Monday Morning December 9, 1985

Session M1: MMW SOURCES I
0900 Netherlands Room A

M1.1 InP MILLIMETER-WAVE GUNN SOURCES (Invited Keynote) B. Fank, J. Crowley, C. Hang and C. Kim, Varian, Santa Clara, CA, U.S.A.

M1.2 ADVANCES IN MILLIMETER-WAVE MICROSTRIP SOURCES AND AMPLIFIERS (Invited Keynote) K. Chang, Texas A&M University, College Station, TX, U.S.A.

M1.3 DC-DESIGN OF mm-WAVE IMPATTS ON DESK TOP COMPUTER, S. Ahmad, Central Electronics Engg. Research Institute, Pilani, INDIA

M1.4 COMPARATIVE STUDIES OF Si, GaAs and InP MILLIMETER-WAVE IMPATT DIODES, D. Lippens, J.L. Nieruchalski, C. Dalle, P.A. Rolland, Universite de Lille I, Villeneuve D'Ascq, FRANCE

M1.5 MULTI-LAYERED GaAs - AlGaAs MILLIMETER WAVE IMPATT DEVICES, D. Lippens, J.L. Nieruchalski, E. Constant, Universite de Lille I, Villeneuve D'Ascq, FRANCE

M1.6 MM-WAVE IMPATT DIODES WITH INTEGRATED GOLD STRAPS, W. Behr, AEG Telefunken, Ulm, F.R.G.

M1.7 CW IMPATT's MADE FROM SILICON MOLECULAR BEAM EPITAXY MATERIAL, J.F. Luy, H. Kibbel, E. Kasper, AEG Telefunken, Ulm, F.R.G.

Monday Morning December 9, 1985

Session M2: MMW Atmospheric Physics
0900 Netherlands Room B

M2.1 ATMOSPHERIC REFRACTION AND ABSORPTION AND THEIR FLUCTUATIONS AT CM AND MMW, R.J. Hill, NOAA, Boulder, CO, U.S.A.

M2.2 THEORETICAL AND EXPERIMENTAL INVESTIGATION OF PHASE FLUCTUATIONS IN AN ABSORPTION REGION, A.D. Sarma, G.L. Siqueira, R.S. Cole, London, U.K.; L. Silva Mello, F.C. Mediros Filho, Univ. Catolica, BRASIL

M2.3 PRELIMINARY RESULTS OF MILLIMETER WAVE SCINTILLATION, F. Chen, NW Telecommunications Eng. Inst., P.R. CHINA

M2.4 SYSTEM PERFORMANCE IN RAIN IN A RADOME-ENCLOSED ENVIRONMENT, K. Chang, Electronic Space Systems, Concord, MA, U.S.A.

M2.5 MILLIMETER WAVE PROPAGATION IN ARID LAND - A FIELD STUDY IN RIYADH, A.A. Ali, King Saud Univ., SAUDI ARABIA

M2.6 DIFFERENTIAL PHOTOMETER FOR MILLIMETRIC ASTRONOMY, P. De Bernardis, B. Esposito, S. Masi, E. Vaudo, Physics Dept., University of Rome, ITALY

M2.7 LONG TERM OZONE OBSERVATIONS USING GROUND-BASES MM-WAVE TECHNIQUES, E. Lobsiger, Univ. Bern, SWITZERLAND

M2.8 FLUCTUATIONS IN MILLIMETER WAVE SIGNALS, R. Bohlander, R. McMillan, D. Guillory, Georgia Tech. Institute, Atlanta, GA; R. Hill, J.T. Priestly, S. Clifford, Nat'l Oceanic and Atmospheric Wave Propagation Lab, Boulder, CO; R. Olsen, U.S. Army Atmospheric Sciences Lab, NM, U.S.A.

Monday Morning December 9, 1985

Session M3: SMMW DEVICES
0900 Netherlands Room C

M3.1 PROPERTIES OF IR THIN-FILM ANTENNAS AT 10.6μm, Y. Yasouka, K. Harakawa, K. Gamo, S. Namba, National Defense Academy, JAPAN; Osaka University, JAPAN

M3.2 STUDY OF FIR BANDPASS FILTERS CONSISTING OF TWO RESONANT GRIDS, Z. Guangzhao, H. Jinglu, Z. Jinfu, Elec. Dept. Zhongshan Univ., Guangzhou, CHINA

M3.3 SCATTERING FROM A PERIODIC ARRAY OF APERTURES OR PLATES WHERE THE CONDUCTORS HAVE ARBITRARY SHAPE, THICKNESS & RESISTIVITY, B.J. Rubin, IBM Corp., NY

M3.4 THE INVERSE SMITH-PURCELL EFFECT BY USING A SUBMILLIMETER WAVE LASER, K. Mizuno, J. Pae, Research Inst. of Electrical Communication, Tohoku Univ., JAPAN

M3.5 CONCEPT OF INFRARED-LASER PARTICLE ACCELERATORS WITH OVERSIZE DBR and HFB WAVEGUIDES, J. Arnesson, S. Gnepf, F.K. Kneubuhl, IR Physics Gp., ETH Zurich, SWZ

M3.6 FAR INFRARED RADIATION PATTERN AND SOURCE MEASUREMENTS, C. H. Burton, D. W. Posener, M. M. Blanco, Csiro, Sydney, AUSTRALIA

M3.7 IR CCD IMAGE SENSOR, N. Teransishi, Micro Electronics Lab., NEC, JAPAN

Monday Morning October 9, 1985

Session M4: FREE ELECTRON LASERS I
0900 Netherlands Room D

M4.1 FREE ELECTRON LASERS WITH SPIRALING ELECTRONS (Invited Keynote), G. Bekefi, Mass. Institute of Technology, Cambridge, MA U.S.A.

M4.2 FAR INFRARED CERENKOV LASERS, J. Walsh, B. Johnson, Dartmouth College, Hanover, NH, U.S.A.; G. Dattoli, F. Ciocci, A. Renieri, Frascati, ITALY

M4.3 OBSERVATION OF HIGH-POWER MILLIMETER WAVE EMISSION FROM A VIRTUAL CATHODE, H.A. Davis, R.R. Bartsch, L.E. Thode, E.G. Sherwood, R.M. Stringfield, Los Alamos Nat'l Lab, Los Alamos, NM

M4.4 SMALL-PERIOD ELECTROMAGNET WIGGLERS FOR FREE ELECTRON LASERS, V. Granatstein, W. Destler, I. Mayergoyz, Z. Segalov, Elec. Engr. Dept., U. of Maryland, College Park, MD, U.S.A.

M4.5 EXPERIMENTAL DEMONSTRATION OF LONGITUDINAL WIGGLER FREE ELECTRON LASER, I. Shraga, C. Leibovitch, Y. Goren, S. Eckhouse, Haifa; A. Gover, Ramat-Aviv, ISRAEL

M4.6 COMPARISON BETWEEN CIRCULAR AND CONVENTIONAL FREE ELECTRON LASERS, H. Saito, J. Wurtele, Plasma Fusion Ctr., Mass. Inst. of Technology, Cambridge, MA, U.S.A.

M4.7 A HIGH REPETITION RATE COMPACT 94 GHz FEL, W.J. Nunan, D.B. McDermott, N.C. Luhmann, Jr., Univ. of California, Los Angeles, CA U.S.A.

Monday Afternoon December 9, 1985

Session M5: MMW SOURCES II
1400 Netherlands Room A

M5.1 FREQUENCY STABILIZATION OF MILLIMETER WAVE SOURCES (Invited Keynote), D.M. Guillory, R.W. McMillan, GTRI, Ga. Inst. Tech. Atlanta, GA, U.S.A.

M5.2 PROGRESS IN QUASI-OPTICAL TRANSISTOR POWER AMPLIFIERS, W.L. Williams, D.P. Kasilingam, D.B. Rutledge, Div. of Eng. & Applied Science, Cal. Inst. Tech., Pasadena, CA, U.S.A.

M5.3 POWER COMBINING OF SOLID STATE MILLIMETER WAVE SOURCES, J.W. Mink, U.S. Army Research Office, N. Carolina, U.S.A.

M5.4 VERY HIGH EFFICIENCY FREQUENCY TRIPLERS FOR 100-300 GHz, N.R. Erickson, Millitech Corp., South Deerfield, MA, U.S.A.

M5.5 DESIGN OF MILLIMETER WAVE AMPLIFIERS FOR DIGITAL MICROWAVE RADIO-William S. Hortos, Lockheed Electronics, FL, USA

M5.6 MILLIMETER WAVE RANGE FOR QUICK EVALUATION OF LARGE REFLECTOR ANTENNA WITH COMPLEX FEED, S. Lazar, Aerospace, CA, U.S.A.

