A. Mahdavi, F. B. Marcus, R. L. Miller, W. M. Pfeiffer, A. M. Sleeper, T. Tamano, T. Taylor, T. S. Wang, R. E. Waltz, J. C. Westley, *General Atomic Company, San Diego, California*
- 4A6 PLASMA FORMATION IN TBR-BRAZILIAN TOKAMAK
TBR Group, *University of Sao Paulo, Sao Paulo, Brazil*
- 4A7 MAGNETIC FLUX DIFFUSION IN A TOKAMAK REACTOR
J. A. Holmes, Y.-K. M. Peng, K. E. Rothe, *Oak Ridge National Laboratory, Oak Ridge, Tennessee*
- 4A8 FUSION REACTIONS OF TRAPPED ION BEAMS
S. Humphries, Jr., *Sandia Laboratories, Albuquerque, New Mexico*
- 4A9 ELECTROSTATIC PLASMA CONFINEMENT EXPERIMENTS IN A TANDEM MIRROR SYSTEM
D. L. Correll, F. H. Coensgen, C. A. Anderson, T. A. Casper, J. F. Clauser, W. C. Condit, W. F. Cummins, J. C. Davis, R. P. Drake, J. H. Foote, A. H. Futch, R. K. Goodman, D. P. Grubb, G. A. Hallock, R. S. Hornady, A. L. Hunt, B. G. Logan, R. H. Munger, W. E. Nexsen, T. C. Simonen, D. R. Slaughter, B. W. Stallard, O. T. Strand, *Lawrence Livermore Laboratory, Livermore, California*
- 4A10 GRAZING INCIDENCE SPECTROGRAPH MEASUREMENTS OF SHIVA IMPLODING LINER RADIATION PULSE
D. M. Woodall, J. H. Degnan, G. F. Kiuttu, R. J. Sand, R. E. Reinovsky, W. L. Baker, *Air Force Weapons Laboratory, Kirtland AFB, New Mexico*
- Tuesday, May 20, 1980
2:00 PM, Lakeshore Room
- Oral Session 4B -- High-Power Microwave Generation
Session Chairman: G. Bekefi
- 4B1-2 INVITED PAPER: FREE ELECTRON LASERS
L.R. Elias, *University of California, Santa Barbara, California*
- 4B3 A FREE ELECTRON LASER PUMP PRODUCED BY MAGNETIC DIFFUSION
K. D. Jacobs, R. E. Shefer, G. Bekefi, *Massachusetts Institute of Technology, Cambridge, Massachusetts*
- 4B4 A STUDY OF FIELD EMISSION DIODES FOR FEL APPLICATIONS
R. E. Shefer, G. Bekefi, *Massachusetts Institute of Technology, Cambridge, Massachusetts*
- 4B5 SOURCES OF BEAM TEMPERATURE IN THE ELECTRON GUN OF A RAMAN FEL
R. H. Jackson, R. K. Parker, *Naval Research Laboratory, Washington, D.C.*
- 4B6 MULTIPLE FREQUENCY OUTPUT OF A RAMAN MASER WITH A MAGNETIC WIGGLER PUMP
K. Busby, K. Felch, R. W. Layman, N. Kapirow, J. E. Walsh, *Dartmouth College, Hanover, New Hampshire*
- 4B7 HIGH-POWER MICROWAVE GENERATION FROM AN INTENSE ROTATING ELECTRON BEAM
W. M. Destler, W. Namkung, H. Romero, C. D. Striffler, R. Weiler, *University of Maryland, College Park, Maryland*
- 4B8 MILLIMETER MICROWAVE EMISSION FROM A MASER USING SYNTHETIC ATOMS
I. Alexeff, F. Dyer, *University of Tennessee, Knoxville, Tennessee*
- 4B9 DESIGN OF A HIGH POWER, HIGH EFFICIENCY GYROTRON
D. Arfin, M. E. Read, *National Research Laboratory, Washington, D.C.*
- 4B10 EFFECTS OF RELATIVISTIC ELECTRON DRIFTS ON MAGNETIC INSULATION OF HIGH-VOLTAGE DIODES
F. S. Felber, J. Shannon, *Maxwell Laboratories, San Diego, California*
- 4B11 EXPERIMENTS AND COMPUTER SIMULATION OF RELATIVISTIC MAGNETRONS
A. Palevsky, G. Bekefi, *Massachusetts Institute of Technology, Cambridge, Massachusetts*, A. T. Drobot, *Science Applications, Inc.*
- 4B12 INITIAL PERFORMANCE CHARACTERISTICS OF A HIGH POWER HYBRID INVERTED COAXIAL MAGNETRON
W. M. Black, R. K. Parker, R. Tobin, *Naval Research Laboratory, Washington, D.C.*, G. K. Farney, *Varian Associates*
- 4B13 A LONG PULSE, RELATIVISTIC MAGNETRON WITH AN OXIDE CATHODE
W. P. Ballard, D. B. Illic, S. A. Self, F. W. Crawford, *Stanford University, Stanford, California*
- 4B14 INVITED PAPER: STIMULATED CHERENKOV RADIATION OF RELATIVISTIC ELECTRONS.
M. Raizer, *Lebedev Institute, Moscow, U.S.S.R.*
- Tuesday, May 20, 1980
2:00 PM, Room 313
- Oral Session 4C -- Intense Electron and Ion Beams III
Session Chairman: G. Kuswa
- 4C1 FINAL FOCUSING OF AN INTENSE ION BEAM FOLLOWING TRANSPORT THROUGH A Z-DISCHARGE PLASMA CHANNEL
P. F. Ottinger, S. A. Goldstein, D. Mosher, *Naval Research Laboratory, Washington, D.C.*
- 4C2 PARTICLE BEAM ACCELERATION IN MAGNETIZED MOVING PLASMA
S. A. Goldstein, D. Tidman, *JAYCOR, Alexandria, Virginia*
- 4C3-4 INVITED PAPER: ION DIODE WITH INTEGRAL MAGNETIC INSULATION AND PULSE COMPRESSION
C. W. Mendel, Jr., *Sandia Laboratories, Albuquerque, New Mexico*
