ICMWFT '89 PROGRAM

Registration Period

Sunday, June 18, 7PM - 10PM

Monday, June 19, 8AM - 12PM

Monday PM June 19, 1989
Plenary Session (40 min talks)
Theater Hall
Presider: H.C. Hu 1 PM

Welcome and Introductory Remarks, J.J. Gallagher, H.C. Hu and R.W. McMillan

M1.1 **"Millimeter Wave Propagation Through the Turbulent Atmosphere"** - S.F. Clifford, R.J. Hill, R.J. Lataitis, National Oceanic and Atmospheric Administration, Boulder, CO, USA, and R.W. McMillan and R.A. Bohlander, Georgia Institute of Technology, Atlanta, GA, USA

M1.2 **"Development of Millimeter Wave Solid-State Devices in China"** - J.T. Lin, Nanjing Electronic Devices Institute, Nanjing, P.R. China

M1.3 **"IR- and FIR-Magneto Spectroscopy in Intense Magnetic Fields"** - M. von Ortenberg, Technische Universität Braunschweig, D-3300 Braunschweig, F.R. Germany

Break

M1.4 **"Resonant Tunneling Devices and Their Applications to Millimeter Wave and Infrared Technologies"** - C.J. Summers, Georgia Tech Research Institute, Atlanta, GA, USA

M1.5 **"Aspects of Research on FIR-SMM Waves in China"** - Y.K. Lin, Zhongshan University, Guangzhou, P.R. China

M1.6 **"Sub-millimeter Microwave Spectroscopy with Primary Radiation Sources"** - A.F. Krupnov, Institute of Applied Physics, Academy of Sciences of the USSR, 603600 Gorky, USSR

Tuesday AM June 20, 1989
Session T1
Radiometry / Astronomy
Dragon Room
Presider: H.P. Roeser 8:30 AM

T1.1 **"Observations of CO in the Upper Atmosphere of Venus at 434 Microns"** (Invited Paper - 40 min) - D. Buhl and G. Chin, NASA/Goddard Space Flight Center, Greenbelt, MD, USA

T1.2 **"A Very Highly Sensitive Radiometer for 7 mm Waveband"** - A.K. Blinov, A.M. Korolev, V.V. Myshenko, S.A. Peskovatskil, V.I. Podyachil, and V.M. Shulga, Institute of Radio Astronomy, Academy of Sciences of the Ukranian SSR, Kharkov, USSR

T1.3 **"Advanced Microwave Precipitation Radiometer (AMPR)"** - J.A. Galliano and R.H. Platt, Georgia Tech Research Institute, Atlanta, GA, USA

Break

T1.4 **"High Resolution Acousto-Optical Spectrometer (AOS) with a Bandwidth of 1 GHz for Laboratory Spectroscopy and Airborne Astronomy in the Spectral Range 500 GHz - 2000 GHz"** - G. Schwaab, H.P. Roeser, R.U. Titz, P. van der Wal, and R. Wattenbach, Max Planck Institute for Radioastronomy, Auf dem Heugel 69, D-5300 Bonn 1, West Germany

T1.5 **"Heterodyne Receiver for Airborne Astronomy at 214μm and 184μm"** (Invited Paper - 40 min) - H.P. Roeser, J. Schmid-Burgk, G. Schwaab, R.U. Titz, P. van der Wal, and R. Wattenbach, Max Planck Institute for Radioastronomy, Auf dem Heugel 69, D-5300 Bonn 1, West Germany

T1.6 **"Apparatus for Spectral Radio Astronomical Observations at Millimeter Wavelengths"** - I.I. Zinchenko, A.B. Burov, V.F. Vdovin, V.N. Voronov, V.M. Demkin, A.G. Kislyakov, A.A. Krasil'nikov, A.V. Lapinov, V.N. Shanin, and A.M. Shtanjuk, USSR

T1.7 **"Diffraction-Limited Far-Infrared Astronomy"** - P.M. Harvey and D.F. Lester, Astronomy Department, University of Texas at Austin, and F.J. Low, Steward Observatory, University of Arizona

Tuesday AM June 20, 1989
Session T2
High-T_c Superconductors
Theater Hall
Presider: S. Perkowitz 8:30 AM

T2.1 **"Infrared Reflectivity of High-T_c Oxide Superconductors and Related Crystals"** - F. Gervais and P. Echegut, Centre de Recherches sur la Physique des Hautes Températures, C.N.R.S., 45071 Orléans, France

