TECHNICAL SESSIONS

Monday, June 3, 1985
8:30 am - Ballroom 4

Oral Session 1S - KEYNOTE
Session Chairperson - P. Sprangle

1S-1 INVITED PAPER: COLLECTIVE EFFECTS IN FREE ELECTRON LASERS P. Sprangle, U.S. Naval Research Laboratory

10:00 am - Brigade Room

Oral Session 1A - GENERAL PLASMA SCIENCE
Session Chairperson - R. A. Stern

1A-1 INVITED PAPER: BASIC PLASMA EXPERIMENTS RELEVANT TO FUSION, SPACE AND PLASMA PROCESSING PROBLEMS N. Hershkowitz, University of Wisconsin-Madison

1A-3 ON THE ORIGIN OF THE EARTH'S MAGNETIC FIELD I. Alexeff, J.R. Roth, University of Tennessee

1A-4 ZAKHAROV EQUATION FROM KINETIC THEORY AND ITS HIGHER ORDER NONLINEAR EFFECTS H. Xiantu, Institute of App. Phys. and Comp. Math, The People's Republic of China

1A-5 COULOMB CONTRIBUTIONS TO THE PRODUCTION OF BREMSSTRAHLUNG RADIATION FROM HEAVY ION COLLISIONS WITH ELECTRONS IN A PLASMA M.A. Stroscio, Department of Energy

1A-6 PLASMA EXPANSION ACROSS MAGNETIC FIELD LINES C. Chan, Northeastern University

1A-7 LASER INDUCED IONIZATION THROUGH HIGHLY EXCITED STATES T. Oomori, K. Ono, S. Fujita, Mitsubishi Electric Corporation

1A-8 AN INVESTIGATION OF A DC GLOW DISCHARGE PLASMA LOUDSPEAKER G.M. Molen, M. Mazzola, J. Strouse, Old Dominion University

1A-9 STEADY-STATE OZONE CONCENTRATIONS IN RADIATION INDUCED NOBLE GAS-OXYGEN DISCHARGES H.E. Elsayed-Ali, G.H. Miley, University of Illinois

1A-10 ATTACHMENT OF INITIAL SECONDARY ELECTRONS IN AN ELECTRON-BEAM SUSTAINED DISCHARGE G. Schaefer, G. Reinking, K.H. Schoenbach G. Hutcheson, Texas Tech University

1A-11 PLASMA SIMULATION OF ELECTRON AVALANCHE IN A LINEAR THYRATRON M.J. Kushner, Spectra Technology, Inc.

10:00 am - Chartiers Room

Oral Session 1B
HIGH-POWER MICROWAVE AND SUBMILLIMETER WAVE GENERATION
Session Chairperson - I. Alexeff

1B-1 INVITED PAPER: OBSERVATION OF HIGH-POWER MICROWAVE EMISSION FROM A VIRTUAL CATHODE DEVICE H.A. Davis, R.R. Bartsch, E.G. Sherwood, R.M. Stringfield, Los Alamos National Laboratory

1B-3 INVITED PAPER: BACKWARD WAVE OSCILLATORS WITH RIPPLED WALL RESONATORS: ANALYTIC THEORY AND NUMERICAL SIMULATION J.A. Swegle, J.W. Poukey, Sandia National Laboratories

1B-5 INVITED PAPER: EXPERIMENTAL STUDY OF MILLIMETER WAVE GENERATION FROM ROTATING ELECTRON BEAMS IN A RIPPLED MAGNETIC FIELD W.W. Destler, University of Maryland

1B-7 INVITED PAPER: MILLIMETER-WAVE GYROMAGNETRON/PENIOTRON EXPERIMENTS L.R. Barnett, J.M. Baird, P.S. Rha, U.A. Shrivastava, R.W. Grow, University of Utah

10:00 am - Rivers Room

Oral Session 1C - ARC TECHNOLOGY
Session Chairperson - D. M. Benenson

1C-1 INVITED PAPER: ON THE UTILITY OF LTE MEASUREMENTS IN NON-LTR ELECTRIC ARCS T.L. Eddy, Georgia Tech

1C-3 EQUILIBRIUM COMPOSITION AND TRANSPORT PROPERTIES CALCULATIONS OF HIGH PRESSURE ARCS A. Lee, R.J. Zollweg, Westinghouse R&D Center

1C-4 TEMPERATURE MEASUREMENTS AT A HIGH POWER FLOW STABILIZED ARGON ARC LAMP J. Mentel, B. Jaax, Ruhr-Universitat Bochum, Germany

1C-5 INFLUENCE OF MOLECULAR GASES AND METAL VAPORS ON THE PROPERTIES OF THERMAL DISCHARGES IN ARGON V.M. Goldfarb, Avco Everett Research Lab., Inc.

1C-6 STUDIES OF A DYNAMIC AIR ARC WITHIN DUAL FLOW ORIFICE NOZZLES D.M. Benenson, J. Ravi, State University of New York at Buffalo

1C-7 INVITED PAPER: TWO-DIMENSIONAL CALCULATIONS OF FREE RECOVERY IN A GAS-BLAST ARC R.R. Mitchell, D.T. Tuma, J.F. Osterle, Carnegie-Mellon University

1C-9 ELECTRIC ARC BEHAVIOR IN A ROTATING MAGNETIC FIELD T.L. Eddy, V.F. Put'Ko, G.W. Caille, Georgia Tech

10:00 am - Ballroom 3

Poster Session 1P - ELECTROMAGNETIC LAUNCHERS
Session Chairperson - D. W. Deis

1P-1 SPOT FORMATION AND TEMPERATURE INSTABILITIES DRIVEN BY JOULE HEATING M.A. Huerta, University of Miami

1P-2 APPROXIMATE INTEGRATION OF THE CIRCUIT EQUATIONS OF AN INDUCTOR DRIVEN RAIL LAUNCHER M.A. Huerta, University of Miami

1P-3 ELECTROMAGNETIC LAUNCHER POWERED BY EXPLOSIVE MC-GENERATOR G.A. Shvetsov, Y.L. Bashkatov, A.G. Anisimov, Lavrentyev Institute of Hydrodynamics, USSR

1P-4 RAILGUN EXPERIMENTAL RESULTS USING MULTITURN BARRELS AND LITHIUM ARC PACKAGES J.E. Shrader, Boeing Aerospace Company

1P-5 CASCADED ELECTRON-BEAM ACCELERATORS AS IMPACT FUSION DRIVER M. Osano, M. Tanimoto, K. Ikuta, H. Yamano, I. Ueno, University of Tokyo, Japan

10:00 am - Ballroom 3

Poster Session 1R - FAST OPENING SWITCHES
Session Chairperson - G. Cooperstein

1R-1 DYNAMICS OF FLASHBOARD PLASMAS FOR PLASMA EROSION OPENING SWITCH APPLICATIONS D.D. Hinshelwood, D.G. Colombant, R.J. Commisso, R.A. Meger, V.E. Scherrer, B.V. Weber, JAYCOR, Inc.