M5.7 PULSE MILLIMETER-BAND SURFACE WAVE GENERATOR, A.M. Afonin, V.I. Kanavets, Moscow State Univ.; V.A. Vdovin, S.A. Sokolov, V.A. Cherepenin, Inst. Radio-Engineering Acad. Sciences, USSR

M5.8 WATT-LEVEL MONOLITHIC QUASI-OPTICAL DIODE FREQUENCY MULTIPLIER GRID, C.F. Jou, Dept. of EE, Univ. Calif., Los Angeles (UCLA); D. Rutledge, N.C. Luhmann, Jr., Div. of Eng. and Applied Science, Cal. Tech., Pasadena, CA, U.S.A.

Monday Afternoon December 9, 1985

Session M6: MMW Spectroscopy (Materials)
1400 Netherlands Room B

M6.1 MMW INTERFEROMETERS (Invited Keynote), L. Genzel, MPI fur Festkorperforschung, Stuttgart, F.R.G.

M6.2 PULSED 140 GHz FOURIER TRANSFORM MICROWAVE SPECTROMETER, W.F. Kolbe, B. Leskovar, Univ. of Cal., Berkeley, CA, U.S.A.

M6.3 MILLIMETER WAVE COMPLEX REFRACTIVE INDEX, COMPLEX DIELECTRIC PERMITTIVITY AND LOSS TANGENT MEASUREMENTS OF COMMON POLAR AND NON-POLAR POLYMERS, M.S. Afsar, City College of N.Y. and M.I.T., Cambridge, MA, U.S.A.

M6.4 MICROWAVE AND MILLIMETER CONSTITUTIVE PROPERTIES OF MIXTURES, R.L. Moore, J.T. Stonbraker, D. Hicks, GTRI, Ga. Inst. Tech., Atlanta, GA, U.S.A.

M6.5 MILLIMETER WAVE DIELECTRIC PROPERTIES OF SINGLE CRYSTAL STRONTIUM BARIUM NIOBATE ($Sr_{0.61}Ba_{0.39}Nb_2O_6$) AT CYROGENIC TEMPERATURES, W. Ho, W.F. Hall, R.R. Neurgaonkar, Rockwell Int. Science Center, CA, U.S.A.

M6.6 DIAGNOSTIC APPLICATIONS OF MILLIMETER WAVES IN COAL CONVERSION SYSTEMS, N. Gopalsami, A.C. Raptis, Argonne National Lab., IL, U.S.A.

M6.7 DATA REDUCTION AND DESIGN CONSIDERATIONS IN OPEN RESONATOR MMW MATERIALS MEAS., T.B. Wells, R.L. Moore, D. Hicks, GTRI, Ga. Tech., Atlanta, GA, U.S.A.

M6.8 IMPACT OF MULTIPLE INTERNAL REFLECTIONS ON MATERIAL MEAS., T.B. Wells, GTRI, Ga. Tech., Atlanta, GA, U.S.A.

M6.9 COMPLEX DIELECTRIC CONSTANTS FOR MATERIALS AT 245 GHz, C.R. Jones, J.M. Dutta, NC Ctr. Univ., Durham, NC, U.S.A.

Monday Afternoon December 9, 1985

Session M7: SMMW Atmospherics and Astronomy
1400 Netherlands Room C

M7.1 ATMOSPHERIC EFFECTS ON PROPAGATION (Invited Keynote), P.C. Claspy, F.L. Merat, Case Western Reserve Univ., Cleveland, OH, U.S.A

M7.2 THE 8 to 14μm WINDOW OF THE TERRESTRIAL ATMOSPHERE (Invited Keynote), J. Hinderling, M.W. Sigrist, F.K. Kneubuhl, Physics Dept., ETH, CH-8093 Zurich, Switzerland

M7.3 STUDIES OF MOIST AIR PROPERTIES UP TO 1 THz, H.J. Liebe, D.H. Layton, Inst. for Tel. Sciences, Boulder, CO, U.S.A.

M7.4 CO_2 LIDAR SYSTEM FOR POLLUTION MONITORING, R. Barbini, A. Ghigo, M. Giorgi, N. Iyer, A. Palucci, S. Ribezzo, ENEA, TIB, Div. Fisica Applicata, Box 65, Frascati, ITALY

M7.5 FAR-INFRARED SOLAR IMAGES OBSERVED FROM A BALLOONBORNE PLATFORM, C. Degiacomi, F.K. Kneubuhl, IR Physics Group, ETH, CH-8093 Zurich, SWITZERLAND

M7.6 DIODE-LASER INFRARED HETERODYNE RADIOMETER AT 28μm, D.L. Spears, R.E. Reeder, M.I.T. Lexington, MA., U.S.A.

Monday Afternoon December 9, 1985

Session M8: Free Electron Lasers II
1400 Netherlands Room D

M8.1 FREE ELECTRON LASERS FOR INFRARED AND MILLIMETER WAVES (Invited Keynote), L. Elias, Unviersity of California Santa Barbara, CA, U.S.A

M8.2 THREE-DIMENSIONAL SIMULATION OF THE UBITRON/FEL AMPLIFIER (Invited Kenote), A.K. Ganguly, H.P. Freund, Naval Res. Lab, Washington, DC U.S.A

M8.3 HIGH HARMONIC OPERATION OF FELS IN THE COLLECTIVE AND HIGH GAIN REGIMES, A. Gover, E. Jerby, Faculty of Engineering, Tel-Aviv University, Ramat-Aviv, ISRAEL

M8.4 RESULTS FROM THE NRL UBITRON EXPERIMENT, D.E. Pershing, Mission Research Corp, Alexandria, VA; R.H. Jackson, R.K. Parker, Naval Research Laboratory, Washington, DC, U.S.A.

M8.5 MODELLING AND EXPERIMENTAL DESIGN OF A HIGH GAIN FREE ELECTRON MASER OPERATING IN THE 30-50GHz RANGE, M.Z. Caponi, H. Boehmer, L. Ulstrup, TRW, Inc., U.S.A.

M8.6 SPACE CHARGE EFFECT IN OPTICAL KLYSTRON, I. Boscolo, Dept. of Physics, Lecce & INFN Bari & V. Stagno, Dept. of Physics and INFN Bari, ITALY

Tuesday Morning December 10, 1985

Session T1: MMW Systems
0900 Netherlands Room A

T1.1 MMW MEASUREMENTS RADARS OVER THE PAST TEN YEARS (Invited Keynote), J. Clark Butterworth, GTRI, Ga. Inst. Tech., Atlanta, GA, U.S.A.

T1.2 COMMERCIAL MILLIMETER-WAVE APPLICATIONS, (Invited Keynote), H. Meinel, W. Menzel, AEG Telefunken, Radio and Radar Systems Group, PO Box 1730, Ulm, W. GERMANY

T1.3 A HIGH POWER COHERENT 95 GHz TRANSMITTER (HIPCOR-95), T.V. Wallace, P.D. Moore, Ga. Tech. Research Inst., Atlanta, GA; A. Barley, U.S. Army Missile Command Redstone Arsenal, AL, U.S.A.

T1.4 USE OF THE GEOMETRICAL THEORY OF DIFFRACTION IN THE DESIGN OF MM & SMMW SYSTEMS, D.H. Martin, R.J. Martin, F. Forni, Queen Mary College, LONDON, U.K.

T1.5 A DUAL FREQUENCY 183/380 GHz RECEIVER FOR AIRBORNE APPLICATIONS, P.D. Batelaan, M.A. Frerking, T.B.H. Kuiper, H.M. Pickett, M. Schaefer, P. Zimmermann, JPL, Cal. Inst. Tech., Pasadena, CA; N.C. Luhmann, Jr., Univ. of Calif., Los Angeles, CA, U.S.A.

T1.6 DOMINO-TYPE MILLIMETER WAVE SYSTEMS, F.J. Tischer, NCS University, Raleigh, NC, U.S.A.

T1.7 HIGH POWER K_aBAND GOLDSTONE SOLAR SYSTEM RADAR TRANSMITTER: TRANSMISSION LINE COMPONENT DEVELOPMENT-D.J. Hoppe & A.M. Bhanji, JPL, Cal, Inst. Tech., Pasadena, CA, U.S.A.

T1.8 90/180 GHz MILLIMETER WAVE RADIOMETER FOR FUTURE AIRBORNE MEASUREMENTS, J. Gagliano, R. Platt, Ga. Tech.; L. Dod, Goddard Space Flight Center, Greenbelt, MD , U.S.A.