- 4C5 GENERATION OF INTENSE ANNULAR PROTON BEAMS USING AN INVERSE REFLEX TETRODE WITH CONICAL ELECTRODES
J. A. Pasour, J. Golden, C. A. Kapetanakis, *Naval Research Laboratory, Washington, D.C.*
- 4C6 PINCH REFLEX ION DIODE PERFORMANCE AT 3-5 TW
G. Cooperstein, J. R. Botter, S. A. Goldstein, D. Mosher, W. F. Oliphant, S. J. Stephanakis, F. C. Young, *Naval Research Laboratory, Washington, D.C.*, R. D. Genuario, J. E. Maenchen, *Physics International Company, San Leandro, California*
- 4C7 DESIGN OF A 20 MeV, 4kA LINEAR INDUCTION ACCELERATOR
B. Kulke, R. Brier, W. Chapin, R. Kihara, R. Kuenning, B. McFarlane, G. North, K. North, C. Parkison, D. Ravenscroft, G. Russell, R. Scarpetti, I. Smith, G. Vogtlin, J. Wagner, K. Wong, *Lawrence Livermore Laboratory, Livermore, California*
- 4C8 COMPUTER SIMULATIONS OF A MAGNETICALLY INSULATED RADIAL DIODE
R. J. Barker, S. A. Goldstein, *JAYCOR, Alexandria, Virginia*, A. Drobot, *Science Applications, Inc., McLean, Virginia*
- 4C9 ION PRODUCTION FROM SMALL-AREA PINCH-REFLEX DIODES
S. J. Stephanakis, G. Cooperstein, D. Mosher, W. F. Oliphant, F. C. Young, *Naval Research Laboratory, Washington, D.C.*, S. A. Goldstein, *JAYCOR, Alexandria, Virginia*
- 4C10 CW MONOENERGETIC Cs⁺ ION SOURCE BY PHOTOIONIZATION
R. W. Dreyfus, *IBM Watson Research Center, Yorktown Heights, New York*
- 4C11 INVESTIGATION OF SHELL STABILITY IN CYLINDRICAL TARGETS
M. A. Sweeney, F. C. Perry, *Sandia Laboratories, Albuquerque, New Mexico*
- 4C12 SIMPLE BREAKEVEN TARGETS FOR HEAVY ION FUSION
W. P. Gula, *Los Alamos Scientific Laboratory, Los Alamos, New Mexico*
- 4C13 HEAVY ION TARGETS-SPHERICAL SHELLS
G. Magelssen, *Argonne National Laboratory, Argonne, Illinois*, W. P. Gula, *Los Alamos Scientific Laboratory, Los Alamos, New Mexico*
- Tuesday, May 20, 1980
2:00 PM, Room 224
- Oral Session 4D -- Gaseous Electronics, Arc Science & Arc Technology I
Session Chairman: L. L. Kline
- 4D1 SPECTROSCOPIC INVESTIGATION OF A HIGH CURRENT METAL VAPOR ARC COLUMN
D. Bhasavanich, J. V. R. Heberlein, C. S. Liu, *Westinghouse R & D Center, Pittsburgh, Pennsylvania*
- 4D2 SPECTROSCOPIC ANALYSIS OF HIGH CURRENT ARCS IN GAS CIRCUIT BREAKERS
S. Okuda, Y. Ueda, Y. Murai, *Mitsubishi Electric Corporation, Hyogo, Japan*
- 4D3 PLASMA DENSITY MEASUREMENTS USING A DOUBLE PROBE IN A PROTOTYPE VACUUM ARC FAULT CURRENT LIMITER
P. D. Pedrow, L. M. Burrage, *McGraw-Edison Company, Franksville, Wisconsin*, J. L. Shohet, *University of Wisconsin, Madison, Wisconsin*
- 4D4 DYNAMIC MEASUREMENTS OF ARC ROOT STRUCTURE UNDER H.V. INSULATOR FLASHOVER CONDITIONS
H. Mercure, M. G. Drouet, *Direction Recherche et Essais, Appareillage de Réseau, Varennes, Canada*
- 4D5 POPULATION INVERSION OF CdII LEVELS IN MULTI-CATHODE-SPOT VACUUM ARC
S. Goldsmith, S. Shalev, R. L. Boxman, *Tel Aviv University, Tel Aviv, Israel*
- 4D6-7 INVITED PAPER: LIMITS AND LIFE OF VACUUM INTERRUPTERS USED FOR REPEATED INTERRUPTION OF HIGH DC CURRENTS
R. W. Warren, *Los Alamos Scientific Laboratory, Los Alamos, New Mexico*
- Tuesday, May 20, 1980
2:00 PM, Room 212
- Oral Session 4E -- Thermionics and Plasma Diodes IV
Session Chairman:
- 4E1 APPLICATION OF MICROFABRICATION TECHNOLOGY TO THERMIONIC ENERGY CONVERSION
I. Brodie, D. C. Gates, C. A. Spindt, *SRI International, Menlo Park, California*
- 4E2 HIGH DENSITY THERMIONIC ELECTRON EMISSION FROM LASER HEATED CESIATED TARGETS
C. Lee, P. E. Ottinger, *Thermo Electron Corporation, Waltham, Massachusetts*
- 4E3 COLLECTOR ELECTRON HEATING MEASUREMENTS
M. Saunders, D. Lieb, *Thermo Electron Corporation, Waltham, Massachusetts*
- 4E4 EXPERIMENTS WITH CESIATED TUNGSTEN ELECTRODES TREATED IN OXYGEN
B. Gunther, F. N. Huffman, *Thermo Electron Corporation, Waltham, Massachusetts*
- 4E5 CESIUM ADSORPTION ON THE Zr/O/W(100) SURFACE
L. W. Swanson, H. K. Chen, P. R. Davis, *Oregon Graduate Center*
- 4E6 INVESTIGATIONS OF THE Zr-O-W(100) ELECTRODE
L. R. Danielson, *Thermo Electron Corporation, Waltham, Massachusetts*
- 4E7 DEVELOPMENT OF EMITTER AND COLLECTOR SURFACES FOR IMPROVED THERMIONIC CONVERTERS
J.-L. Desplat, C. A. Papageorgopoulos, *Rasor Associates, Sunnyvale, California*