1R-2 SIMPLE MODELING OF FLASHBOARD PLASMAS D.G. Colombant, Naval Research Laboratory

1R-3 VOLTAGES FROM ION-ENERGY MEASUREMENTS FOR ION DIODES DRIVEN BY A VACUUM INDUCTIVE STORE WITH PLASMA EROSION OPENING SWITCH F.C. Young, T.J. Renk, S.J. Stephanakis, B.V. Weber, R.J. Commisso, R.A. Meger, Naval Research Laboratory

1R-4 COMPUTATIONAL MODELING OF PLASMA-FLOW SWITCHED FOIL IMPLOSIONS I.R. Lindemuth, Los Alamos National Laboratory

2:00 pm - Brigade Room

Oral Session 2A - PLASMA CHEMISTRY AND PROCESSING
Session Chairperson - W. D. Partlow

2A-1 INVITED PAPER: BASIC PROCESSES IN SILANE DISCHARGES A. Garscadden, C.A. DeJoseph, Jr., P.D. Haaland, United States Air Force

2A-3 THEORY OF "LOADING" AND SELECTIVITY FLOW DEPENDENCE OF PLASMA ASSISTED ETCHING AND DEPOSITION PROCESSES C.B. Zarowin, Perkin-Elmer Corp.

2A-4 KINETIC MODEL OF A LONG PULSE REB PRODUCED ARGON PLASMA M.L. Brake, K. Pearce, University of Michigan

2A-5 LEILA: AN EXPERT SYSTEM FOR ESTIMATING PLASMA REACTION RATES B.E. Sauk, J.L. Lawless, Carnegie-Mellon University

2A-6 AIR CORONA DISCHARGE CHEMICAL KINETICS L.E. Kline, Westinghouse R&D Center

2A-7 EXPERIMENTS AND MODELING OF METHANE-SILANE PLASMAS W.D. Partlow, L.E. Kline, Westinghouse R&D Center

2A-8 PERPENDICULAR ENERGY DISTRIBUTION OF NEGATIVE HYDROGEN IONS SPUTTERED BY CESIUM BOMBARDMENT M. Seidl, J.L. Lopes, Stevens Institute of Technology

2A-9 INVITED PAPER: DEVELOPMENT OF MICROWAVE PLASMA AND ION BEAM SOURCES FOR MATERIALS PROCESSING J. Asmussen, Michigan State University

2:00 pm - Chartiers Room

Oral Session 2B - THERMIONICS AND PLASMA DIODES
Session Chairperson - J. L. Lawless

2B-1 SURFACE BLOW-OFF AND PARTICLE IONIZATION ANALYSES FOR LASER-HEATED THERMIONIC CATHODES P.E. Oettinger, C. Lee, Thermo Electron Corporation

2B-2 DOUBLE EMITTER SHEATHS IN WHICH COLLISIONAL EFFECTS ARE IMPORTANT G.L. Main, S.H. Lam, Georgia Institute of Technology

2B-3 RECENT RESULTS FROM AN ANALYTICAL MODEL OF THERMIONIC ENERGY CONVERSION J.L. Lawless, Carnegie-Mellon University

2B-4 PLASMA DYNAMICS IN A THERMIONIC-PHOTOVOLTAIC ENERGY CONVERTER F. Stefani, J.L. Lawless, D.L. Chubb, Carnegie-Mellon University

2B-5 PLASMA DYNAMICS OF AN UNSTEADY THERMIONIC ENERGY CONVERTER J.L. Lawless, E.J. Britt, J.B. McVey, Carnegie-Mellon University

2B-6 EMITTER TEMPERATURE DIAGNOSTIC METHODS FOR IN CORE THERMIONIC CONVERTERS J.L. Desplat, J.B. McVey, E.J. Britt, Rasor Associates, Inc.

2B-7 INVITED PAPER: SPACE POWER FOR STRATEGIC DEFENSE R.L. Wiley, R.L. Verga, OSD/SDIO, Pentagon

2B-9 POWER REQUIREMENTS OF MAGNETOPLASMADYNAMIC THRUSTERS R.J. Cassady, AFRPL/LKCJ

2B-10 PULSED OPERATION OF MPD THRUSTERS WITH THERMIONIC POWER SOURCES E.J. Britt, J.K. Koester, J.R. Wetch, Rasor Associates, Inc.

2B-11 SYSTEM DESIGN OF MPD THRUSTER K. Kuriki, T. Doi, Institute of Space & Astronautical Science, Japan

2B-12 STEADY-STATE OPERATION AND POWER REQUIREMENTS OF THE MULTI-MEGAWATT MPD THRUSTER D.Q. King, JPL/CalTech

2B-13 ANALYSIS OF PERFORMANCE-LIMITING FACTORS IN MPD THRUSTERS M. Martinez-Sanchez, D.J. Heimerdinger, MIT

2B-14 THE ELECTRICAL CHARACTERISTICS OF MPD THRUSTERS J.L. Lawless, V.V. Subramanian, Carnegie-Mellon University

2:00 pm - Rivers Room

Oral Session 2C - PLASMA DIAGNOSTICS
Session Chairperson - J. T. Woo

2C-1 PERFORMANCE ANALYSIS OF THE VERTICAL VIEWING ECE DIAGNOSTIC FOR NON-THERMAL ELECTRON DISTRIBUTION MEASUREMENT K. Kato, I.H. Hutchinson, Mass. Institute of Technology

2C-2 Nd:GLASS LASERS FOR THOMPSON SCATTERING PLASMA DIAGNOSTICS ON THE COMPACT TOROID TRANSPORT EXPERIMENT CTTX T.M. York, J.C. Dooling, M. Niimura, The Pennsylvania State University

2C-3 INVITED PAPER: A REVIEW OF DIAGNOSTICS FOR MEASURING LOCAL POTENTIALS AND MAGNETIC FIELDS IN HIGH TEMPERATURE PLASMAS J.E. Osher, Lawrence Livermore Laboratory

2C-5 NEUTRAL BEAM PROBE FOR POTENTIAL MEASUREMENTS IN PHAEDRUS MINIMUM-B END PLUG J.T. Woo, K. Saadatmand, InterScience, Inc.

2C-6 FIRST USE OF A BOLOMETER FOR X-RAY CALORIMETRY OF LASER PLASMA J.L. Bourgade, J.L. Bocher, J. De Mascureau, A. Saleres, Commissariat a l'Energie Atomique, France

2C-7 ELECTRON-BEAM DIAGNOSTICS FROM X-RAY EMISSION BY A PLASMA SOURCE F. Rodriguez-Trelles, V. Leon, Pabellon 1 - C. Universitaria, Argentina

2C-8 HETERODYNE INTERFEROMETER USING COAXIAL CO_2 AND He-Ne LASERS FOR PLASMA DIAGNOSTICS H. Takahashi, M. Kimura, R. Sano, Matsushita Res. Inst., Japan

2:00 pm - Ballroom 3

Poster Session 2P - PLASMAS FOR CONTROLLED FUSION RESEARCH
Session Chairperson - N. Hershkowitz

2P-1 RECENT OPERATION OF THE TANDEM MIRROR EXPERIMENT-UPGRADE TMX-U D.N. Hill, Lawrence Livermore Laboratory

2P-2 OCTOPOLE AND HEXAPOLE END CELLS FOR TANDEM MIRRORS R.S. Devoto, Lawrence Livermore Laboratory

2P-3 PARALLEL CURRENT FLOW IN THE PHAEDRUS TANDEM MIRROR MACHINE D. Brouchous, R.A. Breun, G.D. Severn, D. Sing, University of Wisconsin

2P-4 ECRH HEATING EXPERIMENTS AT w = 2wce IN THE END PLUGS OF THE PHAEDRUS TANDEM MIRROR D.C. Sing, N. Hershkowitz, J. Scharer, University of Wisconsin