Tuesday Morning December 10, 1985

Session T2: Plasma I
0900 Netherlands Room B

T2.1 MEASUREMENT OF MILLIMETER AND SUBMILLIMETER WAVE EMISSION ON JET AND COMPARISON WITH THEORY (Invited Keynote), D. Bartlett, E. Baker, D. Campbell, A. Costley, S. Kissel, JET Group, U.K.

T2.2 ELECTRON CYCLOTRON EMISSION MEASUREMENTS ON TFTR (Invited Keynote), F.J. Stauffer, P.C. Efthimion, G. Taylor, V. Arunasalam, D.A. Boyd, R.C. Cutler, M. P. McCarthy, D.A. Rasmussen, J. Wilgen, Univ. Md., Princeton PPL, ORNL, U.S.A.

T2.3 10-CHANNEL GRATING POLYCHROMATOR FOR ELECTRON CYCLOTRON EMISSION MEASUREMENT IN JIPP T-II U TOKAMAK, K. Sakai, Osaka Univ., Osaka; K. Kawahata, R. Ando, T. Tetsuka, J. Fujita, Nagoya Univ., Nagoya, JAPAN

T2.4 DESIGN OF A HIGH RESOLUTION FIR INTERFEROMETER FOR THE ADVANCED TOROIDAL FACILITY AT OAK RIDGE NATIONAL LABORATORY, W. Casson, D. Hutchinson, C.H. Ma, K. Vander Sluis, Oak Ridge Nat'l Lab, Oak Ridge, TN, U.S.A.

T2.5 THE APPLICATION OF HOMODYNE SPECTROSCOPY TO THE STUDY OF LOW FREQUENCY MICROTURBULENCE IN THE TEXT TOKAMAK, D. Brower, W.A. Peebles, N.C. Luhmann, Jr., U. of Cal., Los Angeles; C. Ritz, E. Powers, Univ. of Texas, Austin, TX, U.S.A.

T2.6 SYNCHRONOUS ABSOLUTE CALIBRATION TECHNIQUE FOR IN-SITU CALIBRATION OF THE TFTR SCANNING MILLIMETER WAVE RADIOMETERS, M. McCarthy, R.C. Cutler, P.C. Efthimion, G. Taylor, Princeton Univ., Princeton, NJ, U.S.A.

Tuesday Morning December 10, 1985

Session T3: SMMW Detectors
0900 Netherlands Room C

T3.1 SMWW DETECTORS QUASI-PARTICLE MIXER AND JOSEPHSON MIXER USING SUPERCONDUCTING TUNNEL JUNCTION (Invited Keynote), S. Imai, S. Morita, Y. Takeuti, N. Mikoshiba, Research Institute of Electrical Communication, Tohoku Univ., Sendai, JAPAN

T3.2 IR- and FIR- LASER DETECTION USING ANTENNA-COUPLED SCHOTTKY DIODE, N. Inoue, Y. Yasuoka, The National Defense Academy, Hashirimizu, Yokosuka 239, JAPAN

T3.3 FRONT-END COMPONENTS FOR SUBMILLIMETER-WAVE SCHOTTKY DIODE RECEIVERS, A. Kreisler, N. Boucenna, M. Pyee, Lab. Dispositifs Infra-Rouge Univ. Paris VI, FRANCE

T3.4 IMPROVEMENT OF RESPONSIVITY OF 10.6μm HOT CARRIER DETECTOR BY RESONANT EFFECT, K. Kikuchi, A. Oshimoto, National Defense Academy, Hashirimizu, Yokosuka, JAPAN

T3.5 HETERODYNE DETECTION AT 10.6μm USING QUASI-PLANAR METAL-OXIDE-METAL TUNNEL DIODES, J.A. Calveillo, V. Boccio, M. Gurnick, R. Augeri, R. Winkler, Eaton, Corp., NY, U.S.A.

T3.6 FIR DETECTION BY $GaAs_xP_{1-x}$LEDs, W. Bock, K. Moser, U. Happek, W. Prettl, Inst. Angewandte Physik, F.R.G.

T3.7 SOME QUESTIONS ON SIGNAL-TO-NOISE RATIO OF PYROELECTRIC DETECTOR-AMPLIFIER SYSTEMS, Y. Ming-Chang, Physics Dept., East China Normal University, Shanghai, P.R. CHINA

T3.8 REMOTE TRANSMISSION OF DETECTED INFRARED SIGNAL BY A PYROELECTRIC DETECTOR-MODULATOR, M.M. Pradhan, R.K. Garg, M. Arora, Nat. Physical Lab., New Delhi, INDIA

T3.9 NEW POSSIBILITIES OF LINEAR PYROELECTRIC ARRAYS FOR INFRARED DETECTION AND IMAGING, A. Handni, Univ. of Nancy I, FRANCE

Tuesday Morning December 10, 1985

Session T4: Free Electron Lasers III
0900 Netherlands Room D

T4.1 NEW THEORETICAL THRUSTS IN MILLIMETER WAVE RESEARCH (Invited Keynote), W. Manheimer, T. Antonsen, J. Burke, E. Ott, B. Levush, Naval Research Lab, Washington, DC, U.S.A.

T4.2 SUBMILLIMETER OPERATION OF THE ORBITRON ELECTROSTATIC MASER (Invited Keynote), I. Alexeff, F. Dyer, University of Tennessee, TN, U.S.A.

T4.3 THE AXIAL INJECTION TEM ORBITRON MASER, J.M. Burke, W.M. Manheimer, E. Ott, Naval Res. Lab., Washington, DC and University of Maryland, College Park, MD, U.S.A.

T4.4 COMPACT INFRARED FREE ELECTRON LASERS, L.R. Elias, I. Kimel, G. Ramian, Quantum Institute, University of California, Santa Barbara, CA, U.S.A.

T4.5 TWO-STAGE FREE ELCTRON LASER, L.R. Elias, I.Kimel, G. Ramian, Quantum Institute, University of California, Santa Barbara, CA U.S.A.

T4.6 ELECTRON TRAJECTORIES IN THE FREE-ELECTRON LASER WITH A UNIFORM MAGNETIC FIELD & A CORRUGATED SLOW-WAVE STRUCTURE, J. Soln, U.S. Army ERADCOM, Adelphi, MD, U.S.A.

T4.7 BACKWARD WAVE OSCILLATORS FOR FRQ. ABOVE 600 GHz, L.R. Barnett, J.M. Baird, R.W. Grow, S.G. Holmes, Univ. Utah, Salt Lake City, U.S.A.

Tuesday Afternoon December 10, 1985

Session T5: MMW Detectors and Mixers
1400 Netherlands Room A

T5.1 COSMIC-RAY NOISE IN BOLOMETERS (Invited Keynote), I.G. Nolt, Dept. of Physics, Univ. Oregon, OR, U.S.A.

T5.2 POINT-CONTACT DEVICES AND THE QUANTUM UNIT OF RESISTANCE, H.D. Riccius, L.H. Jones, Div. Physics, Ottawa, CANADA

T5.3 DESIGN CONSIDERATIONS FOR HIGH-GAIN SIS MIXERS, L.R. D'Addario, Nat. Radio Astronomy Observatory, VA; M.W. Cromar, F.L. Lloyd, National Bureau Standards, CO, U.S.A.

T5.4 PERFORMANCE OF HETERODYNE MIXERS USING ARRAYS OF SIS JUNCTIONS, D.G. Crete, W. R. McGrath, P.L. Richards, Univ. CA, Berkeley; F.L. Lloyd, Nat. Bur. Stds., CO, U.S.A.

T5.5 ABSOLUTE MEASUREMENTS OF POWER IN MILLIMETER-WAVE AND SUBMILLIMETER-WAVE BEAMS USING PHOTO ACOUSTIC DETECTION, D.H. Martin, G. Poulson, Queen Mary College, LONDON, U.K.

T5.6 ABSOLUTE CALIBRATION OF DETECTORS FOR MM-SUBMM RADIOMETRY, G.Y. Quiang, Shanghai Inst. Tech. Physics, CHINA; D.H. Martin, E. Puplett, QMC, LONDON, U.K.

T5.7 MOUNTING IMPROVEMENTS OF THE MOM POINT CONTACT DIODE, C. Yu, M. Hemmatian, A. Yekrangian, Dept. of Elec. Engineering, North Carolina A&T State Univ., NC, U.S.A.

T5.8 FIELD ENHANCEMENT AND INCREASED ISLAND ARRAY SELECTIVITY OF THE DISCONTINUOUS MIM FILM DIODE, C. Yu, A. Niczad, Dept. Electrical Engineering, NC A&T State Univ., NC, U.S.A.