T2.2 **"Response of Thin YBaCuO-Films to Millimeter Wave Electromagnetic Radiation"** - A.S. Afanasyev, Yu.Ya. Divin, V.N. Gubankov, P.M. Shadrin, and A.F. Volkov, Institute of Radioengineering and Electronics of the USSR Academy of Sciences, Moscow, USSR

T2.3 **"Studying of High-Tc Superconducting Thin Film"** - L. Lian-Bao, P. Zi-An and D. Ming-Qing, Beijing Vacuum Electronic Research Institute, Beijing, P.R. China

T2.4 **"Far Infrared Absorptance Studies of High-Tc Superconducting Material $YBa_2CU_3O_{7-\delta}$ at Different Temperatures by FTIR"** - M.M. Pradhan, R.K. Garg and M. Arora, National Physical Laboratory, Hill Side Road, New Delhi-110012, India

T2.5 **"Far Infrared Spectroscopy of High-T_c Superconductors at the National Synchrotron Light Source"** - S. Perkowitz, Physics Department, Emory University, Atlanta, GA, USA, and G.P. Williams, National Synchrotron Light Source Brookhaven National Laboratory, Upton, NY, USA

Break

T2.6 **"Far Infrared Measurements on YBCO Films"** - S. Cunsolo and R. Pullo, Dipartimento di Fisica, Universita' di Roma, Italia, P. Dore, Dipartimento di Fisica, Universita' di Salerno, Italia, and H. Kinder and J. Tate, Physik Department, Technsche Universität München, FRG

T2.7 **"The Measurement of Microwave Characteristics of Josephson Junction at Liquid Nitrogen Temperature"** - S.Z. Cai, Y.S. Hou and E.X. Yu, E.E. Department, Fudan University, P.R. China

T2.8 **"8mm Josephson Mixer in Ceramic Bridge at Liquid Nitrogen Temperature"** - P.H. Wu, Q.H. Cheng, S.Z. Yang, J. Chen and D. Jing, Nanjing University, Nanjing, P.R. China

T2.9 **"Josephson Harmonic Mixing and Internal Oscillations Mixing in YBCO Superconducting Weak Link at Liquid Nitrogen Temperatures"** - J.M. Song, *et al.*, Nanjing University, Nanjing, P.R. China

T2.10 **"On Fourier-Transform Far-Infrared Imaging by DC Josephson Effect"** - Yu.Ya. Divin, Institute of Radioengineering and Electronics, Moscow, USSR

T2.11 **"Dielectric Resonators with Azimuthal Waves for Investigations of High-Tc Superconductors"** - N.T. Cherpak and A. Ya. Kirichenko, Academy of Sciences of the Ukranian SSR, Kharkov, USSR

Tuesday AM June 20, 1989
Session T3
FEL and Orotron
Phoenix Room
Presider: K. Mizuno 8:30 AM

T3.1	**"The Planar Orotron at Millimeter and Submillimeter Wavelengths"** (Invited Paper - 40 min) - E. Marshall, J. Jackson, R. Cook and J. Walsh, Dartmouth College, Hanover, NH, USA, and M. Kimmitt, University of Colchester, Essex, UK
T3.2	**"Electrostatic Electron Cyclotron Resonance Maser and Electrostatic Free Electron Laser"** (Invited Paper - 40 min) - S.G. Liu, Electronic Science and Technology University of China, P.R. China
T3.3	**"FELs and Optical Klystrons Based on Tandem Electrostatic Accelerators - A Tuneable Coherent Source in the 10 - 1000 Micrometer Region"** - A. Gover and A. Friedman, Science Applications International Corporation, G-8-1. 1710 Goodridge Drive, McLean, VA, USA
T3.4	**"On- and Off-Axis Emission in the Uniform Magnetic Field Free-Electron Laser"** - J. Soln, Harry Diamond Laboratories, 2800 Powder Mill Road, Adelphi, MD, USA
	Break
T3.5	**"Kinetic Analysis of the General-Orbit FEL-Cyclotron Hybrid"** - J.M. Gong *et al.*, University of Electronics Science and Technology of China, P.R. China
T3.6	**"Research on Orotrons in the United States"** (Invited Paper - 40 min) - D.E. Wortman, U.S. Army Laboratory Command, Harry Diamond Laboratories, 2800 Powder Mill Road, Adelphi, MD, USA
T3.7	**"Research at Sub-Millimeter Wavelengths in Japan"** (Invited Talk - 40 min) - K. Mizuno, Tohoku University, Sendai, Japan
T3.8	**"A Study of Diffraction Radiation Oscillator in 4mm Wave Band"** - W.L. Zou, Guoguang Electron Tube Works, P.R. China