2P-5 TIME RESOLVED WHISTLER ELECTRON CYCLOTRON EMISSION SPECTRA DURING ECRH ON THE MICHIGAN MIRROR MACHINE J.H. Booske, W.D. Getty, R.M. Gilgenbach, T. Goodman, M. Markel, R.A. Jong, University of Michigan

2P-6 SUSTAINMENT OF SPHEROMAK PLASMA BY DRIVING THE TOROIDAL CURRENT M. Katsurai, K. Katayama, Y. Ono, University of Tokyo, Japan

2P-7 ANALYSIS OF HALO-RECYCLER OPERATION ON TMX-U R.T. McGrath, Sandia National Laboratories

2P-8 MAGNETIC FLUX SURFACE MAPPING IN THE PROTO-CLEO STELLARATOR J.L. Shohet, W.D. D'Haeseleer, D.T. Anderson, F.S.B. Anderson, R.P. Doerner, K.J. Mertens, J.D. Treffert, University of Wisconsin

2P-9 NUMERICAL SIMULATION AND EXPERIMENTAL VERIFICATION OF THE IMS MODULAR DIVERTORS J.L. Shohet, R.P. Doerner, D.T. Anderson, F.S.B. Anderson, P.H. Probert, J.N. Talmadge, University of Wisconsin

2P-10 EXPERIMENTAL RATE COEFFICIENTS FOR DIELECTRONIC RECOMBINATION AND IONIZATION OF AR VIII TO AR XII H.-C. Meng, P. Greve, H.-J. Kunze, T. Schmidt, National Taiwan University

2P-11 COHERENT MAGNETIC PERTURBATIONS IN S-1 SPHEROMAK PLASMAS A.C. Janos, G. Hart, C.H. Nam, M. Yamada, Princeton Plasma Physics Laboratory

2P-12 INITIAL RESULTS FROM THE ZT-P EXPERIMENT K.F. Schoenberg, L.C. Burkhardt, A. Haberstich, J.G. Melton, W. Reass, P.G. Weber, G.A. Wurden, Los Alamos National Laboratory

2P-13 THE EXTRAP T1 TOROIDAL Z- PINCH EXPERIMENT J.R. Drake, J.E. Eninger, Royal Institute of Technology, Sweden

2:00 pm - Ballroom 3

Poster Session 2Q - INTENSE ELECTRON AND ION BEAMS
Session Chairperson - J. P. VanDevender

2Q-1 SPECTROSCOPIC MEASUREMENTS OF THE ELECTRIC FIELD AND ION TRANSVERSE VELOCITIES IN A MAGNETICALLY INSULATED ION DIODE D.A. Hammer, M.D. Coleman, Y. Maron, Cornell University

2Q-2 NEUTRALIZATION AND PROPAGATION OF A MULTI-KILOAMPERE PROTON BEAM IN A TWO STAGE INDUCTION LINAC J.A. Nation, I. Roth, J. Ivers, G. Kerslick, Cornell University

2Q-3 OPERATION OF THE PULSELAC INJECTOR UPGRADE T.R. Lockner, R.S. Coats, D.J. Johnson, G.S. Mills, Sandia National Laboratories

2Q-4 PROTON RING TRAPPING IN A MAGNETIC MIRROR D.A. Hammer, P.D. Pedrow, J.B. Greenly, R.N. Sudan, Cornell University

2Q-5 DEVELOPMENT OF LASER TRIGGERED Z-DISCHARGED PLASMA CHANNELS FOR LiB TRANSPORTATION K. Horioka, K. Kasuya, H. Tamura, Tokyo Institute of Technology, Japan

2Q-6 Z-DISCHARGE PLASMA CHANNELS FOR THE LIGHT ION FUSION TARGET DEVELOPMENT FACILITY R.R. Peterson, G.A. Moses, R.E. Olson, Fusion Technology Institute

2:00 pm - Ballroom 3

Poster Session 2R - ELECTRON, ION, AND PLASMA SOURCES
Session Chairperson - W. D. Getty

2R-1 SPATIALLY AND TEMPORALLY RESOLVED DIAGNOSTICS FOR MICROSECOND, INTENSE ELECTRON BEAMS R.M. Gilgenbach, M. Brake, L.D. Horton, S. Bidwell, R.F. Lucey, L. Smutek, J.E. Tucker, University of Michigan

2R-2 NEUTRAL AND ION BEAM INTERACTIONS WITH LASER ABLATION PLASMAS R.M. Gilgenbach, J. Meachum, M. Cuneo, E. Pitcher, University of Michigan

2R-4 RECENT EXPERIMENTS ON A MAGNETICALLY INSULATED ION DIODE WITH AN ACTIVE ANODE PLASMA SOURCE D. Hammer, J.B. Greenly, M. Ueda, G.D. Rondeau, Cornell University

2R-5 HOW DOES AN XUV-INITIATED ION SOURCE WORK? M.A. Sweeney, J.R. Woodworth, J.E. Maenchen, Sandia National Laboratories

2R-6 RFI HYDROGEN BEAM SOURCE SYSTEM FOR MATERIALS TESTING H. Goede, V.V. Fosnight, D. Hoffmaster, K. Nishida, TRW, Inc.

Tuesday, June 4, 1985
8:30 am - Ballroom 4

Oral Session 3S - KEYNOTE
Session Chairperson - J. L. Johnson

3S-1 INVITED PAPER: MHD STABILITY PROPERTIES OF SHAPED TOROIDAL CONFIGURATIONS J.L. Johnson, Princeton University

10:00 am - Brigade Room

Oral Session 3A - ARC TECHNOLOGY
Session Chairperson - A. Lee

3A-1 INVITED PAPER: ELECTRON BEAM CONTROLLED ON/OFF SWITCHES L.E. Kline, Westinghouse R&D Center

3A-3 INVITED PAPER: ELECTRON-BEAM CONTROLLED DIFFUSE DISCHARGES AS OPENING SWITCHES R.J. Commisso, R.F. Fernsler, V.E. Scherrer, I.M. Vitkovitsky, Naval Research Laboratory

3A-5 INVITED PAPER: EXTERNAL CONTROL OF DIFFUSE DISCHARGE SWITCHES K.H. Schoenbach, G. Schaefer, Texas Tech University

3A-7 EXPANSION VELOCITY OF A CATHODE PLASMA INTO VACUUM - THEORY J.L. Lawless, Y.T. Yen, Carnegie-Mellon University

3A-8 COMPUTER SIMULATION OF THE CURRENT PROFILES OCCURRING IN THE ELECTRICAL BREAKDOWN OF A VACUUM GAP J.L. Lawless, Y.T. Yen, Carnegie-Mellon University

3A-9 MEASUREMENTS OF TEMPERATURE AND ROTATION IN MAGNETIZED COLUMNS OF VACUUM-ARC DISCHARGES M. Krishnan, R.R. Prasad, Yale University

3A-10 ANALYSIS OF THE DIELECTRIC RECOVERY OF SF_6 GAS-BLAST ARCS R.R. Mitchell, Carnegie-Mellon University

10:00 am - Chartiers Room

Oral Session 3B - LASER-PLASMA INTERACTIONS
Session Chairperson - R. A. Lerche

3B-1 INVITED PAPER: DEMONSTRATION OF A SOFT X-RAY AMPLIFIER J.E. Trebes, Lawrence Livermore Laboratory