- 4E8 WORK FUNCTION DETERMINATION OF SELECTED SUPERALLOYS
R. Umanita, M. Morton, D. Jacobson, *Arizona State University, Tempe, Arizona*
- 4E9 THE THERMIONIC WORK FUNCTION OF COMPOUNDS
E. K. Storms, *Los Alamos Scientific Laboratory, Los Alamos, New Mexico*
- 4E10 YTTRIUM-BORON COMPOUND THERMIONIC WORK FUNCTIONS
J. Jaskie, D. Jacobson, *Arizona State University, Tempe, Arizona*
- 4E11 THE ADSORPTION OF CESIUM ON LANTHANUM HEXABORIDE SURFACES
P. R. Davis, S. A. Chambers, L. W. Swanson, *Oregon Graduate Center*
- 4E12 AN APPROACH TO PRODUCING A SUCCESSFUL BOND BETWEEN LaB₆ AND Ta
E. K. Storms, *Los Alamos Scientific Laboratory, Los Alamos, California*
- 4E13 AUXILIARY IONIZATION IN ADVANCED THERMIONIC CONVERTERS
M. E. Hatziprokopiou, R. Chandra, D. T. Shaw, *State University of New York, Buffalo, New York*, R. C. Bergman, T. J. Falk, J. W. Rich, *Calspan*