Tuesday AM June 20, 1989
Session T4
Materials/MMW Apparatus & Measurements I
Reception Room
Presider: H.C. Hu 8:30 AM

T4.1	**"16-350 GHz Antenna Measurements with a New Scalar Network Analyzer"** - P. Goy, ENS Dept de Physique, 24 rue Lhomond, 75231 Paris Cedex 05, France and J.C. Bulsson, AB Millimetre, 6171 rue Benoit Frachon, Z.I. du Prunay, 78500 Sartrouville, France
T4.2	**"Manufacturing Process for a Directional Coupler in 8mm Wave Band"** - H.L. Wang, Beijing Vacuum Electronics Research Institute, Beijing, P.R. China
T4.3	**"Highly Efficient Frequency Triplers in the Millimeter Wave Region Incorporating a Back-to-Back Configuration of Two Varactor Diodes"** - R.J. Hwu, M. Sokolich, L.P. Sadwick and N.C. Lunmann, Jr., University of California, Los Angeles, Department of Electrical Engineering, Los Angeles, CA, USA, D.B. Rutledge, California Institute of Technology, Pasadena, CA, USA, and U. Lieneweg, Jet Propulsion Laboratory, Pasadena, CA, USA
T4.4	**"Development of Millimeter Wave Techniques in Finland"** - A. Räisänen, Helsinki University of Technology, Espoo, Finland
	Break
T4.5	**"Precise Dielectric Measurements at 68.5 GHz Using an Open Resonator"** - Y.J. Luo, *et al.*, Zhongshan University, P.R. China
T4.6	**"Six-Port Reflectometer Calibration By Using Five Standards"** - C.J. Cheng, D.F. Li and F.L. Lin, University of Science and Technology of China, Hefei, P.R. China
T4.7	**"Analysis of Multiple-Strip Discontinuity in a Rectangular Waveguide"** - B.Y. Li, *et al.*, Nanzhou University, P.R. China
T4.8	**"Dominant/Mode Propagation Characteristics for Dielectric Tape Lines"** - J.C. Wiltse, Georgia Tech Research Institute, Atlanta, GA, USA
T4.9	**"Millimeter Wave Metrology Instrumentation in Panda Land"** (Invited Paper - 40 min) - L.C. Chou and Q.Q. Chen, Da Hua Radio Instrument Factory, Beijing, China

Tuesday PM June 20, 1989
Session T5
Plasma Detection/Diagnostics
Dragon Room
Presider: N.C. Luhmann, Jr. 1:30 PM

T5.1 **"Diagnostic of Plasma Density Fluctuations by Collective Scattering of 2 mm Radiation"** - I.D. Revin and B.K. Skrinnyk, Institute of Radiophysics and Electronics, Academy of Sciences of Ukrainian SSR, Kharkov, USSR, and A.V. Saposhznikov, K.A. Sarksyan and M.G. Shats, Institute of General Physics, Academy of Sciences of the USSR, Moscow, USSR

T5.2 **"Plasma Diagnostics in Infrared and Far-Infrared Range for Heliotron E"** - S. Sudo, S. Besshou, F. Sano, H. Zushi, K. Kondo, Y. Takeiri, H. Suematsu, O. Motojima, T. Obiki and A. Iiyoshi, Kyoto University, K. Muraoka, K. Matsuo and T. Okada, Kyushu University, T. Tsukishima, Nagoya University, Y. Tsunawaki, Osaka Industrial University, S. Okajima, Chubu University, and S. Kubo and K.N. Sato, Nagoya University, Japan

T5.3 **"Recent Advances of Millimeter-Wave Diagnostic Technologies in Institute of Plasma Physics"** (Invited Paper - 40 min) - Z.S. Wang, B.L. Din, J. Weng W.P. Liu and D.Z. Xu, Institute of Plasma Physics, Academia Sinica (HEFEI), Shanghai, P.R. China

Break

T5.4 **"Intense CO_2 Laser Pulse Attenuation by Pulse-Formed Plasma Regions in the Atmosphere"** - O.A. Volkovitsky and V.K. Mamonov, Institute of Experimental Meterology, Obninsk, USSR