3B-3 IMPLOSION EXPERIMENTS USING GEKKO MII 0.35-μm LASER SYSTEM Y. Kitagawa, H. Shiraga, A. Yokotani, K. Kato, T. Sasaki, K. Yoshida, M. Yamanaka, N. Miyanaga, S. Nakai, C. Yamanaka, Osaka University, Japan

3B-4 MODEL OF LASER IMPULSE COUPLING TO METALS F.S. Felber, F.J. Wessel, M.J. Treadaway, S.E. Wheatley, M.M. Malley, JAYCOR

3B-5 CHARACTERIZATION OF LASER PRODUCED PLASMAS FROM METALS M.J. Treadaway, S.E. Wheatley, M.M. Malley, F.S. Felber, F.J. Wessel, JAYCOR

3B-6 SELF FOCUSSING EFFECTS OF A GAUSSIAN LASER BEAM ON MAGNETIC FIELD GENERATION IN LASER PRODUCED PLASMAS M.P. Srivastava, M.V.H.V. Prabhakar, University of Delhi, India

3B-7 THE COUPLING OF LANGMUIR SOLITARY WAVE AND LIGHT SOLITARY WAVE C. Yashen, G. Fei, W. Daxian, Institute of App. Phys. and Comp., People's Republic of China

3B-8 DISTRIBUTION OF LOW ENERGY ELECTRONS IN A RADIATION-INDUCED PLASMA G.H. Miley, D. Burlet, University of Illinois

3B-9 DENSITY PROFILE MODIFICATION BY LASER RADIATION IN A MAGNETIZED INHOMOGENEOUS PLASMA Z. Xu, J. Yu, Y. Tang, Shanghai Institute of Optics and Fine Mechanics, China

3B-10 TRANSPORT OF LASER GENERATED HOT ELECTRONS THROUGH VACUUM AND LOW DENSITY FOAM J.E. Heidrich, R.D. Lear, V.W. Slivinsky, S.K. Ault, O.L. Landen, Lawrence Livermore Laboratory

3B-11 GAS HYDRODYNAMICS OF CHANNELS FORMED BY RAPID HEATING BY LASERS AND LASER GUIDED DISCHARGES R.M. Gilgenbach, L.D. Horton, University of Michigan

3B-12 MODELING FAST ION EXPANSION IN LASER PRODUCED PLASMAS S.J. Gitomer, R.D. Jones, Los Alamos National Laboratory

10:00 am - Rivers Room

Oral Session 3C - PLASMA WAVES AND INSTABILITIES
Session Chairperson - A. Hirose

3C-1 INVITED PAPER: CONVECTIVE CELLS IN PLASMAS AND THEIR IMPORTANCE FOR ANOMALOUS TRANSPORT H.L. Pecseli, Riso National Laboratory, Denmark

3C-3 INVITED PAPER: EXPERIMENTAL OBSERVATION OF $v \times B$ ACCELERATION IN MICROWAVE PLASMA INTERACTION Y. Nishida, Utsunomiya University, Japan

3C-5 ESTIMATION OF LINEAR AND QUADRATIC TRANSFER FUNCTIONS FOR FULLY DEVELOPED TURBULENCE E.J. Powers, Ch.P. Ritz, The University of Texas

3C-6 HIGH-FREQUENCY BROADBAND EMISSION FROM TURBULENT PLASMAS J.C. Weatherall, W.E. Hobbs, General Dynamics

3C-7 ALPHA-LOSS-CONE DRIVEN INSTABILITIES IN TANDEM MIRROR PLASMA G.H. Miley, S.K. Ho, G.R. Smith, W.M. Nevins, University of Illinois

3C-8 PARAMETRIC INSTABILITIES IN MIRROR FUSION PLASMAS R.P. Sharma, A. Kumar, Indian Institute of Technology, India

3C-9 EXCITATION OF ELECTROMAGNETIC MODES IN A DIELECTRIC LOADED WAVEGUIDE VIA CYCLOTRON RESONANCE INTERACTION V.K. Jain, V.K. Tripathi, I.I.T. Delhi, India

3C-10 MODE THEORY OF ONE BOUNDARY CORRUGATED PARALLEL PLATE WAVEGUIDE FILLED WITH WARM DRIFTING PLASMA Ramjee Prasad, Rajendra Prasad, H.R. Mgombelo, University of Dar es Salaam, Tanzania

3C-11 STRIP SIMULATION OF A HORN ANTENNA IN A LOW-LOSS PLASMA R. Prasad, D. Kalluri, S. Sataindra, University of Dar es Salaam, Tanzania

10:00 am - Ballroom 3

Poster Session 3P - INTENSE ELECTRON AND ION BEAMS
Session Chairperson - J. P. VanDevender

3P-1 LINEAR SPREAD MASS MODELING OF THE ION HOSE INSTABILITY H.S. Uhm, R.A. Stark, Naval Surface Weapons Center

3P-2 INDUCTIVE EROSION OF RELATIVISTIC ELECTRON BEAM IN A PLASMA CHANNEL H.S. Uhm, K.T. Nguyen, Naval Surface Weapons Center

3P-3 INTERACTION OF AN INTENSE RELATIVISTIC ELECTRON BEAM WITH PREFORMED CHANNELS J.R. Greig, D.P. Murphy, R.E. Pechacek, M. Raleigh, Naval Research Laboratory

3P-4 INTENSE BEAM PROPAGATION AT LOW PRESSURE J.R. Smith, M.J. Rhee, R.F. Schneider, Naval Surface Weapons Center

3P-5 CHARGED PARTICLE BEAM PROPAGATION BETWEEN TWO PLANE ELECTRODES H.S. Uhm, K.T. Nguyen, Naval Surface Weapons Center

3P-6 BEAM DYNAMICS IN A RINGING CAVITY RECIRCULATING ACCELERATOR WITH STRONG FOCUSING A. Prakash, S.J. Marsh, D. Dialeti, C. Agritellis, P. Sprangle, C.A. Kapetanakos, Ballistic Research Laboratory

3P-7 SPIRAL STRUCTURE IN MAGNETICALLY-CONFINED ELECTRON SHEET BEAMS A.L. Peratt, C.M. Snell, Los Alamos National Laboratory

10:00 am - Ballroom 3

Poster Session 3Q
HIGH-POWER MICROWAVE AND SUBMILLIMETER WAVE GENERATION
Session Chairperson - M. E. Read

3Q-1 AN IMPROVED, MAGNETICALLY-COUPLED ORBITRON MASER I. Alexeff, W. Nakonieczny, University of Tennessee

3Q-2 600 GHz OPERATION AND IMPROVED CONSTRUCTION OF THE ORBITRON MASER F.F. Dyer, I. Alexeff, University of Tennessee

3Q-3 INITIAL TEST RESULTS ON THE VARIAN 140 GHz GYROTRON K.L. Felch, R. Bier, L. Fox, H. Huey, L. Ives, H. Jory, N. Lopez, S. Spang, Varian Associates, Inc.