Tuesday, May 20, 1980
2:00 PM, Room 311

Oral Session 4F -- Gaseous Electronics, Arc Science & Arc Technology II
Session Chairman: L. M. Burrage

- 4F1 A QUANTITATIVE STUDY OF UNIPOLAR ARCS IN A LOW PRESSURE MERCURY DISCHARGE
C. T. Johnson, *University of Pittsburgh, Pittsburgh, Pennsylvania*, A. Lee, G. S. Smeltzer, *Westinghouse Corporation, Pittsburgh, Pennsylvania*
- 4F2 SWITCHING 1.5 TERAWATTS AT 4 MILLION VOLTS WITH A SINGLE GAS SWITCH: THE DQ SWITCH
J. W. Douglas, W. F. J. Crewson, C. H. Jones, Jr., *Pulsar Associates, San Diego, California*
- 4F3 X-RAY TRIGGERED SWITCHING IN SF₆ INSULATED GAPS
E. L. Neu, *Sandia Laboratories, Albuquerque, New Mexico*
- 4F4 A QUANTITATIVE STUDY OF UNIPOLAR ARCS IN A LOW PRESSURE MERCURY DISCHARGE
C. T. Johnson, *University of Pittsburgh, Pittsburgh, Pennsylvania*, A. Lee, G. S. Smeltzer, *Westinghouse Corporation, Pittsburgh, Pennsylvania*
- 4F5 PERFORMANCE PREDICTION FOR HIGH VOLTAGE ON/OFF SWITCHES UTILIZING ELECTRON BEAM SUSTAINED DISCHARGES
L. E. Kline, J. Dzimianski, *Westinghouse Corporation, Pittsburgh, Pennsylvania*
- 4F6 ANALYSIS OF DYNAMIC ARCS IN SUPERSONIC FLOW
C. K. Bhansali, D. M. Benenson, *State University of New York, Buffalo, New York*
- 4F7 THE PLASMA IN THE TOROIDAL ELLIPTIC SYSTEM
S. W. Temko, S. K. Kuzmin, *Moscow Geological Prospecting Institute, Moscow, U.S.S.R.*
- 4F8 DYNAMIC MODELING FOR THE PROCESS OF INDUCING AND INDUCED VOLTAGE SURGES DUE TO LIGHTNING
K. Denno, *New Jersey Institute of Technology, Newark, New Jersey*
- 4F9 PREDICTED ELECTRODE SHEATH CHARACTERISTICS FOR DISCHARGES IN ATTACHING GASES
R. R. Mitchell, L. E. Kline, L. J. Denes, *Westinghouse R & D Center, Pittsburgh, Pennsylvania*

Tuesday, May 20, 1980
2:00 PM, Room 109

Poster Session 46 -- Laser-Plasma Interaction

- 4G1 ABLATIVE ACCELERATION OF LARGE AREA THIN-FOIL TARGETS
B. H. Ripin, S. E. Bodner, R. Decoste, S. H. Gold, J. Grun, M. J. Herbst, E. A. McLean, S. P. Obenshain, J. A. Stamper, R. R. Whitlock, F. C. Young, *Naval Research Laboratory, Washington, D.C.*
- 4G2 ENERGY TRANSPORT THROUGH LASER-IRRADIATED THIN-FOIL TARGETS
E. A. McLean, S. H. Gold, J. A. Stamper, H. R. Griem, S. P. Obenshain, B. H. Ripin, R. R. Whitlock, S. E. Bodner, S. J. Gitomer, *Naval Research Laboratory, Washington, D.C.*
- 4G3 SYSTEMATICS IN THE X-RAY EMISSION FROM LASER-HEATED PLASMAS
D. J. Nagel, *Naval Research Laboratory, Washington, D.C.*
- 4G4 EFFECT OF TARGET COMPOSITION ON SOFT X-RAY AND UV EMISSION FROM MULTI-ELEMENT LASER-PRODUCED PLASMAS
N. G. Loter, D. J. Nagel, C. M. Brown, *Naval Research Laboratory, Washington, D.C.*
- 4G5 THE EFFECTS OF EMISSION AND ABSORPTION OF LINE RADIATION ON THE IMPLSION DYNAMICS OF AN ARGON-SEEDED DT PELLET
P. Vitello, J. Apruzese, D. Duston, J. Davis, *Naval Research Laboratory, Washington, D.C.*
- 4G6 SPACE-RESOLVED CONTINUUM X-RAY EMISSION FROM HOT ELECTRON TRANSPORT IN CO₂-LASER-PLASMAS
R. Decoste, *Institut de Recherche d'Hydro-Quebec, Quebec, Canada*, J. C. Kieffer, H. Pepin, *Universite de Quebec, Quebec, Canada*
- 4G7 DEPENDENCE OF BRILLOUIN SCATTERING ON f-no. AND ATOMIC SPECIES
C. E. Clayton, F. F. Chen, A. Yasuda, *University of California, Los Angeles, California*

- 4B8 ION VELOCITY DISTRIBUTION IN LASER-FUSION EXPERIMENTS WITH ONE NANOSECOND LASER PULSES ON SPHERICAL TARGETS
J. A. Tarvin, F. J. Mayer, *KMS Fusion, Ann Arbor, Michigan*
- 4G9 EXPERIMENTAL AND THEORETICAL INVESTIGATIONS OF HIGH POWER LASER BEAM PROPAGATION IN MAGNETOPLASMAS
R. Druce, M. O. Hogler, M. Kristiansen, *Texas Tech University, Lubbock, Texas*
- 4G10 MODELS OF SPARKS PRODUCED BY A TRAIN OF LASER PULSES
R. W. Schmieder, *Sandia Laboratories, Albuquerque, New Mexico*