T5.9 AN IMPROVED QUASI-OPTICAL SCHOTTKY-DIODE DETECTOR, K. Herrmann, Universitaet Erlangen-Nurnberg, 8520 Erlangen, W. GERMANY

Tuesday Afternoon December 10, 1985

Session T6: Plasma II
1400 Netherlands Room B

T6.1 PHASE IMAGING SYSTEMS FOR MEASUREMENTS OF PLASMA DENSITY COUNTOURS (Invited Keynote), J. Howard et al., Univ. of Calif., CA, U.S.A.

T6.2 MEASUREMENT OF MAGNETIC FIELD DIRECTION BY LASER SCATTERING WITH ELLIPTICAL BEAM CROSS SECTIONS, F. Schuler, W. Kasparek, E. Holzhauer, Stuttgart, WEST GERMANY

T6.3 OBSERVATION OF COLLECTIVE THOMSON SCATTERING OF D_2O LASER RADIATION FROM A TOKAMAK PLASMA, R. Behn, I. Kjelberg, P. Krug, A. Salito, M. Siegrist, CRPP, EPFL, Lausanne, SWITZERLAND

T6.4 A 137 GHz GYROTRON SCATTERING DIAGNOSTIC FOR INSTABILITY STUDIES IN A TANDEM MIRROR, P. Woskoboinikow, D.R. Cohn, J. Machuzak, W. Mulligan, R. Temkin, Plasma Fusion Center, Mass. Inst. of Technology, Cambridge, MA, U.S.A.

T6.5 SCATTERING FROM ECRH WAVES, W. Peebles, N. Luhmann Jr., T. Lehecka, P. Zimmermann, Univ. of California, Los Angeles, CA, U.S.A.

T6.6 DEVELOPMENT OF HIGH POWER FAR-INFRARED LASERS FOR FUSION PLASMA DIAGNOSTICS, T. Lehecka, R. Savage, Jr., W. Peebles, N. Luhmann, Jr., UCLA; A. Semet, Los Angeles, CA, U.S.A.

Tuesday Afternoon December 10, 1985

Session T7: Semiconductors
1400 Netherlands Room C

T7.1 PHOTOTHERMAL IONIZATION SPECTRUM OF MAGNESIUM DONORS IN SILICON, L.T. Ho, Inst. of Physics, Academia Sinica Taipei, Taiwan, REPUBLIC OF CHINA

T7.2 NONLINEAR PHOTOCONDUCTIVITY DUE TO CYCLOTRON RESONANCE IN n-GaAs, M. Wispfenning, W. Prettl, Inst. fur Angewandte Physik, Regensburg, F.R.G.

T7.3 FAR INFRARED STUDIES OF LATTICE AND FREE CARRIER EFFECTS IN NARROW-GAP SEMICONDUCTORS, K. Kumazaki, N. Nishiguchi, M. Cardona, Hokkaido Inst. Tech., JAPAN; MPI F.R.G.

T7.4 SUBMILLIMETER-MAGNETO SPECTROSCOPY OF THE "FREE MAGNETIC POLARON", M. Von Ortenberg, Wurzburg, FRG.

T7.5 INFRARED FARADAY ROTATION OF THIN FILM In_2O_3+SnO_2 SEMICONDUCTORS-Fernando Canal, J. Calderer, ETS Ingenieros de Telecomunicacion, Barcelona, SPAIN

T7.6 FAR INFRARED DETERMINATION OF THE SUPERCONDUCTING ENERGY GAP OF Pb:Bi ALLOY THIN FILMS, R. Sudharsanan, P.M. Geiger, S. Gygax, B.P. Clayman, Simon Fraser U., CANADA

T7.7 MICROWAVE RES. LARGE ELCTRON-HOLE DROP IN STRAINED GE, K. Ogawa, Osaka Univ. JAPAN

T7.8 AVALANCHE PHOTOMULTILICATION IN THE FAR INFRARED, F. Brown, J. Heyman, N. Newburg, D.A. Parker, Williams Col. and MIT, MA, U.S.A.

Tuesday Afternoon December 10, 1985

Session T8: Gyrotron I
1400 Netherlands Room D

T8.1 MATCHED LOADS FOR HIGH-POWER GYROTRON TESTS, P. Schuller, V. Erckmann, G. Janzen, W. Kasparek, G. Muller, M. Thumm, R. Wilhelm, IPF, Stuttgart, FRG

T8.2 OBSERVATION OF MODE CONVERSION IN GYROTRONS, G. Brand, M. Gross, D.J. Lamond, Univ. Sydney, Sydney, AUSTRALIA

T8.3 AN IMPROVED DESIGN FOR TE_{02}-TE_{01} AND TE_{01}-TE_{11} MODE CONVERTERS FOR USE WITH MM-WAVE GYROTRONS-R.J. Vernon, U. Rhee, Univ. Wisconsin, U.S.A.

T8.4 A MODE ANALYZING WAVEGUIDE DIRECTIONAL COUPLER FOR CW GYROTRON ANALYSIS, T. Bigelow, ORNL, Oak Ridge, TN, U.S.A

T8.5 POLARIZATION CONVERTERS IN OVERMODED CIRCULAR WAVEGUIDE FOR ELCTRON CYCLOTRON HEATING (ECH) AT 60 GHz, J.L. Doane, PPL, Princeton, NJ, U.S.A.

T8.6 TRANSMISSION AND TUNABILITY OF A DOUBLE-DISK GYROTRON WINDOW AT 120-160 Ghz, H. Stickel, KFK, Karlsruhe, FRG

T8.7 FAR-FIELD MEASUREMENT TECHNIQUE FOR GYROTRONS, M. Kitlinski, G. Hochschild, W. Wiesbeck, Karlsruhe FRG

T8.8 ECH GYROTRON SYSTEM FOR THE TARA TANDEM MIRROR, W. Guss, M. Mauel, D.K. Smith, PFC, MIT, Cambridge, MA, U.S.A

T8.9 KINETIC THEORY OF TRAVELLING WAVE GYROPENIOTRON, S.C. Zhang, Chengdu Inst. Rad. Eng., Chengdu, CHINA

Wednesday Morning December 11, 1985

Session W1: MMW Mixers/Imaging
0900 Netherlands Room A

W1.1 LOW NOISE SUBMILLIMETER MIXERS IN SINGLE MODE WAVEGUIDE, N.R. Erickson, Five College Radio Astronomy Obs., U of MA, Amherst, MA, U.S.A.

W1.2 A SUBHARMONIC MIXER USING A FULLY DEPLETED N^+PN^+DIODE WITH SYMMETRIC CONDUCTANCE, R.L. Ross, R.A. Lux, D.A. Dekanski, T.R. AuCoin, S. Dixon, J.J. Winter, U.S. Elect. Tech & Devices Lab (ERADCOM), NJ, U.S.A.

W1.3 W-BAND BEAM LEAD PLANAR DOPED BARRIER SUBHARMONIC MIXER, J.C. Chen, D.W. Wong, Hughes Aricraft Co, CA; S. Dixon, D. Dekanski, R. Ross, U.S. Army Elec. Tech., NJ, U.S.A.

W1.4 PRECISION MEASUREMENT OF MIXER NOISE TEMPERATURE AND CONVERSION LOSS, B.J. Clifton, M.I.T., Lexington, MA, U.S.A.

W1.5 ANALYSIS & MEASUREMENTS OF QUASI-OPTICAL SLOT-RING MIXER, G. Hegazi, K. Stephan, S. Yngvesson, A. Jelenski, U. Mass., MA, U.S.A.

W1.6 DESIGN OF LOW NOISE MILLIMETER-WAVE MIXERS TAKING INTO ACCOUNT THE SOURCES OF EXCESS NOISE IN THE DIODE, G. Hegazi, A. Jelenski, S. Yngvesson, U. Mass, Amherst, MA, U.S.A.

W1.7 PLANAR DIPOLE-FED MIXER ARRAYS FOR IMAGING AT MILLIMETER AND SUBMILLIMETER WAVELENGTHS, J.A. Taylor, T.C.L. Sollner, J.A. Calviello, C.D. Parker, M.I.T., Lexington, MA; Eaton Corp., NY, U.S.A.

W1.8 MILLIMETER WAVE IMAGING SYSTEMS WITH AN ENDFIRE RECEPTOR ARRAY, J. Johansson, E.L. Kollberg, Chalmers Univ. Tech., SWEDEN: K.S. Yngvesson, U. Mass., Amherst, MA, U.S.A.

W1.9 HIGH RESOLUTION MILLIMETER-WAVE IMAGING SENSOR, W.J. Wilson, G.S. Parks, R.J. Howard, JPL, Los Angeles, CA, U.S.A.