3Q-4 THEORETICAL AND EXPERIMENTAL INVESTIGATION OF THE OPERATION OF CROSSED-FIELD DEVICES G.E. Thomas, S.W. Shpock, D.J. Jenkins, R.S. Smith, III, Varian Beverly Microwave Division

3Q-5 RECENT EXPERIMENTAL RESULTS FROM A CUSPTRON MICROWAVE TUBE W.W. Destler, E. Chojnacki, W. Lawson, W. Namkung, University of Maryland

3Q-6 CUSPTRON MICROWAVE TUBE STUDY W. Namkung, J.Y. Choe, Naval Surface Weapons Center

3Q-7 A 30 MW PEAK POWER HIGH-GAIN, PHASE CONTROLLABLE X-BAND GYROKLYSTRON V.L. Granatstein, P.E. Latham, W. Lawson, J. McAdoo, G.S. Park, C.D. Striffler, University of Maryland

3Q-8 A GYROKLYSTRON PHASE-LOCKED OSCILLATOR W.M. Bollen, A.H. McCurdy, A.K. Ganguly, R.K. Parker, Mission Research Corporation

3Q-9 PHASE LOCKED GYROKLYSTRON OSCILLATOR EXPERIMENT V.L. Granatstein, J. McAdoo, M. Bollen, R. Parker, R.S. Smith, III, G.E. Thomas, A. McCurdy, University of Maryland

3Q-10 MEASUREMENTS OF PHASE LOCKING IN A GYROMOTRON M.E. Read, R. Seeley, W. Manheimer, Naval Research Laboratory

3Q-11 HIGH VOLTAGE GYROTRON EXPERIMENT S.H. Gold, A.W. Fliflet, W.M. Manheimer, V.L. Granatstein, W.M. Black, A.K. Kinkead, D.L. Hardesty, M. Sucy, Naval Research Laboratory

3Q-12 CONSIDERATIONS IN THE DESIGN OF A WAVEGUIDE LAUNCHER IN THE ICRF J.E. Scharer, N. Lam, J.L. Lee, R. Vernon, University of Wisconsin

10:00 am - Ballroom 3

Poster Session 3R - PLASMA DIAGNOSTICS
Session Chairperson - J. T. Woo

3R-1 NONLINEAR PLASMA RESPONSE G. Adomian, Center for Applied Mathematics, University of Georgia

3R-2 A TIME-DEPENDENT IONIZATION BALANCE MODEL FOR NON-EQUILIBRIUM PLASMAS Y.T. Lee, Lawrence Livermore Laboratory

3R-3 A TIME-DEPENDENT ANALYSIS OF SPHEROMAK STABILIZATION COILS R.S. Shaw, G.C. Goldenbaum, R.A. Hess, University of Maryland

3R-4 HIGH SPEED IMAGING OF TOKAMAK PLASMAS FOR IMPURITY STUDIES J. Castracane, Y. Demers, MPB Technologies, Inc.

3R-5 INITIAL TESTING OF THE TEXT HEAVY ION BEAM PROBE W.C. Jennings, J.C. Forster, P.M. Schoch, J.G. Schatz, Rensselaer Polytechnic Institute

3R-6 AMPLIFICATION OF MODE-LOCKED Nd:Yag/Nd: GLASS LASERS FOR HIGH POWER DIAGNOSTIC AND HEATING APPLICATIONS T.M. York, R.L. Zich, The Pennsylvania State University

3R-7 A DIRECT INDICATION OF PLASMA POTENTIAL DIAGNOSTIC WITH FAST TIME RESPONSE AND HIGH ACCURACY BASED ON A DIFFERENTIAL EMIS N. Hershkowitz, W.E. Yao, T. Intrator, Univ. of Wisconsin

3R-8 AN EVALUATION OF A FOIL BOLOMETER CONCEPT FOR MEASURING HEATFLUX TO THE VACUUM VESSEL WALL IN THE DOUBLET III TOKAMAK T.W. Petrie, M.A. Mahdavi, GA Technologies, Inc.

3R-9 FIRST USE OF A BOLOMETER FOR X-RAY CALORIMETRY OF LASER PLASMA J.L. Bourgade, J.L. Bocher, J. De Mascureau, A. Saleres, Commissariat a l'Energie Atomique, France

2:00 pm - Brigade Room

Oral Session 4A - ULTRAFAST Z PINCHES
Session Chairperson - N. F. Roderick

4A-1 IMPLODING PLASMAS DRIVEN BY HIGH-EXPLOSIVE FLUX COMPRESSION GENERATORS J.H. Brownell, R. Benjamin, D. Erickson, J. Goforth, A. Greene, P. Lee, I. Lindemuth, T. Oliphant, H. Oona, R. Price, J. Trainor, L. Veeser, D. Weiss, A. Williams, Los Alamos National Laboratory

4A-2 THE DYNAMICS OF GAS-PUFF IMPLODING PLASMAS ON THE NRL GAMBLE II GENERATOR S.J. Stephanakis, J.R. Boller, D.D. Hinshelwood, S.W. McDonald, C.G. Mehlman, P.F. Ottinger, F.C. Young, Naval Research Laboratory

4A-3 "QUICK-FIRE": PLASMA FLOW DRIVEN IMPLOSION EXPERIMENTS W.L. Baker, W.S. Bigelow, J.H. Degnan, C.L. Enloe, K.E. Hackett, D.J. Hall, J.L. Holmes, P.S. Levi, J.A. Lupo, W.F. McCullough, D.W. Price, R.E. Reinovsky, M. Snell, S.W. Warren, J.M. Westerfield, G. Bird, C. Boyer, D. Conte, J.F. Davis, S. Seiler, P. Turchi, M. Alme, J. Buff, N.F. Roderick, E.A. Lopez, Air Force Weapons Laboratory

4A-4 EFFECT OF INITIAL RADIAL MASS DISTRIBUTION ON THE DYNAMICS OF THE COAXIAL PLASMA FLOW SWITCH W.F. McCullough, Air Force Weapons Laboratory

4A-5 EFFECTS OF A PRECURSOR PLASMA ON A COAXIAL-TO-RADIAL TRANSITION DISCHARGE C.L. Enloe, R.E. Reinovsky, Air Force Weapons Laboratory

4A-6 RADIATION EMISSION FROM VACUUM INDUCTIVE STORE/PLASMA FLOWSWITCH DRIVEN IMPLOSION EXPERIMENTS C.L. Enloe, W.L. Baker, J.H. Degnan, D.J. Hall, J.L. Holmes, P.S. Levi, D.W. Price, R.E. Reinovsky, S.W.R. Warren, C.N. Boyer, J.F. Davis, S.W. Seiler, P.J. Turchi, Air Force Weapons Laboratory

4A-7 HIGH ENERGY PHOTON SPECTRA FROM VACUUM INDUCTIVE-STORE PLASMA FLOW SWITCH DRIVEN IMPLOSION EXPERIMENT R.E. Reinovsky, S.W.R. Warren, J.H. Degnan, D.W. Price, P. Logomarsino, Plasma Physics Branch, Air Force Weapons Laboratory

2:00 pm - Chartiers Room

Oral Session 4B
HIGH-POWER MICROWAVE AND SUBMILLIMETER WAVE GENERATION
Session Chairperson - R. W. Grow

4B-1 SUPER HIGH-POWER KLYSTRON FOR JT-60 Y. Kojima, Y. Murayama, Y. Saigusa, T. Konishi, H. Sato, R. Ohrui, T. Nagashima, T. Imai, K. Uehara, T. Fujii, K. Sakamoto, K. Saigusa, Y. Ikeda, NEC Corporation

4B-2 SCALING CALCULATIONS FOR THE RELATIVISTIC GYROTRON A.W. Fliflet, Naval Research Laboratory

4B-3 MEGAWATT AND MULTIMEGAWATT GYROTRONS B.G. Danly, K.E. Kreischer, R.J. Temkin, T.M. Tran, M.I.T.