Tuesday, May 20, 1980
2:00 PM, Room 213

Poster Session 4H -- Neutral Beams for Fusion Research II

- 4H1 DIRECT ENERGY RECOVERY OF UNNEUTRALIZED ION BEAMS WITH CLOSE COUPLED ELECTRIC AND MAGNETIC FIELDS
W. K. Dagenhart, G. C. Barber, R. R. Feezell, W. L. Gardner, H. H. Haselton, J. Kim, N. S. Ponte, W. L. Stirling, C. C. Tsai, J. H. Wheaton, *Oak Ridge National Laboratory, Oak Ridge, Tennessee*
- 4H2 DESIGN CONSIDERATIONS FOR A 1 A, STEADY STATE H⁺ SOURCE
K. Prelec, R. McKenzie-Wilson, J. Alessi, J. Fink, Th. Stuyters, *Brookhaven National Laboratory, Upton, New York*
- 4H3 DUOPIGATRON GAS DISCHARGE ION SOURCE STUDIES
R. W. Bickes, Jr., J. B. O'Hagan, *Sandia Laboratories, Albuquerque, New Mexico*
- 4H4 SECONDARY EMISSION OF NEGATIVE HYDROGEN IONS FROM METAL HYDRIDES
M. Seidl, A. N. Pargellis, J. Greer, *Stevens Institute of Technology, Hoboken, New Jersey*
- 4H5 PLASMA GENERATION AND FLOW IN MAGNETIZED NEGATIVE ION BEAMS PRODUCED ON A CESIUM JET
J. M. Dolique, F. Zadworny, *Universite de Grenoble, Grenoble, France*

Tuesday, May 20, 1980
2:00 PM, Room 317

Poster Session 4I -- Field Reversed Ring Configuration

- 4I1 RADIAL STABILITY OF FIELD-REVERSING E- AND P- LAYERS AND PLASMA RINGS MOVING IN A RESISTIVE WALL
D. J. Rej, H. H. Fleischmann, *Cornell University, Ithaca, New York*
- 4I2 FIELD REVERSED EXPERIMENTS
J. Lipson, W. T. Armstrong, R. K. Linford, D. A. Platts, E. G. Sherwood, *Los Alamos Scientific Laboratory, Los Alamos, New Mexico*
- 4I3 STUDIES OF A FIELD-REVERSED PLASMA CREATED WITH A MAGNETIZED COAXIAL PLASMA GUN TO BE USED IN COMPACT TORUS STUDIES
I. Henins, H. W. Hoida, T. R. Jarboe, J. Marshall, D. A. Platts, A. R. Sherwood, *Los Alamos Scientific Laboratory, Los Alamos, New Mexico*
- 4I4 FIELD REVERSED PLASMA GUN EXPERIMENT
W. C. Turner, W. C. Condit, E. Granneman, C. W. Hartman, D. S. Prono, A. C. Smith, J. Taska, *Lawrence Livermore Laboratory, Livermore, California*
- 4I5 NUMERICAL CALCULATIONS OF THE BETA-II FIELD-REVERSAL EXPERIMENT
J. L. Eddleman, J. W. Shearer, W. C. Turner, *Lawrence Livermore Laboratory, Livermore, California*
- 4I6 COMPARISON OF THE PARAMAGNETIC SPHEROMAK (PS-1) IMPLSION DATA WITH A 1-D CYLINDRICAL HYBRID CODE
J. H. Irby, Y. P. Chong, G. C. Goldenbaum, G. W. Hart, A. G. Sgro, D. Winske, *University of Maryland, College Park, Maryland*
- 4I7 AXIAL COMPRESSION OF ROTATING LONGSHOT PROTON BEAMS
J. B. GREENLY, A. MANKOSKY, M. GAYDAR, D. A. HAMMER, R. N. SUDAN, *Cornell University, Ithaca, New York*
- 4I8 THE POTENTIAL USE OF TWO COUNTERSTREAMING ROTATING ELECTRON BEAMS TO PRODUCE A COMPACT TOROID GEOMETRY
J. D. Sethian, K. A. Gerber, D. M. Spector, A. E. Robson, *Naval Research Laboratory, Washington, D.C.*
- 4I9 THE MOVING-RING FIELD-REVERSED MIRROR REACTOR CONCEPT
A. C. Smith, Jr., C. P. Ashworth, *Pacific Gas & Electric Company, San Francisco, California*, G. A. Carlson, *Lawrence Livermore Laboratory, Livermore, California*, H. H. Fleischmann, *Cornell University, Ithaca, New York*, T. Kamash, *University of Michigan, Ann Arbor, Michigan*, K. R. Schultz, *General Atomic Company, San Diego, California*, D. M. Woodall, *University of New Mexico*

Wednesday, May 21, 1980
9:00 AM, Auditorium

Oral Session 5A -- Field Reversed Ring Configuration
Session Chairman: P. Christiansen

- 5A1 HYBRID STELLARATOR-SPHEROMAK OR STELLARATOR-FIELD-REVERSED-MIRROR CONFIGURATIONS
C. W. Hartman, *Lawrence Livermore Laboratory, Livermore, California*
- 5A2 INVESTIGATION OF THE POST IMPLSION PHASE OF PARAMAGNETIC SPHEROMAK (PS-1)
Y. P. Chong, G. C. Goldenbaum, G. W. Hart, J. H. Irby, *University of Maryland, College Park, Maryland*