T5.5 **"Development of a High Power, Power-Modulated TEA CO_2 Laser for Plasma Diagnostics"** - T. Tsukishima, K. Sasaki and M. Yoshioka, Department of Electrical Engineering, Nagoya University, Furo-cho, Chikusa-ku, Nagoya 464-01, Japan

T5.6 **"The Application of Stable, High Power, Twin Frequency, Optically Pumped Far-Infrared Lasers to Fusion Plasma Diagnostics"** (Invited Paper - 40 min) - W.A. Peebles, T. Lehecka, D.L. Brower, S. Kim, M. Nagatsu, and N.C. Luhmann, Jr., Institute for Plasma Fusion Research, University of California, Los Angeles, CA, USA

Tuesday PM June 20, 1989
Session T6
Sub-mm - IR Detectors/Fast Detectors
Presider: D.G. Crowe 1:30 PM

T6.1 **"Survey of Infrared Detectors"** (Invited Paper - 40 min) - D.G. Crowe, Georgia Tech Research Institute, Atlanta, GA 30332, USA

T6.2 **"Antenna Measurements of Open Structure Schottky Mixers and Determination of Optical Elements for a Heterodyne System at 184μm, 214μm, and 287μm"** - R.U. Titz, H.P. Roesser and G. Schwaab, Max Planck Institute for Radioastronomy, Auf dem Heugel 69, D-5300 Bonn 1, West Germany

T6.3 **"Fast Detectors of the Impulse Radiation with the High Repetition Frequency"** - E.V. Beregulin, V.I. Pogodin, A.S. Ryvkin and I.D. Yaroshetskii, A.F. Ioffe Physicotechnical Institute, USSR Academy of the Sciences, Leningrad, 194021, USSR

T6.4 **"Schottky-Barrier Tunnel Diode as a Point Fast Detector of FIR Laser Radiation"** - S.D. Ganichev, K.Yu. Glooch, I.N. Kotel'nikov, N.A. Mordovets, A.Ya. Shul'man and I.D. Yarosnatskii, Institute of Radioengineering and Electronics, USSR Academy of the Sciences, Moscow, G8P-3, 103907, A.F. Ioffe Physicotechnical Institute, USSR Academy of the Sciences, Leningrad, 194021, USSR

Break

T6.5 **"Ambient Temperature Mercury Zinc Telluride Photodetectors can Achieve Detectivity Higher than 1×10^8 cmHz$^{1/2}$W^{-1} at 10.6μm"** - J. Piotrowski, Institute of Plasma Physics and Laser Microfusion, 00-908 Warsaw 49, P.O. Box 49, Poland, and M. Grudzien, Vigo Ltd., 00-908 Warsaw 49, P.O. Box 45, Poland

T6.6 **"Fast Uncooled Detector of the IR-FIR Radiation on the Base of Intraband Photoconductivity"** - E.V. Beregulin, S.D. Ganichev and I.D. Yaroshetskii, A.F. Ioffe Physicotechnical Institute, USSR Academy of the Sciences, Leningrad, 194021, USSR

T6.7 **"Response of Stressed Ge:Ga at Millimeter Wavelengths"** - C. Meny, J. Birch, L. Laverny, D. Ricart, R. Barbaste, J. Leotin, Laboratory of the Physics of Solids, Tobuse, France, National Physical Laboratory, Teddington, England

T6.8 **"Fast Detector of the Polarisation Characteristics Determination of the Pulse IR-FIR Laser Radiation"** - A.V. Andrianov, E.V. Beregulin, S.D. Ganichev, K.Yu. Glookh and I.D. Yaroshetskii, A.F. Ioffe Physicotechnical Institute, USSR Academy of the Sciences, Leningrad, 194021, USSR

T6.9	**"Photoconductivity of a Gapless $Hg_{1-x}Cd_xTe$ in the Quantizing Magnetic Field"** - S.G. Gasan-Zade, E.A. Salkov and G.A. Shepelsky, Institute of Semiconductors, Academy of Sciences of the Ukranian SSR, Kiev, USSR
T6.10	**"The Effects of the Donor Concentration and the Compensation Degree of N-InSb Material on the Performance of InSb FIR Hot Electron Bolometer"** - J.R. Xu, Y.Q. Gong, G.Z. Zheng, S.H. Liu and S.L. Guo, Shanghai Institute of Technical Physics, Academia Sinica, Shanghai, P.R. China