4B-4 OPTIMIZATION OF WKB GAIN OF THE GYRO-HARMONITRON AMPLIFIER VIA THE TAPERED SYNCHRONIZATION S. Ahn, A.K. Ganguly, Naval Research Laboratory

4B-5 TE11 AND TE01 MODE COMPETITION IN UNMAGNETIZED FREE ELECTRON LASERS A.T. Lin, C.C. Lin, UCLA

4B-6 COMBINATION SCATTERING OF A MAGNETIZED FREE ELECTRON WITH A LONGITUDINAL WIGGLER A.T. Lin, C.C. Lin, UCLA

4B-7 NUMERICAL SIMULATION OF UBITRON/FEL AMPLIFIER A.K. Ganguly, H.P. Freund, Naval Research Laboratory

4B-8 PHYSICAL PHENOMENA INDUCED BY MICROWAVE PULSE PROPAGATION IN THE ATMOSPHERE J.H. Yee, D.J. Mayhall, R.A. Alvarez, G. Sieger, Lawrence Livermore Laboratory

2:00 pm - Rivers Room

Oral Session 4C - INTENSE ELECTRON AND ION BEAMS
Session Chairperson - J. B. Greenly

4C-1 MV PROTON BEAM GENERATION, FOCUSING AND TARGET IRRADIATION S. Miyamoto, K. Imasaki, T. Ozaki, H.K. Fujita, N. Yugami, T. Akiba, S. Nakai, C. Yamanaka, Osaka University, Japan

4C-2 LIGHT ION BEAM EXPERIMENTS WITH PINCH REFLEX DIODES ON KfK's PULSE GENERATOR KALIF H.U. Karow, H. Bluhm, L. Buth, K. Bohnel, W. Harke, P. Hoppe, D. Rusch, H. Schulken, J. Singer, Karlsruhe Nuclear Research Center, West Germany

4C-3 PLASMA FILLED DIODES AND APPLICATION TO A PEOS J.M. Grossmann, P.F. Ottinger, A.T. Drobot, L. Seftor, JAYCOR, Inc.

4C-4 INVITED PAPER: SURFACE DISCHARGES AS INTENSE PHOTON SOURCES IN THE XUV J.R. Woodworth, J.E. Maenchen, T.A. Mehlhorn, C.L. Ruiz, P.F. McKay, E.J.T. Burns, M.A. Sweeney, B. Foltz, D.B. Seidel, P. Johnson, W. Jaramillo, P. Reyes, J. Webb, L.R. Dorrell, G.L. Williams, G. Torres, Sandia National Laboratories

4C-6 VERSATILE SOURCE FOR INTENSE PULSED NANOSECOND PARTICLE BEAMS BASED ON THE FIELD ESCALATION EFFECT X.L. Jiang, S.C. Jiang, Lanzhou University, China

4C-7 INVITED PAPER: REVIEW OF RECENT CRYOGENIC DIODE EXPERIMENTS IN JAPAN K. Kasuya, K. Horioka, T. Takahashi, Tokyo Institute of Technology, Japan

4C-9 VIRTUAL CATHODE ION DIODE G.F. Kiuttu, R.J. Adler, S. Humphries, Jr., Mission Research Corporation

4C-10 WIRE FOCUSING OF HOLLOW ELECTRON BEAMS R.J. Adler, R.J. Richter-Sand, J. Freeman, M. Mazarakis, Mission Research Corporation

2:00 pm - Ballroom 3

Poster Session 4P - GENERAL PLASMA SCIENCE
Session Chairperson - W. D. Getty

4P-1 TURBULENT DIFFUSION IN A TWO-DIMENSIONAL GUIDING-CENTER MODEL FOR STRONGLY MAGNETIZED PLASMAS H.J. Pecseli, T. Mikkelsen, Riso National Laboratory, Denmark

4P-2 THERMAL INSTABILITY NEAR THE ELECTRODES OF MHD CHANNELS S.P. Kuo, E. Levi, Polytechnic Institute of New York

4P-3 APPLICATION OF TIME-DOMAIN SPECTROSCOPY TO ANTENNA IMPEDANCE MEASUREMENTS IN AN ISOTROPIC PLASMA M. Nachman, J.P. Larocque, P.R. Renaud, Ecole Polytechnique, Canada

4P-4 OPERATION OF THE MULTICUSP PLASMA GENERATOR AS A HIGH-CHARGE-STATE ION SOURCE K.N. Leung, R.V. Pyle, Lawrence Berkeley Laboratory

4P-5 EFFECT OF WALL MATERIAL ON H-PRODUCTION IN A MULTICUSP SOURCE K.N. Leung, K.W. Ehlers, R.V. Pyle, Lawrence Berkeley Laboratory

4P-6 PROGRESS IN LARGE-AREA, MULTIPLE-APERTURE ACCELERATION OF VOLUME-PRODUCED H-IONS A.F. Lietzke, C.A. Hauck, Lawrence Berkeley Laboratory

4P-7 INDUCED ELECTRIC POTENTIAL DISTRIBUTION AND BREAKDOWN LIMIT IN AC-MACHINES DUE TO LIGHTNING SURGE A.F. Lietzke, C.A. Hauck, New Jersey Institute of Technology

4P-8 ELECTRICAL AND SPECTROSCOPIC CHARACTERIZATION OF A LINEAR THYRATRON K. Denno, Spectra Technology, Inc.

2:00 pm - Ballroom 3

Poster Session 4Q - PLASMA WAVES AND INSTABILITIES
Session Chairperson - A. Hirose

4Q-1 NEW SCHEMES FOR PARTICLE ACCELERATORS Y. Nishida, R. Sugihara, Utsunomiya University, Japan

4Q-2 INTERACTION OF ION ACOUSTIC RAREFACTION SOLITON Y. Nishida, T. Nagasawa, Utsunomiya University, Japan

4Q-3 PROPAGATION AND REFLECTION OF ION ACOUSTIC SOLITONS H.H. Kuehl, K. Imen, University of Southern California

4Q-4 ION-ACOUSTIC DISPERSION RELATION WITH DIRECT FRACTIONAL APPROXIMATION FOR Z'[s] G. Donoso, P. Martin, Universidad Simon Bolivar, Venezuela

4Q-5 DENSITY GRADIENT DRIVEN DRIFT INSTABILITY IN PLASMAS WITH MODIFIED CROSS SECTIONS E.M. Marshall, Wellesley College

4Q-6 DESTABILIZATION OF DRIFT WAVES DUE TO NONUNIFORM DENSITY GRADIENT A. Hirose, O. Ishihara, University of Saskatchewan, Canada

4Q-7 MODE EQUATION FOR ELECTROSTATIC BALLOONING INSTABILITY IN TOKAMAKS A. Hirose, University of Saskatchewan, Canada

4Q-8 ION-DRIFT SOLUTION IN A LOW-PRESSURE INHOMOGENEOUS PLASMA Y.H. Jyoo, Kon-Kuk University

2:00 pm - Ballroom 3

Poster Session 4R - FUSION TECHNOLOGY AND PLASMA HEATING
Session Chairperson - R. G. Mills

4R-1 QUASILINEAR THEORY IN GENERAL MAGNETIC GEOMETRY S.-C. Chiu, GA Technologies, Inc.