W1.10 MICROLENSES FOR A FLY'S EYE IMAGING ARRAY, D.P. Kasilingam, D.B. Rutledge, Cal. Inst. Tech., Pasadena, CA, U.S.A.

Wednesday Morning December 11, 1985

Session W2: Plasma III
0900 Netherlands Room B

W2.1 CALIBRATION OF THE FIR POLARIMETER ON TFTR TOKAMAK (Invited Keynote), C.H. Ma, D. Hutchinson, K. Vander Sluis, Oak Ridge Nat'l Lab, TN; D. Mansfield, H. Park, L. Johnson, Princeton Univ., NJ., U.S.A.

W2.2 POLARIMETRIC PHASE IMAGING FOR PLASMA CURRENT PROFILE MEASUREMENT, J. Howard, W. Peebles, N. Luhmann, Jr., P.E. Young, U. of Calif., Los Angeles, CA, U.S.A.

W2.3 TWIN FREQUENCY FIR SOURCES FOR PLASMA DIAGNOSTIC APPLICATIONS, W. Peebles, J. Howard, R. Dworak, R. Savage, Jr., T. Lehecka, N. Luhmann, Jr., C. Domier, P. McDonald, UCLA, CA, U.S.A.

W2.4 HIGH SENSITIVE IR LASER INTERFEROMETER, A. Yasuda, Tokyo Univ. of Merchant Marine; K. Kawahat, Nagoya Univ.; A. Mase, Univ. of Tsukuba, S. Okada, Osaka University, JAPAN

W2.5 THERMAL FILAMENTATION INSTABILITY OF MILLIMETER WAVES IN LABORATORY PLASMAS, M. Lee, J. Kong, M.I.T.; S. Kuo, Polytech. Inst. of NY, U.S.A.

W2.6 STUDY OF DENSITY PROFILE DYNAMICS IN THE TFTR, H.K. Park, D.K. Mansfield, L.C. Johnson, Princeton, U.; C. Ma, ORNL

Wednesday Morning December 11, 1985

Session W3: Lasers I
0900 Netherlands Room C

W3.1 MEASUREMENT AND ASSIGNMENT OF NEW FIR LASER LINES IN $^{12}CH_3OH$ AND $^{13}CH_3OH$, D. Pereira, A. Scalabrin, Inst. de Fisica, UNICAMP, Campinas, S.P., BRASIL

W3.2 NEW FIR CW LASER LINES OBSERVED IN CH_3OD AND CD_3OD OPTICALLY PUMPED BY A CO_2 LASER, M. Fourrier, A. Kreisler, Lab. Dispositifs Infra-rouge, Univ. Paris, FRANCE

W3.3 OBSERVATION OF NEW FIR LASER LINES IN CD_3OH, A. Scalabrin C. A. Ferrari, D. Pereira, Inst. de Fisica UNICAMP, Campinas, S.P. BRASIL.

W3.4 STARK CH_3OH LASER FOR PHASE-LOCKING WITH POINT-CONTACT JOSEPHSON MIXER, E. Sakuma, Y. Miki, M. Morimura, Nat'l Research Lab. Metrology, Ibaraki-ken, JAPAN

W3.5 OBSERVATIONS ON A POWERFUL AND STABLE CH_3OH LASER, I. Boscolo, A. Pando, A. Passaseo, Dipart. di Fisica, Univ. degli Studi, Lecce, ITALY; P. Bernardini, Ist. Fisica, Univ. degli Studi, Urbino, ITALY

W3.6 EXTENDED TUNING RANGE FOR CH_3F RAMAN FIR LASER, J.R. Izatt, B.K. Deka, Dept. Physics, Univ. Alabama, AL, U.S.A.

W3.7 COMPACT, HIGH POWER, SINGLE MODE FIR NH_3 LASER PUMPED BY A SINGLE MODE CO_2 LASER PULSE, H. Hirose, S. Kon, Dept. Applied Physics, Nagoya Univ., Nagoya, JAPAN

W3.8 INTRACAVITY TRIPLE RESONANCE SPECTROSCOPY IN THE CH_3OH FAR INFRARED LASER, N. Ioli, A. Moretti, G. Moruzzi, P. Roselli, F. Strumia, Pisa, ITALY

W3.9 INTRACAVITY STARK SPECTROSCOPY IN OPTICALLY PUMPED FIR LASERS, N. Ioli, A. Moretti, P. Roselli, F. Strumia, Univ. Pisa and C.N.R., Pisa, ITALY

Wednesday Morning December 11, 1985

Session W4: Gyrotron II
0900 Netherlands Room D

W4.1 GYROTRON DEVELOPMENT IN THE PEOPLE'S REPUBLIC OF CHINA (Invited Keynote), Liu Shenggang, Chengdu Inst. Radio Eng., Chengdu, Sichuan, P.R.C.

W4.2 PROSPECTS FOR HIGH FREQUENCY, MEGAWATT GYROTRONS (Invited Keynote), K. Kreischer, Plasma Fusion Center, MIT, Cambridge, MA, U.S.A.

W4.3 A MAGNETRON INJECTION GUN FOR THE MIT MEGAWATT GYROTRON, H. Huey, N. Lopez, R. Garcia, Varian, Palo Alto, CA; K. Kreischer, MIT, Cambridge, MA, U.S.A.

W4.4 A 120 GHz TE_{03} MODE GYROTRON, T. Kikunaga, T. Shimozuma, Y. Yasojima, Y. Murai, Mitsubishi Elec. Corp. Central Res. Lab., Amagasaki, Hyogo, JAPAN

W4.5 STATUS REPORT OF THE 150 GHz GYROTRON DEVELOPMENT ACTIVITIES AT KFK, G. Hochschild & Gyrotron Team, KFK, Karlsruhe, F.R.G.

W4.6 CONTINUOUSLY TUNABLE, SPLIT-CAVITY GYROTRONS, G. Brand, M. Gross, Univ. Sydney, Sydney, AUSTRALIA

W4.7 A SIMPLE SELF-CONSISTENT ANALYSIS OF THE GYROTRON, E. Jensen, A. Jostingmeier, Tech. Univ. Hamburg-Harburg, Hamburg, WEST GERMANY

W4.8 CUSPTRON MICROWAVE TUBE, W. Namkung, J. Y. Choe, Naval Surface Weap. Center, MD, U.S.A.

Wednesday Afternoon December 11, 1985

Session W5: Guided Propagation
1400 Netherlands Room A

W5.1 COMPARATIVE STUDY OF MILLIMETER-WAVE GUIDING STRUCTURES, (Invited) T. Itoh, Univ. Texas, Austin, TX, U.S.A.

W5.2 QUASI-OPTICAL CIRCUIT DESIGN AND APPLICATIONS, R.J. Martin, K. Maries, QMC Instruments Ltd.; D.H. Martin, Queen Mary College, LONDON, U.K.; R.J. Wylde, Thomas Keating Ltd.

W5.3 OPTIMIZED OVERMODED TE01-to-TM11 MODE CONVERTERS FOR HIGH POWER MILLIMETER WAVE APPLICATIONS AT 70 & 140 GHz, H. Sturm, M. Thumm, Univ. Stuttgart, F.R.G.

W5.4 A NOVEL DEVICE FOR MULTIMODE ANALYSIS IN OVERSIZED WAVEGUIDES, W. Kasparek, G.A. Muller, Inst. fur Plasmaforschung, Univ. Stuttgart, F.R.G.

W5.5 TRAPPED DIELECTRIC IMAGE GUIDE COUPLER, A.K. Tiwari, B. Bhat, R.P. Singh, Maulana Azad College of Tech., Bhopal, INDIA

W5.6 THE TRANSMISSION BEHAVIOUR OF THE H WAVEGUIDE, APPLICATION TO THE DESIGN OF A BROADBAND LAUNCHER, C. Martin Pascual, J. Vassl'lo, I.E.C. Dept. Microondas, SPAIN

W5.7 A STUDY OF FIELD AND CURRENT DISTRIBUTIONS IN FINLINES CALCULATED WITH THE SPECIAL DOMAIN TECHNIQUE, S. Ghazaly, W.J.R. Hoefer, Univ. Ottawa, CANADA

W5.8 MMW ATTENUATION MEASUREMENTS IN LAYER STRUCTURED SEMI-CONDUCTOR WAVEGUIDES, E.A. Chauchard, R.P. Fischer, W.T. Beard, C.H. Lee, Univ. of Maryland, MD, U.S.A.

W5.9 ANALYSIS OF COUPLING BETWEEN TWO PARALLEL DIELECTRIC WAVEGUIDES, S. Xu, S. Peng, NY Inst. Tech.; F. Schwering, U.S. Army CECOM, Ft. Monmouth, NJ, U.S.A.