Tuesday PM June 20, 1989
Session T7
Atmospheric Effects
Presider: S.F. Clifford 1:30 PM

T7.1	**"On Selective Absorption by Atmospheric Water Vapor in the Atmospheric Window 10.6μm"** - K.A. Aganbekyan and V.V. Kulikov, Institute of Radioengineering and Electronics of the USSR Academy of Sciences, Moscow, USSR
T7.2	**"The Influence of Atmospheric Radiation on the Heat Balance of Low-Sloped Roofs"** - H. Nowak, Technical University of Wroclaw, Wroclaw, Poland
T7.3	**"Multiple Scattering of Millimeter Wave Band Pulse by a Rain"** - G.K. Zagorin and I.P. Polyanskaya, Institute of Radioengineering and Electronics of the USSR Academy of the Sciences, USSR
T7.4	**"Scattering of Pulse Waves by Moving Spheroidal Raindrops and Measuring Principle of the Raindrop-Spectrum"** - W. Zhang, Qingdao Research Center of China Research Institute of Radiowave Propagation, P.R. China
	Break
T7.5	**"IR Radiation Transfer from Earth"** - D.G. Crowe, R.W. McMillan and J.J. Gallagher, Georgia Tech Research Institute, Atlanta, GA 30332, USA
T7.6	**"Approximate Calculation of Millimeter Wave Propagation Characteristics in Rains with Arbitrary Structure"** - G.K. Zagorin, N.I. Kojevnikova and A.V. Sokolov, Institute of Radioengineering and Electronics of the USSR Academy of the Sciences, USSR
T7.7	**"A Far Infrared Device for Humidity Instrument"** - K. Hisano, Department of Mathematics and Physics, The National Defense Academy, Yokosuka 239, Japan
T7.8	**"Terrain Roughness Influence on MMW Scattering and Emission"** - G.A. Andreyev and G.A. Gladyshev, Institute of Radioengineering and Electronics of the USSR Academy of the Sciences, USSR
T7.9	**"A Study on 10.6 Micron Wave Propagation in Cloud, Fog, and Haze"** - Y.P. Wang, Xidian University, P.R. China
T7.10	**"Inversion of Path-Averaged Raindrop Size Distribution from Rain Attenuation of Multiple Frequencies"** - D.Z. Hu, Qindao Research Center, Institute of Radiowave Propagation, P.R. China

T7.11	**"Effect of Atmospheric Turbulence on Measurement of Angular Position of MMW-Source"** - G.A. Andreyev and S.A. Ogrev, Institute of Radioengineering and Electronics, Moscow, USSR
T7.12	**"Propagation of High Power Microwave Pulses in Air Breakdown Environment"** - S.P. Kuo and Y.S. Zhang, Polytechnic University, Farmingdale, NY, USA
T7.13	**"Frequency Characteristics of an Atmospheric Channel with Multiple Scattering of MMW due to Rain"** - G.A. Andreyer and E.V. Frolova, Academy of Sciences of the USSR, Moscow, USSR

Tuesday PM June 20, 1989
Session T8
Materials/MMW Apparatus & Measurements II
Reception Room
Presider: J.C. Wiltse 1:30 PM

T8.1	**"Progress in Millimeter Wave Applications"** (Invited Paper - 40 min) - J.C. Wiltse, Georgia Tech Research Institute, Atlanta, GA, USA
T8.2	**"Design of Optimum Six-Port Network in Dielectric Waveguide"** - Y. Shen, *et al.*, Shanghai University of Science and Technology, Shanghai, P.R. China
T8.3	**"Design Considerations of Polarization Interferometer in the MM and SMM Region"** - B.S. Qiu, D.L. Chen, X.Z. Luo and X.S. Zheng, Zhongshan University, Guangzhou, P.R. China
	Break
T8.4	**"Infrared Optical Properties of Vanadium Oxide Thin Films"** - E.E. Chain, University of Texas, Dallas, TX, USA
T8.5	**"Engineering Measurements of Dielectric Permittivity Using Leaky-Wave Method"** - T.L. Dong, Huazhong University of Science and Technology, P.R. China
T8.6	**"Computer Controlled Automatic Measurement of SMMW Wavelength and Field Distribution Pattern"** - X.S. Zheng, B.S. Qin, X.Z. Luo, X.D. Yang and G.X. Zeng, Zhongshan University, Guangzhou, P.R. China
T8.7	**"Precision Measurements of Submillimeter Wave Frequency"** - Z.M. Du, *et al.*, Zhongshan University, P.R. China
T8.8	**"8mm NRD Directional Branched Coupler"** - M.L. Zhu, Z.H. Jiang and L.F. Qi, Huazhong University of Science, P.R. China
T8.9	**"Resonance Transformation of Electromagnetic Waves into Sound in Metals in a Magnetic Field"** - I.E. Aronov, V.L. Falko, A.P. Korolyouk and V.I. Khizhny, Institute of Radiophysics and Electronics, Kharkov, USSR
T8.10	**"Coating Formation Via Metal Ignition by CW CO_2 Laser Beam"** - V.I. Konov and V.G. Raichanko, Academy of Sciences, Moscow, USSR
T8.11	**"Far Infrared Analysis of the HgTe-CdTe Superlattice"** - S. Perkowitz and L.S. Kim, Emory University, Atlanta, GA, USA