- 5A3-4 INVITED PAPER: FIELD REVERSED RING CONFIGURATIONS
H.H. Fleischmann, Cornell University, Ithaca, New York
- 5A5 COMPACT-TORI REACTORS BASED ON FIELD-REVERSED PLASMA CONFIGURATIONS
J. G. Gilligan, G. H. Miley, University of Illinois, Urbana, Illinois
- 5A6 SOME SCALING RELATIONSHIPS FOR FIELD-REVERSED MIRROR EXPERIMENTS
J. W. Shearer, W. C. Condit, W. C. Turner, Lawrence Livermore Laboratory, Livermore, California
- 5A7 FUTURE FIELD REVERSAL STUDIES
R. E. Siemon, LASL Compact Torus Staff, Los Alamos Scientific Laboratory, Los Alamos, New Mexico
- 5A8 PROGRESS TOWARDS TRAPPING OF ROTATING PROTON BEAMS IN A MAGNETIC MIRROR FIELD
P. L. Dreike, J. B. Greenly, D. A. Hammer, R. N. Sudan, Cornell University, Ithaca, New York
- 5A9 DETAIL MEASUREMENTS ON THE AXIAL TRANSLATION OF STRONG E-RINGS IN RECE-CHRISTA
D. J. Rej, H. H. Fleischmann, Cornell University, Ithaca, New York
- 5A10 PREIONIZATION EXPERIMENTS ON THE FRX-A, FIELD REVERSED THETA PINCH
R. J. Comisso, C. A. Ekdahl, R. K. Linford, E. G. Sherwood, Los Alamos Scientific Laboratory, Los Alamos, New Mexico
- 5A11 TWO FLUID QUASI-RIGID-ROTOR MODEL OF ROTATION FOR RFTP
Q. T. Fanq, G. H. Miley, University of Illinois, Urbana, Illinois

Wednesday, May 21, 1980
9:00 AM, Lakeshore Room

Oral Session 5B -- Intense Electron and Ion Beams IV
Session Chairman: G. Cooperstein

- 5B1-2 INVITED PAPER: REVIEW OF HEAVY ION FUSION EFFORT
T. Godlove, Department of Energy, Office of Inertial Fusion, Washington, D.C.
- 5B3 THE SENSITIVITY OF HEAVY ION FUSION TARGETS TO PHYSICAL MODELS
D. B. Henderson, Los Alamos Scientific Laboratory, Los Alamos, New Mexico
- 5B4 RADIAL OSCILLATIONS OF A RELATIVISTIC ELECTRON BEAM IN AN ACCELERATING GAP
B. G. Epstein, R. B. Miller, J. W. Poukey, Sandia Laboratories, Albuquerque, New Mexico, T. C. Genoni, Air Force Weapons Laboratory, Kirtland AFB
- 5B5 ABSOLUTE INSTABILITY OF THE FREE ELECTRON LASER
J. R. Cary, T. J. T. Kwan, Los Alamos Scientific Laboratory, Los Alamos, New Mexico
- 5B6 TIME EVOLUTION OF COLLECTIVE ACCELERATION IN VACUUM
R. Adler, J. A. Nation, V. Serlin, Cornell University, Ithaca, New York
- 5B7 PARAMETRIC MODELLING OF A LIGHT ION FUSION ACCELERATOR
E. Goldman, J. Benford, T. S. T. Young, Physics International Company, San Leandro, California
- 5B8 THE MAGNETIC SWITCH MODEL (MSM) OF POWER FLOW IN VARIABLE IMPEDANCE VACUUM TRANSMISSION LINES
E. M. Waisman, M. Chapman, P. G. Steen, Systems, Science and Software, La Jolla, California
- 5B9 A NUMERICAL STUDY OF THE NONLINEAR REGIME OF THE SLIPPING-STREAM INSTABILITY FOR RELATIVISTIC BRILLOUIN FLOW
E. M. Waisman, P. G. Steen, Systems, Science and Software, La Jolla, California
- 5B10 POWER FLOW IN A DOUBLE-DISK VACUUM TRANSMISSION LINE
E. M. Waisman, P. G. Steen, Systems, Science and Software, La Jolla, California
- 5B11 VIEW-FACTORS FOR AXISYMMETRIC DIODES
Andrew Wilson, M. Friedman, Systems, Science and Software, La Jolla, California
- 5B12 RADIATION-INDUCED BREAKDOWN OF HIGH POWER DIODES
A. Wilson, M. Friedman, Systems, Science and Software, La Jolla, California