Wednesday Afternoon December 11, 1985

Session W6: FIR Properties of Materials I
1400 Netherlands Room B

SPECIAL SESSION OF INVITED TALKS
DR. U. STROM, ORGANIZER

W6.1 REPORT ON MM-WAVE LOSS WORKSHOP, Durham, England, July, 1985, J.R. Birch, National Physical Lab, U.K.

W6.2 FAR INFRARED PROPERTIES OF LOW DIMENSIONAL CONDUCTORS, D.B. Tanner, Univ. Florida, Gainesville, FL, U.S.A.

W6.3 MM AND SUB-MM PROPERTIES OF GLASSES, U. Strom, Naval Research Laboratory, Washington, DC, U.S.A.

W6.4 MM AND SMM WAVE DIELECTRIC MEASUREMENTS OF CERAMIC ALUMINA AND CRYSTALLINE ALUMINA, M.N. Afsar, City College of N.Y. and M.I.T., U.S.A.

Wednesday Afternoon December 11, 1985

Session W7: Lasers II
1400 Netherlands Room C

W7.1 A CARBON DIOXIDE WAVEGUIDE LASER FOR OPTICALLY PUMPING FAR-INFRARED LASERS, S.L. Prunty, Dept. Elect. Eng. Univ. College, Cork, IRELAND

W7.2 SINGLE LONGITUDINAL MODE HIGH PRESSURE CO_2 LASERS FOR FIR LASER PUMPING, B.K. Deka, M.A. Rob, J.R. Izatt, Dept. Physics, Univ. Alabama, Tuscaloosa, AL, U.S.A.

W7.3 DETERMINATION OF THE BROADENING COEFFICIENT OF 10μm CO_2 VI-ROTATION LINES AT DIFFERENT TEMPERATURE, C. Peipei, S. Shanxiong, Z. Hang sheng, I-Shan Zheng, Dept. Physics, East China Normal Univ., Shanghai, CHINA

W7.4 Mo MIRROR PRODUCED BY ELECTRON BEAM MELTING METHOD FOR HIGH POWER TEA CO_2 LASER, Y. Tsunawaki, Y. Ichikawa, K. Yoshida, M. Yamanaka, T. Yamanaka, C. Yamanaka, H. Okamoto, N. Matsusue, K. Kitazima, JAPAN

W7.5 DESIGN OF PORTABLE LASER TRANSMISSOMETERS, G.G. Gimmestad, Q.B. Zhou, Michigan Tech. Univ., MI, U.S.A.

W7.6 DITHER-FREE STABILIZATION OF CO_2 LASERS FOR FAR INFRARED PUMPING: PHOTOACOUSTIC APPROACH, C.A. Bennett, D.P. Hutchinson, Oak Ridge Nat'l Lab., Oak Ridge, TN, U.S.A.

W7.7 THE OPTIMUM PUMPING POWER FOR OPTICALLY PUMPED FIR LASERS, L. Yikun, W. Yumin, C. Danli, H. Jinglu, Dept. of Radio Electronics, Zhongshan Univ., P.R. CHINA

W7.8 FREQUENCY TUNING IN A $^{13}CH_3F$ LASER, S. Evangelides, B. Danly, B. Lax, R. Temkin, MIT Plasma Fusion, Cambridge, MA, U.S.A.

W7.9 FREQUENCY MEASUREMENT OF OPTICALLY PUMPED FIR MOLECULAR LASERS, Inguscio, Ioli, Moretti, Strumia, Pisa, ITALY

Wednesday Afternoon December 11, 1985

Session W8: Gyrotron III
1400 Netherlands Room D

W8.1 A 100 GHz, 200 KW GYROTRON WITH A TE_{02}/TE_{04} COMPLEX CAVITY (Invited Keynote), C. Mourier, Thomson-CSF, Velizy, FRANCE

W8.2 GYROTRONS WITH MODE SELECTION VIA CAVITIES WITH TRANSVERSE DIFFRACTION (Invited Keynote), M.E. Read, Naval Research Laboratory, Washington, DC, U.S.A.

W8.3 ON THE DESIGN OF OPEN RESONATORS FOR QUASI-OPTICAL GYROTRONS, A. Perrenoud & Quasi-Optical Gyrotron Dev. Group, EPFL/BBC, Lausanne, SWITZERLAND

W8.4 PARAMETER STUDIES FOR A 150 GHz GYROTRON AT KfK, E. Borie, B. Joedicke, KfK, IDT; O. Dumbrajs, Fa. ABAS, Karlsruhe, F.R.G.

W8.5 ELECTRODE SYNTHESIS FOR GYROTRON GUNS ABOVE 100 GHz, C.J. Edgecombe, Cambridge Univ., Cambridge, U.K.

W8.6 A $TE_{1,3}$ GYROTRON AT 85 GHz, M. Rhinewine, M.E. Read, Naval Research Laboratory, Washington, DC, U.S.A.

W8.7 A NEW "TWIN-BEAM" MIG FOR HIGH POWER GYROTRON, W. Hui, Z. Jin-Lin, Y. Shi-xuan, L. Mao-tian, Beijing Vacuum Electron Devices Res. Inst., P.R.C.

W8.8 ELECTROSTATIC NOISE AMPLIFICATION IN GYROTRONS, K.R. Chu, K.R. Chen, L.H. Lyu, Nat. Tsing Hua Univ., Taiwan, REPUBLIC OF CHINA

Thursday Morning December 12, 1985

Session TH1: MMW Integrated Circuits
0900 Netherlands Room A

TH1.1 MILLIMETER WAVE INTEGRATED CIRCUIT RADAR SENSORS (Invited Keynote), C.R. Seashore, Honeywell, Minnetonka, MN, U.S.A.

TH1.2 MILLIMETER-WAVE INTEGRATED CIRCUIT UPCONVERTERS, C. Nguyen, K. Chang, TRW, Redondo Beach, CA, U.S.A.

TH1.3 MONOLITHIC IMPATT DIODES FOR MILLIMETER WAVE APPLICATION, B. Bayraktarogulu, H. Shih, Texas Instruments, Central Research Labs., P.O. Box 225936, Dallas, TX, U.S.A.

TH1.4 A NEW APPROACH TO THE DESIGN OF DISTRIBUTED LINE PARAMETERS FOR MMW INTEGRATED CIRCUITS, B.H. Liu, Rose-Hulman Inst. of Technology, Terre Haute, IN, U.S.A.

TH1.6 BALANCED MONOLITHIC MIXER FOR USE AT 44 GHz, B.J. Clifton, R.W. Chick, M.I.T., Lexington, MA, U.S.A.

TH1.7 SLOW WAVE MONOLITHIC VARIABLE PHASE SHIFTER, C.M. Krowne, R.E. Neidert, NRL, Washington, DC, U.S.A.

TH1.8 DEVELOPMENTS IN TWO DIMENSIONAL ARRAYS, R.C. Compton, G.M. Rebeiz, D. B. Rutledge, Cal. Inst. Tech., Pasadena, CA, U.S.A.

TH1.9 E-FIELD OF CYLINDRICAL SLOT WAVE IN THE SURFACE WAVE REGIME, G.I. Komar, V.P. Shestopalov, Acad. Sci. Ukranian SSR, Kharkov, USSR

Thursday Morning December 12, 1985

Session TH2: FIR Properties of Materials II
0900 Netherlands Room B

SPECIAL SESSION OF INVITED TALKS
DR. U. STROM, ORGANIZER

TH2.1 FAR INFRARED ABSORPTION IN ALKALI HALIDES, A.J. Sievers, Cornell Univ., Ithaca, NY, U.S.A.

TH2.2 FAR INFRARED STUDIES OF SEMICONDUCTORS, S.J. Allen, Jr., Bell Communications Research, Murray Hill, NJ, U.S.A.

TH2.3 THEORY OF LOW ENERGY EXCITATION IN INHOMOGENEOUS SYSTEMS, L. Schwartz, Schlumberger-Doll Research, Richfield, CT, U.S.A.

TH2.4 THEORY OF SUB-MM ABSORPTION IN CRYSTALLINE DIELECTRICS, M. Sparks, Scientific Research Center, Beverly Hills, CA, U.S.A.

Thursday Morning December 12, 1985

Session TH3: Lasers III
0900 Netherlands Room C

TH3.1 GENERATION OF TUNABLE LASER SIDEBANDS IN THE FAR-INFRARED REGION, H.M. Pickett, J. Farhoomand, G.A. Blake, M.A. Frerking, E.A. Cohen, JPL Cal. Inst. Tech., CA, U.S.A.