4R-2 TIME RESOLVED WHISTLER ELECTRON CYCLOTRON EMISSION SPECTRA DURING ECRH ON THE MICHIGAN MIRROR MACHINE J.H. Booske, W.D. Getty, R.M. Gilgenbach, T. Goodman, M. Markel, R.A. Jong, University of Michigan

4R-3 COUPLING OF FAST WAVES IN THE LHRF TO NON-UNIFORM PLASMAS P.L. Colestock, R.I. Pinsker, R. Duvall, D.Q. Hwang, C. Fortgang, Princeton University

4R-4 MIXED BOUNDARY ELEMENT METHODS APPLIED TO ANALYSIS OF TEM WAVEGUIDES FOR ICRF PLASMA HEATING T. Honma, Y. Tanaka, H. Watanabe, I. Kaji, Hokkaido University, Japan

4R-5 ANTENNAS, FARADAY SHIELDS, AND FEEDTHROUGHS FOR ION CYCLOTRON RESONANCE HEATING IN TOKAMAKS D.J. Hoffman, F.W. Baity, T.L. Owens, C.C. Tsai, J.H. Whealton, Oak Ridge National Laboratory

4R-6 SIMULATION OF TOKAMAK SPUTTERING CONDITIONS WITH HIGH ENERGY PARTICLE BEAMS D.L. Youchison, M.D. Nahemow, R.T. McGrath, The Pennsylvania State University

4R-7 COLLISIONAL MAGNETIC PUMPING REVISITED J.R. Roth, M. Laroussi, University of Tennessee

4R-8 INFLUENCE OF OPENINGS ON NUCLEAR CHARACTERISTICS OF A FUSION REACTOR BLANKET B.V. Robouch, J.S. Brzosko, L. Ingrosso, Associazione EURATOM-ENEA, Italy

4R-9 HIGH HEAT FLUX TESTS OF A CANDIDATE DESIGN FOR MFTF-B NEUTRAL BEAM DUMPS D.A. Sink, J.R. Easoz, Westinghouse Advanced Energy Systems Div.

4R-10 ACTIVE COOLING TECHNOLOGY FOR FUSION ENGINEERING APPLICATIONS C.-C. Tsai, W.R. Becraft, S.K. Combs, C.A. Foster, H.H. Haselton, D.J. Hoffman, M.M. Menon, S.L. Milora, D.E. Schechter, F. Sluss, Oak Ridge National Laboratory

4R-11 SIRIUS-M, A UNIFORM ILLUMINATION, DIRECT DRIVE, SHORT WAVELENGTH LASER FUSION MATERIALS TEST FACILITY R.R. Peterson, B. Badger, S. Abdel Khalik, H. Attaya, R. Engelstad, G. Kulcinski, E. Lovell, G. Moses, M. Sawan, S. Skupsky, S. Bodner, Fusion Technology Institute

4R-12 A SURVEY OF TOROIDAL ALTERNATE MAGNETIC CONFINEMENT CONCEPTS J.R. Roth, University of Tennessee

Wednesday, June 5, 1985
8:30 am - Brigade Room

Oral Session 5A - PLASMA FOCUS
Session Chairperson - M. G. Molen

5A-1 REDUCED VARIATION IN THE NEUTRON OUTPUT OF THE DENSE PLASMA FOCUS R.A. Hill, Sandia National Laboratories

5A-2 STUDY OF PLASMA CURRENT INDUCED BY A PLASMA FOCUS PRODUCED ELECTRON M.J. Rhee, R.F. Schneider, University of Maryland

5A-3 ANISOTROPY OF THE ENERGY SPECTRUM OF PLASMA FOCUS ION BEAMS V. Nardi, C.M. Luo, C. Powell, Stevens Institute of Technology

5A-4 ACCELERATION OF M/Z > 2 PARTICLES IN DEUTERIUM FOCUSED DISCHARGES V. Nardi, C. Powell, Stevens Institute of Technology

5A-5 A STEREOSCOPIC PINHOLE CAMERA STUDY OF A PLASMA FOCUS PRODUCED ION BEAM M.J. Rhee, R.F. Schneider, University of Maryland

5A-6 INVITED PAPER: STUDY OF MICROWAVE EMISSION FROM A DENSE PLASMA FOCUS G. Gerdin, F. Venneri, M. Tanis, University of Illinois

5A-8 STUDY OF OPENING SWITCH CHARACTERISTICS OF A PLASMA FOCUS M.J. Rhee, R.F. Schneider, University of Maryland

5A-9 HIGH POWER BLUE-GREEN LASER BY A DENSE PLASMA FOCUS J.H. Lee, M.H. Lee, K.S. Han, Hampton University

5A-10 PLASMA FOCUS RESEARCH IN PF-300 DEVICE BY MEANS OF OPTICAL DIAGNOSTICS M. Borowiecki, S. Czekas, S. Denus, A. Kasperczuk, R. Miklaszewski, M. Paduch, T. Pisarczyk, Z. Wereszcynski, Institute of Plasma Physics and Laser Microfusion, Poland

8:30 am - Chartiers Room

Oral Session 5B - ELECTROMAGNETIC LAUNCHERS
Session Chairperson - D. W. Deis

5B-1 INVITED PAPER: PLASMA ARMATURE RAILGUN STUDIES J.V. Parker, W.M. Parsons, C.E. Cummings, W.E. Fox, Los Alamos National Laboratory

5B-3 OBSERVATION OF DIMISHED RAILGUN PERFORMANCE — POSSIBLE CAUSES AND SOLUTIONS R.S. Hawke, W.J. Nellis, Lawrence Livermore Laboratory

5B-4 SKIN AND HEATING EFFECTS OF MOVING CURRENTS M.A. Huerta, J.C. Nearing, University of Miami

5B-5 ARC PROPERTIES OF RAIL-GUN PLASMA ARMATURES W.B. Pardo, H.S. Robertson, University of Miami

5B-6 PLASMA ARMATURE - BARREL INTERACTIONS J.P. Barber, IAP Research, Inc.

5B-7 CIRCUIT ANALYSIS OF RAIL-GUN CHARACTERISTICS W.B. Pardo, K.K. Cobb, University of Miami

5B-8 RECENT EXPERIMENTS AND ANALYSIS WITH RAILGUN ARCS J.D. Powell, K.A. Jamison, H.S. Burden, Ballistic Research Laboratory

5B-9 PLASMA ARMATURES AND THE MHD EXCHANGE INSTABILITY M.A. Huerta, A.M. Decker, University of Miami

8:30 am - Rivers Room

Oral Session 5C - FAST OPENING SWITCHES
Session Chairperson - G. Cooperstein

5C-1 INVITED PAPER: SWITCHING CHARACTERISTICS OF PLASMA OPENING SWITCHES UNDER DIFFERENT OPERATING CONDITIONS H. Bluhm, K. Bohnel, H.U. Karow, D. Rusch, H. Schulken, Kernforschungszentrum Karlsruhe, West Germany

5C-3 IMPROVEMENT OF PLASMA EROSION OPENING SWITCH RESULTS ON GAMBLE II J.M. Neri, J.R. Boller, R.J. Commisso, R.A. Meger, P.F. Ottinger, T.J. Renk, B.V. Weber, F.C. Young, Naval Research Laboratory

5C-4 PLASMA EROSION OPENING SWITCH SCALING TO HIGH VOLTAGE P.F. Ottinger, J. Grossmann, A.T. Drobot, L. Seftor, R.A. Meger, Naval Research Laboratory

5C-5 HIGH CURRENT OPERATION OF THE PLASMA EROSION OPENING SWITCH B.V. Weber, R.J. Commisso, J.M. Grossmann, D.D. Hinshelwood, J.M. Neri, P.F. Ottinger, JAYCOR, Inc.