Wednesday, May 21, 1980
9:00 AM, Room 313

Oral Session 5C -- Nuclear Pumped Lasers
Session Chairman: G. Miley

- 5C1 NUCLEAR-RADIATION PREIONIZED SUSTAINED DISCHARGE PRODUCTION OF SINGLET-DELTA OXYGEN
C. A. Ottinger, F. P. Boody, M. S. Zediker, G. H. Miley, University of Illinois, Urbana, Illinois
- 5C2 NEW PROCESSES IN PHOTON INDUCED COLLISIONS
L. W. Downes, J. D. Kinne, W. E. Wells, Miami University, Oxford, Ohio
- 5C3 THEORETICAL ANALYSIS OF NUCLEAR PUMPED XeF
S. J. S. Naqalingam, G. H. Miley, University of Illinois, Urbana, Illinois
- 5C4 COLLISIONAL RADIATIVE RECOMBINATION IN HIGH PRESSURE NOBLE GAS MIXTURES
B. L. Whitten, L. W. Downes, W. E. Wells, Miami University, Oxford, Ohio

- 5C5 DIRECT NUCLEAR-PUMPED ³He-CO LASER
N. W. Jalufka, F. Hohl, NASA Langley Research Center, Hampton, Virginia
- 5C6-7 INVITED PAPER: MODELING AND ANALYSIS OF NUCLEAR PUMPED LASER SYSTEMS
E. R. Fisher, Wayne State University, Detroit, Michigan
- 5C8 ION MASS SPECTROMETRY APPLIED TO HIGH PRESSURE NUCLEAR RADIATION AND ELECTRON BEAM EXCITED PLASMAS
S. D. Marcum, W. E. Wells, Miami University, Oxford, Ohio
- 5C9 NUCLEAR PUMPED ENERGY FOCUS
M. A. Prelas, University of Missouri, Columbia, Missouri
- 5C10 QUENCHING EFFECTS OF UF₆ ON NUCLEAR-PUMPED RARE GAS HALIDE FLUORESCENCE
F. P. Boody, G. H. Miley, University of Illinois, Urbana, Illinois

Wednesday, May 21, 1980
9:00 AM, Room 109

Poster Session 5G -- Plasma Heating

- 5G1 NEUTRAL BEAM DEPOSITION IN LARGE NONCIRCULAR PLASMAS
W. A. Houlberg, R. M. Wieland, Oak Ridge National Laboratory, Oak Ridge, Tennessee
- 5G2 HEATING OF AN INHOMOGENEOUS PLASMA BY AXIALLY ASYMMETRIC EXTERNAL LOW-FREQUENCY FIELDS
V. I. Lapshin, J. L. Shohet, University of Wisconsin, Madison, Wisconsin, K. N. Stepanov, Kharkov State University, Kharkov, U.S.S.R.
- 5G3 EXPERIMENTAL STUDIES OF SHEAR ALFVEN RESONANCE PROFILES IN TOKAPOLE II
F. D. Witherspoon, S. C. Prager, J. C. Sprott, University of Wisconsin, Madison, Wisconsin
- 5G4 A TIME-DEPENDENT 1-D STUDY OF ICRF HEATED TOKAMAKS
D. T. Blackfield, M. Gordnier, University of Wisconsin, Madison, Wisconsin
- 5G5 ICRF INDUCED ANISOTROPY AND TAIL FORMATION IN TOKAMAK PLASMAS
D. T. Blackfield, J. E. Scharer, University of Wisconsin, Madison, Wisconsin
- 5G6 ION CYCLOTRON RESONANCE HEATING (ICRH) OF AN EBT WITH PERIODIC BOUNDARY CONDITIONS
J. H. Mullen, T. L. Owens, P. L. Huddleston, McDonnell Douglas Corporation, St. Louis, Missouri
- 5G7 FAST MAGNETOSONIC WAVE COUPLING AND HEATING EXPERIMENTS AT $\omega \geq 2\omega_{ci}$ IN THE END PLUG OF THE PHAEDRUS TANDEM
J. Yugo, S. Golovato, J. Scharer, R. Breun, L. Yujiri, University of Wisconsin, Madison, Wisconsin
- 5G8 RADIOMETRIC OBSERVATIONS OF THE ELECTRON RUNAWAY INSTABILITY DURING RF HEATING ON DOUBLET IIA
J. Lohr, General Atomic Company, San Diego, California
- 5G9 LOWER HYBRID WAVE EXPERIMENT ON ACT-1
K. L. Wong, R. Horton, M. Ono, Princeton University, Princeton, New Jersey
- 5G10 ANISOTROPY EFFECTS ON THE ABSORPTION OF EXTRAORDINARY WAVES IN EBT PLASMA
T. Uckan, Oak Ridge National Laboratory, Oak Ridge, Tennessee
- 5G11 A RECEIVER FOR INVESTIGATING THE LOCALIZED HEATING ZONE CREATED BY ELECTRON CYCLOTRON HEATING ON ISX-B
G. Elder, M. Goldman, H. Hsuan, Princeton University, Princeton, New Jersey
- 5G12 STRONG LANGMUIR TURBULENCE, PELLETT FUSION AND LASER-RELATIVISTIC ELECTRON BEAM PLASMA HEATING IN THE GENERALIZED-DISORDER COLLECTIVE-BOSON MODE-SOFTENING UNIVERSALITY-PRINCIPLE
E. Siegel, Culham Laboratory, England
- 5G13 ELECTRICAL DYNAMICS OF IMPLODING PLASMAS
C. M. Gilman, G. H. Dahlbacka, C. K. Meins, Physics International Company, San Leandro, California