TH3.2 LINE COMPETITION AND LINE SELECTION IN OFF-RESONANTLY PUMPED SYSTEMS, M.A. Dupertuis, S.A. Salito, R.R.E. Salomaa, M.R. Siegrist, Assoc. Euratom, SWITZERLAND and Helsinki Univ. Tech. Espoo, FINLAND

TH3.3 GRAZING-INCIDENCE FIR GAS LASER, D. Wildmann, F.K. Kneubuhl, Infrared Physics Group, ETH, SWITZERLAND

TH3.4 REFLECTION COEFFICIENTS OF OVERSIZED COUPLING HOLES, D. Pasquet, J.L. Gautier, P. Pouvil, ENSEA, Les Chenes Pourpres, Cergy, FRANCE

TH3.5 STUDY OF SATURATION EFFECT AND OUTPUT POWER OF OPTICALLY PUMPED FIR LASERS, L. Yao, L. Yikun, Dept. of Radio Electronics, Zhongshan Univ., Guangzhou, P.R. CHINA

TH3.6 DEVELOPMENT OF AN R-F DRIVEN HCN LASER FOR PLASMA DIAGNOSTICS, D.P. Hutchinson, J. Juang, C. Ma, ORNL, U.S.A.

TH3.7 CW OPT-PUMPED FIR LASER LINE FROM D_2O^{18}, Ioli, Moretti, Roselli, Strumia, Pisa, ITALY

Thursday Morning December 12, 1985

Session TH4: Gyrotron IV
0900 Netherlands Room D

TH4.1 HARMONIC GYROTRON AND GYRO-PENIOTRON (Invited Keynote), Y. Terumichi, A. Ando, S. Tanaka, Kyoto Univ.; K. Yokoo, S. Ono, Tohoku Univ.; T. Kikunaga, Mitsubishi Corp.; T. Idehar, Fukui Iniv., JAPAN

TH4.2 GYROTRON DEVELOPMENT ACTIVITY AT VARIAN ASSOCIATES (Invited Keynote), H. Jory, Varian Assoc., Palo Alto, CA, U.S.A.

TH4.3 THE HIGH POWER GYRO-PENIOTRON OSCILLATOR, P. Vitello, K. Ko, SAIC, McLean, VA, U.S.A.

TH4.4 DESIGN STUDY OF THE π-MODE GYRO-HARMONITRON AMPLIFIER, S. Ahn, S.Y. Park, R.K. Parker, Naval Research Lab, Washington, DC, U.S.A.

TH4.5 ANALYSIS OF A HIGH HARMONIC RECTANGULAR GYROTRON USING RIBBON BEAMS, A. Ferendeci, Case Western Reserve Univ., Cleveland, OH, U.S.A.

TH4.6 THE OPERATION OF A MULTICAVITY HIGH-HARMONIC GYRO-KLYSTRON AMPLIFIER, D. Furuno, D. McDermott, N. Luhmann, Jr., UCLA, U.S.A.; K.R. Chu, Tsing Hua Univ. TAIWAN; P. Vitello, K. Ko, SAI, VA, U.S.A.

TH4.7 SUPRESSION OF AXIAL MODE COMPETITION IN A HIGH HARMONIC GYROMONOTRON, D. McDermott, N. Luhmann, Jr., Univ. of Calif., Los Angeles, CA, U.S.A.

TH4.8 ANALYSIS OF THE HARMONIC GYROTRON TRAVELLING WAVE AMPLIFIER, S.P. Kuo, S. Kuo, B.R. Cheo, Polytech Inst. of N.Y., Farmingdale, NY; M.C. Lee, MIT, Cambridge, MA, U.S.A.

Thursday Afternoon December 12, 1985

Session TH5: Guided Prop. & Int. Circuits
1400 Netherlands Room A

TH5.1 MICROSTRIP FULLY INTEGRATED W-BAND TRANSCEIVER USING SOFT SUBSTRATE, D.R. Singh, Honeywell, MN, U.S.A.

TH5.2 AN MBE COPLANAR MOTT MIXER DIODE SUITABLE FOR MMW GaAs INTEGRATED CIRCUITS, J.P. Nagle, L.A. Hing, J.G. Summers, GEC Res. Limited, Wembley, ENGLAND

TH5.3 NARROW BAND, TEMPERATURE COMPENSATED DIELECTRIC FILTERS FOR INTEGRATED CIRCUITS FOR THE 140 GHz "WINDOW", G.B. Morgan, D. Singh, Univ. Wales, Cardiff, U.K.

TH5.4 OPTICALLY CONTROLLED COPLANAR WAVEGUIDE MILLIMETER WAVE PHASE SHIFTER, P. Cheung, D. Fun, C.K.C. Tzuang, D.P. Neikirk, T. Itoh, Univ. of Texas, Austin, TX, U.S.A.

TH5.5 FLEXIBLE MM-WAVE DIELECTRIC WAVEGUIDES, W.M. Bruno, W.B. Bridges, Cal. Inst. Tech., Pasadena, CA, U.S.A.

TH5.6 MM-WAVE DIELECTRIC RING RESONATORS, W.M. Bruno, W.B. Bridges, Cal. Inst. Tech., Pasadena, CA, U.S.A.

TH5.7 FULL-WAVE ANALYSIS OF SUSPENDED AND INVERTED MICROSTRIP LINES, R.S. Tomar, P. Bhartia, Univ. Ottawa, and Dep. of Nat'l Defence, Ottawa, CANADA

TH5.8 ANALYSIS OF THE PROPAGATION PROPERTIES INCLUDING THE SINGLE-MODE BANDWIDTH IN AN INSULAR DIELECTRIC WAVEGUIDE, M. Shi, D. Jiang, Peking Univ., CHINA

TH5.9 ANALYSIS OF AZIMUTHALLY MAGNETIZED SOLID PLASMA CIRCULAR GUIDE, V.I. Miteva, K.P. Ivanov, Bulgarian Academy of Sciences, Sofia, BULGARIA

TH5.10 COMPUTER-AIDED DESIGN OF FINLINE FILTERS IN WAVEGUIDES BELOW CUTOFF, R. Vahldieck, W.J.R. Hoefer, Dept. of Electrical Engineering, Univ. of Ottawa, CANADA

TH5.11 COMPLEX AND BACKWARD-WAVE MODES IN FINLINES, A.S. Omar, K. Schunemann, Tech. Hamburg-Harburg, F.R.G.

Thursday Afternoon December 12, 1985

Session TH6:
1400 Netherlands Room B

TH6.

Thursday Afternoon December 12, 1985

Session TH7: Spectroscopy I
1400 Netherlands Room C

TH7.1 DESIGN OF A SUBMILLIMETER ELLIPSOMETER FOR THE MEASUREMENT OF COMPLEX INDICES OF REFRACTION OF MATERIALS, R.H. Giles, M.L. Coulombe, Univ. Lowell, MA, U.S.A.

TH7.2 ANHARMONIC SELF-ENERGY FUNCTION OF THE VIBRATIONAL MODES OF $NaNO_2$, M. El Sherif, Dokki, Cairo, EGYPT

TH7.3 INFRARED AND OPTICAL PROPERTIES OF WINDOWS, R. Furler, F.K. Kneubuhl, P. Williams, Infrared Physics Group, SWITZERLAND

TH7.4 REAL TIME INFRARED IMAGE PROCESSING, L. Layuan, Z. Linanzuo, Dept. Elect. Eng. & Computer Science, CHINA

TH7.5 FAR-INFRARED FILTER RADIOMETRY OF STRATOSPHERIC TRACE GASES, I.G. Nolt, J.V. Radostitz, Univ. of Oregon; K.V. Chance, W.A. Traub, SAO, MA; B. Carli, IROE, ITALY; P.A.R. Ade, QMC, London, ENGLAND

TH7.6 FAR INFRARED SPECTROSCOPY OF SUPERCONDUCTING NB_3GE FILMS, W.B. Cook, S. Perkowitz, Emory Univ., GA, U.S.A.

TH7.7 LINEAR POLARIZATION OF THE SPECTRAL THERMAL EMISSION OF IRON-COBALT ALLOYS, R. Bronnimann, F.K. Kneubuhl, Infrared Physics Group, ETH, Zurich, SWITZERLAND

TH7.8 EPR IN DYSPROSIUM ALUMINIUM GARNET AT FIR WAVELENGTHS, P. Janssen, Katholieke Univ. Leuven, BELGIUM; W.P. Wolf, Yale Univ., New Haven, CT, U.S.A.