5C-6 FURTHER DEVELOPMENTS IN PLASMA COMPRESSION OPENING SWITCH TECHNIQUES J.H. Goforth, Los Alamos National Laboratory

5C-7 PROGRESS IN RAILGUN OPENING SWITCHES R.H. Price, P.H.Y. Lee, J.C. Cochrane, L. Veeser, R.J. Trainor, J.D. Seagrave, R. Stringfield, J.L. Reay, A.M. Laird, J.F. Pecos, Los Alamos National Laboratory

5C-8 EXTERNAL CONTROL OF DIFFUSE DISCHARGE SWITCHES K.H. Schoenbach, G. Schaefer, Texas Tech University

8:30 am - Ballroom 3

Poster Session 5P - PLASMA WAVES AND INSTABILITIES
Session Chairperson - A. Hirose

5P-1 THE TRANSITION TO TURBULENCE IN A BEAM PLASMA J. Walsh, R. McCowan, Dartmouth College

5P-2 EXPERIMENTAL OBSERVATION OF TURBULENT ENERGY CASCADING IN A MODIFIED PENNING DISCHARGE J.R. Roth, P.D. Spence, M. Laroussi, D. Rosenberg, University of Tennessee

5P-3 RF EMISSION POWER AND ITS DEPENDENCE ON PLASMA PARAMETERS AND TURBULENCE IN A CLASSICAL PENNING DISCHARGE J.R. Roth, M. Laroussi, P.D. Spence, D. Rosenberg, J.C. Mannone, University of Tennessee

5P-4 SPECTRAL BROADENING OF LOWER HYBRID WAVES VIA MODULATIONAL INSTABILITY S.P. Kuo, M.C. Lee, Polytechnic Institute of New York

5P-5 OBSERVATION OF THE ELECTROSTATIC ION CYCLOTRON WAVE IN A MICROWAVE SUSTAINED PLASMA S.P. Kuo, K.K. Tiong, B.R. Cheo, Polytechnic Institute of New York

5P-6 EFFECTS OF MINORITY IONS ON THE PROPAGATION OF THE FAST ALFVEN WAVE M.O. Hagler, K.L. Wong, M. Kristiansen, Texas Tech University

5P-7 AN EXPERIMENTAL STUDY OF PLASMA WAVES GENERATED BY CO-LINEAR OPTICAL MIXING C. Joshi, D. Umstadter, C. Darrow, C. Clayton, UCLA

5P-8 PLASMA ELECTRODE T. Ohnuma, Tohoku University, Japan

5P-9 MODULATIONAL INSTABILITY OF NONLINEAR WAVES IN UNSTABLE SYSTEMS I.H. Peneva, A.N. Kondratenko, V.N. Vorob'ev, Higher Pedagogical Institute, Bulgaria

8:30 am - Ballroom 3

Poster Session 5Q
HIGH-POWER MICROWAVE AND SUBMILLIMETER WAVE GENERATION
Session Chairperson - J. Benford

5Q-1 HIGH FREQUENCY SPECTRUM OF A RELATIVISTIC ELECTRON BEAM DRIVEN BACKWARD WAVE OSCILLATOR IN A HIGH MAGNETIC FIELD R.A. Kehs, W.W. Destler, H. Freund, V.L. Granatstein, M.C. Wang, A. Bromborsky, B. Ruth, S. Graybill, University of Maryland

5Q-2 DESIGN OF A BRAGG CAVITY IN A FREE-ELECTRON LASER/BACKWARD WAVE OSCILLATOR V.L. Granatstein, M.C. Wang, R.A. Kehs, University of Maryland

5Q-3 ON THE COUPLING OF SLOW WAVE STRUCTURES TO ELECTRON BEAM MODES IN A UNIFORM GUIDE J.A. Nation, S. Greenwald, G.S. Kerslick, Cornell University

5Q-4 PARAMETRIC EXCITATION OF WAVES ON AN INTENSE ELECTRON BEAM J.A. Nation, A. Anselmo, Cornell University

5Q-5 MICROWAVE ABSORPTION DUE TO FIELD-EMITTED ELECTRONS L.E. Thode, C.M. Snell, Los Alamos National Laboratory

5Q-6 VARIATIONS ON REFLEXING VIRTUAL CATHODE MICROWAVE SOURCES H. Sze, J. Benford, D. Bromley, T. Young, Physics International

5Q-7 VARIATIONS ON THE RELATIVISTIC MAGNETRON J. Benford, H. Sze, T. Young, D. Bromley, Physics International

5Q-8 SINGLE PARTICLE TRAJECTORIES IN A LARGE ORBIT GYROTRON C.D. Striffler, H. Bluem, W. Lawson, University of Maryland

5Q-9 HIGH POWER MICROWAVE GENERATION FROM A LARGE ORBIT GYROTRON IN AN AZIMUTHALLY PERIODIC WAVEGUIDE WITH HOLE-AND-SLOT RESONATORS W. Lawson, W.W. Destler, C.D. Striffler, University of Maryland

5Q-10 ANALYSIS OF THE GYROTRON TRAVELING WAVE AMPLIFIER OPERATING AT CYCLOTRON HARMONICS S.P. Kuo, B.R. Cheo, Polytechnic Institute of New York

5Q-11 OVERDENSE PLASMA PRODUCTION BY ECR IN A LONGITUDINALLY MAGNETIZED PLASMA WAVEGUIDE M.A.G. Calderon, E.G. Bustamante, E. Anabitarte, J.M. Senties, A. Vegas, University of Santander, Spain

8:30 am - Ballroom 3

Poster Session 5R - ULTRAFAST Z PINCHES
Session Chairperson - R. E. Reinovsky

5R-1 ULTRAHIGH-MAGNETIC-FIELD EXPERIMENTS ON A GAS-PUFF Z PINCH F.S. Felber, F.J. Wessel, N.C. Wild, A. Fisher, C.M. Fowler, M.A. Liberman, A.L. Velikovich, JAYCOR

5R-2 SELF-SIMILAR COMPRESSION OF A MAGNETIZED PLASMA-FILLED LINER F.S. Felber, M.A. Liberman, A.L. Velikovich, JAYCOR

5R-3 HYDROMAGNETIC RAYLEIGH-TAYLOR INSTABILITY IN CYLINDRICAL IMPLOSIONS N.F. Roderick, C.S. Hwang, University of New Mexico

5R-4 NEON SOURCE OPTIMIZATION ON DOUBLE EAGLE S.L. Wong, R. Rodenburg, L. Koppel, L. Burr, Physics International

5R-5 OBSERVATION OF L-SERIES X-RAY SPECTRA RADIATED BY HIGH TEMPERATURE NICKEL PLASMAS S.L. Wong, L. Koppel, R. Rodenburg, L. Burr Physics International

5R-6 THE ADVANTAGE OF FOAMS IN PLASMA-IMPLOSION-DRIVEN X-RAY LASER TARGETS T.W. Hussey, G.O. Allshouse, M.K. Matzen, Sandia National Laboratories

5R-7 SOFT X-RAY EMISSION MEASUREMENTS AND COLLINEAR HOLOGRAPHIC INTERFEROMETRY ON A CO_2 LASER HEATED Z-PINCH PLASMA R.M. Gilgenbach, J.E. Tucker, University of Michigan