Wednesday, May 21, 1980
9:00 AM, Room 213

Poster Session 5H -- Plasma Waves, Instabilities & Antennas II

- 5H1 BRAGG SCATTERING OF EM WAVE FROM ION-BEAM MODE WAVE PACKETS
M. J. Atport, N. D'Angelo, University of Iowa, Iowa City, Iowa
- 5H2 2mm MICROWAVE SCATTERING FROM DENSITY FLUCTUATIONS IN VERSATOR II PLASMA
B. Richards, Massachusetts Institute of Technology, Cambridge, Massachusetts
- 5H3 PLASMA FLUCTUATION MEASUREMENTS IN TMX
B. W. Stallard, T. A. Casper, R. P. Drake, A. H. Futch, D. P. Grubb, Lawrence Livermore Laboratory, Livermore, California
- 5H4 ELECTROSTATIC ION CYCLOTRON WAVES EXCITED BY A SWEEPED LANGMUIR PROBE
C. Chan, K. E. Lonngren, N. Hershkowitz, University of Iowa, Iowa City, Iowa
- 5H5 PARAMETRIC EXCITATION OF A LOW-FREQUENCY QUASI-MODE BY A FINITE EXTENT LOWER-HYBRID WAVE
J. E. Stevens, W. D. Getty, University of Michigan, Ann Arbor, Michigan

- 516 MAGNETIC FIELD LINE RECONNECTION CONCEPT AND THE SHAPE OF THE HELIOSPHERE
H. S. Ahluwalia, *University of New Mexico, Albuquerque, New Mexico*
- 517 ALFVEN WAVE RESONANCES IN TWO-DIMENSIONAL STELLARATORS AND TORSATRONS
V. I. Lapshin, J. N. Talmadge, J. L. Shohet, *University of Wisconsin, Madison, Wisconsin*, J. A. Tataronis, *Courant Institute, New York, New York*

Wednesday, May 21, 1980
9:00 AM, Room 317

Poster Session 5I -- Plasma for Fusion Research

- 511 ANOMALOUS CONDUCTIVITY OF AN ELECTRIC FIELD BUMPY TORUS PLASMA
J. R. Roth, *University of Tennessee, Knoxville, Tennessee*
- 512 ENERGETIC RUNAWAY ELECTRON ORBITS INTO THE PDX DIVERTORS
T. Crowley, J. D. Strachan, *Princeton University, Princeton, New Jersey*
- 513 AN INVESTIGATION OF ELECTRON THERMAL INSULATION USING DOUBLE LAYERS
N. Hershkowitz, J. R. DeKock, P. G. Coakley, C. Chan, *University of Iowa, Iowa City, Iowa*
- 514 RADIATED POWER FROM THE RENTOR TOKAMAK
T. R. Price, K. A. Connor, *Rensselaer Polytechnic Institute, Troy, New York*
- 515 SOME NEW PROPERTIES OF TWISTED COIL STELLARATORS
J. A. Derr, J. L. Shohet, *University of Wisconsin, Madison, Wisconsin*
- 516 NONLINEAR 8-PINCH EQUILIBRIA
B. Abraham-Shrauner, *Washington University, St. Louis, Missouri*
- 517 TEARING MODE CALCULATIONS FOR NONCIRCULAR TOKAMAK PLASMAS
J. A. Holmes, B. Carreras, H. R. Hicks, V. E. Lynch, *Oak Ridge National Laboratory, Oak Ridge, Tennessee*

Wednesday, May 21, 1980
2:00 PM

Symposium on Plasmas and Particle Accelerators

In recognition of the contributions to these fields of D. W. Kerst

Session Chairman: K. R. Symon

- 1 FREE ELECTRON LASERS
M. N. Rosenbluth, *Institute for Advanced Study, Princeton, New Jersey*
- 2 HEAVY ION FUSION
A. M. Sessler, *Lawrence Berkeley Laboratory, Berkeley, California*
- 3 STEADY-STATE CURRENT DRIVE FOR TOROIDAL PLASMA DEVICES
T. Ohkawa, *General Atomic, San Diego, California*
- 4 NEGATIVE MASS INSTABILITY
C. E. Nielsen, *Ohio State University, Columbus, Ohio*
- 5 A COLLECTIVE FOCUSING ION ACCELERATOR
N. Rostoker, *University of California, Irvine, California*
- 6 BEAM COOLING TECHNIQUES FOR COLLIDING BEAMS
F. E. Mills, *Fermi National Accelerator Laboratory, Batavia, Illinois*