TH7.9 SPECTROSCOPIC INVESTIGATION OF THE EFFECT OF MEDIUM ON THE FREQUENCY OF IR RADIATION, M.I. Nasser, Dept. of Physics, NRC, CAIRO; A.H. Bassyouni, EGYPT

TH7.10 MEASUREMENTS OF THE ABSORPTION COEFFICIENT OF VARIOUS LIQUIDS AT 0.119 mm, M.A. Walker, R.K. Richards, D.P. Hutchinson, ORNL, Oak Ridge, TN, U.S.A.

Thursday Afternoon December 12, 1985

Session TH8: Gyrotron V
1400 Netherlands Room D

TH8.1 RESULTS OF GYROTRON INVESTIGATIONS (Invited Keynote), G. Nusinovich, Inst. Appl. Phys., Gorky, USSR

TH8.2 DESIGN & COLD TESTING OF A HIGH PEAK POWER X-BAND GYROKLYSTRON (Invited Keynote), W. Lawson, J. Calame, V.L. Granatstein, P.E. Latham, J. McAdoo, G.S. Park, C.D. Striffler, F.J. Williams, Univ. Maryland, MD; K. Chu, J. Seftor, P. Vitello, K. Ko, SAIC, McLean, VA, U.S.A.

TH8.3 DESIGN OF A HIGH POWER 35 GHz CYCLOTRON AUTO-RESONANCE MASER AMPLIFIER, A.W. Fliflet, S.H. Gold, Naval Research Lab., Washington, DC, U.S.A.

TH8.4 A K_a-BAND GYROTRON EXPERIMENT USING AN INTENSE RELATIVISTIC ELECTRON BEAM, S. Gold, A. Fliflet, W. Manheimer, W. Black, V. Granatstein, A. Kinkead, D. Hardesty, M. Sucy, Nav. Res. Lab., Washington, DC, U.S.A.

TH8.5 THE EFFICIENCY OF ELECTRON CYCLOTRON MASERS WITH LONGITUDINAL WIGGLER, A.T. Lin, C. Lin, UCLA, Los Angeles, CA, U.S.A.

TH8.6 SATURATION OF CYCLOTRON MASER INSTABILITY DRIVEN BY AN ELECTRON LOSS-CONE DISTRIBUTION, S.P. Kuo, Polytechnic Inst. of New York, Farmingdale, NY; M.C. Lee, MIT, Cambridge, MA, U.S.A.

TH8.7 DESIGN OF CUSPTRON AMPLIFIER FOR ACCELERATOR APPLICATIONS, J.Y. Choe, W. Namkung, Naval Surface Weapons Center, Silver Spring, MD, U.S.A.

Friday Morning December 13, 1985

Session F1: MMW Devices
0900 Netherlands Room A

F1.1 THE PHASE CORRECTING ZONE-PLATE (Invited Keynote), J.C. Wiltse, GTRI, Ga. Inst. Tech., Atlanta, GA, U.S.A.

F1.2 SURVEY OF MMW ANTENNAS (Invited Keynote), F. Schwering, U.S. Army, Communications-Elect. Command, Fort Monmouth, NJ, U.S.A.

F1.3 A METHOD FOR MEASUREMENT OF Q-FACTOR AT MILLIMETER WAVE LENGTH, Y. Zonghai, L. Chongwen, Z. Yingwei, Chengdu Inst. of Radio Engineering, Sichuan, P.R. CHINA

F1.4 A NEW KIND OF SPECIAL AXISYMMETRIC QUASI-OPTICAL RESONANCE SYSTEM WITH THREE MIRRORS, L. Shenggang, L. Chongwen, X. Wenkai, W. Changbiao, Sichuan, P.R. CHINA

F1.5 THE DIELECTRIC RESONATOR ANTENNA, M.W. McAllister, S.A. Long, Dept. of Electrical Engineering, Univ. of Houston, TX, U.S.A.

F1.6 RECENT DEVELOPMENTS IN MILLIMETER-WAVE PLANAR FILTERS, C. Nguyen, K. Chang, TRW, Redondo Beach, CA, U.S.A.

F1.7 A NEW NONCONTACTING SLIDING SHORT FOR MILLIMETER WAVE APPLICATIONS, I. Galin, Aerojet Electrosystems, Azusa, CA, U.S.A.

F1.8 NIOBIUM NITRIDE DEVICES FOR SIS MIXERS, E.J. Cukauskas, W.L. Carter, M. Nisenoff, Naval Res. Lab., Washington, DC, U.S.A.

F1.9 Ka-BAND SPDT DIODE SWITCH, M. Ujimoto, Toshiba Corp., Microwave Equipment Div., Kawasaki, JAPAN

F1.10 A COMPARATIVE ANALYSIS OF CHEN AND ULRICH THEORIES OF MESHES: SOME MEASUREMENTS, I. Boscolo, A. Pando, Dipartmento Fisica dell'Univ. di Lecce, ITALY

Friday Morning December 13, 1985

Session F2:
0900 Netherlands Room B

Friday Morning December 13, 1985

Session F3: Spectroscopy II
0900 Netherlands Room C

F3.1 EIGEN OSCILLATIONS OF OPEN WAVEGUIDE STRUCTURES AND RESONANCE WAVE SCATTERING PHENOMENA, A.A. Kirilenko, S.L. Senkevich, Inst. Radiophysics, Acad. Sciences Ukranian SSR, Kharkov, USSR

F3.2 USE OF DIFFRACTION GRATINGS FOR DETERMINATION OF PARAMETERS OF DIELECTRICS, A. Kusaikin, Y. Sirenko, Inst. Radiophysics, Acad. Sciences Ukranian SSR, Kharkov, USSR

F3.3 ELECTRODYNAMIC ANALYSIS OF ACTIVE SEMICONDUCTOR STRUCTURES, V.A. Abdulkadyrov, Inst. Radiophysics, Acad. Sciences Ukranian SSR, Kharkov, USSR

F3.4 ON THE NATURE OF FEATURES OF "LOCKING" PHENOMENA OF DIELECTRIC LAYERS PLACED NEAR PERIODIC STRUCTURES, A Kirilenko, A. Senkevich, Inst. Radiophysics, Acad. Sciences Ukranian SSR, Kharkov, USSR

F3.5 POLARIZATION EFFECTS FOR NON-SPECULAR REFLECTION OF WAVES BY DIFFRACTION GRATINGS, A.P. Kusaikin, Inst. Radiophysics, Acad. Sciences Ukranian SSR, Kharkov, USSR

Friday Morning December 13, 1985

Session F4: Gyrotron VI
0900 Netherlands Room D

F4.1 ADVANCED GYROKLYSTRON DEVELOPMENT AT NRL, W. Bollen, A. McCurdy, A Ganguly, C.M. Armstrong, Naval Research Lab., Washington, DC, U.S.A.

F4.2 PREDICTED PERFORMANCE AT SATURATION OF A HIGH POWER CW GYROKLYSTRON AMPLIFIER USING NUMERICAL SIMULATION, M. Caplan, A. Salop, Varian Associates, Inc., Palo Alto, CA, U.S.A.

F4.3 SELF CONSISTENT APPROACHES FOR THE GYROKLYSTRON AND THE GYROTWYSTRON, T.M. Tran, B. Danly, K. Kreischer, R. Temkin, Plasma Fusion Center, MIT, Cambridge, MA, U.S.A.

F4.4 EXPERIMENTAL STUDY OF THE BROADBAND TAPERED GYRO-TWT, S. Park, N. Vanderplaats, S. Ahn, A. Ganguly, R. Parker, Naval Research Lab., Washington, DC, U.S.A.

F4.5 NONLINEAR ANALYSIS OF MM WAVE TUBES WITH SOLITON THEORY, W. Sui Ren, Z. Jin Lin, W. Hung Shih, BVEDRI, Beijing, P.R.C.

F4.6 ON THE KINETIC THEORY OF ELECTRON CYCLOTRON MASER, W. Sui-ren, BVEDRI, Beijing, P.R.C.

F4.7 THE ELECTRON STATIC ELECTRON CYCLOTRON RESONANCE MASER, L. Shenggang, Chendu Inst. Radio Eng., Chengdu, P.R.C.

F4.8 THE ANALYTIC NONLINEAR INVESTIGATION OF ELECTRON CYCLOTRON MASER, D. Zong-kai, BVEDRI, Beijing, P.R.C.

F4.9 THE ANALYTIC NONLINEAR THEORY OF ELECTRON CYCLOTRON MASER, D. Zong-kai, BVEDRI, Beijing, P.R.C.

F4.10 LINEAR THEORY FOR A TAPERED, COAXIAL GYROTRON, K. Ko, P. Vitello, SAIC, McLean, VA, U.S.A.