Wednesday AM June 21, 1989
Session W1
MMW Detectors
Dragon Room
Presider: J.T. Lin 8:30 AM

W1.1 **"Resistance Measurements on Point-Contact Diodes"** - H.D. Riccius and L.H. Jones, Division of Physics, National Research Council of Canada, Ottawa, Ontario, Canada K1A OR6

W1.2 **"A Rugged 94 GHz Millimetre-Wave Balanced Mixer"** - J.A. Wells and N.J. Cronin, University of Bath, England, and P.J. Reece, British Aerospace P.L.C., Bristol, England

W1.3 **"The Low-Noise Wideband Mixer For 3 MM Band"** - T.T. Gao, Purple Mountain Observatory, Academia Sinica, and Y.Q. Gong, Shanghai Institute of Technical Physics, Academia Sinica, Shanghai, P.R. China

W1.4 **"Nonlinear Analysis of mm-Wave Upconverter"** - Y.F. Tang, Z.H. Feng, Tsing-Hua University, Beijing, P.R. China

W1.5 **"Nb-AlO_x-Nb Junctions Structures for MM Wave Receivers"** - An.B. Ermakov, V.P. Koshelets, I.L. Serpuchenko, S.V. Shitov, A.N. Vystavkin, Institute of Radio Engineering and Electronics, USSR Academy of Science, Moscow, USSR

Break

W1.6 **"Subharmonically Pumped SIS Mixer"** - V.U. Belitsky, I.L. Serpuchenko, M.A. Tarasov, A.N. Vistavkin, Institute of Radioengineering and Electronics, USSR, Academy of Science, Marx avenue 18, Moscow, USSR

W1.7 **"Far Infrared Response of Schottky Diodes: High Frequency Limit"** - N.A. Mordovets, I.N. Kotel'nikov, and A.Ya. Shul'man, Institute of Radioengineering and Electronics, Academy of Sciences of the USSR, Moscow, USSR

W1.8 **"High-Order Harmonic Mixing in the Submillimeter Wave Region"** - B.Q. Zhou, H. Zhang, X.C. Gu, and Y.C. Dong, Shanghai Institute of Technical Physics, Academia Sinica, Shanghai, P.R. China.

W1.9 **"K_a-Band Crystal Detector with Flat Response"** - D.X. Qu and H. Yu, Beijing Vacuum Electronics Research Institute, Beijing, P.R. China

W1.10 **"Optimum Geometrical Dimension of Beam Lead Schottky Barrier Mixer Diode"** - D. Zheng, *et al.*, Institute of Semiconductor, Academia Sinica, P.R. China

Wednesday AM June 21, 1989
Session W2
Gyrotron I
Theater Hall
Presider: G.F. Brand 8:30 AM

W2.1 **"Tunable Gyrotron Development and Applications to Plasma Physics"** (Invited Paper 40 min) - G.F. Brand, School of Physics, University of Sydney NSW 2006, Australia

W2.2 **"Stability and Efficiency Enhancement of Cyclotron Auto Resonance Maser Amplifiers"** (Invited Paper - 40 min) - A.T. Lin, University of California, Los Angeles, CA 90024, USA

Break

W2.3 **"Theoretical and Experimental Investigations of W-Band Whispering Gallery Mode Dielectric Resonator"** - Y. Li, S.H. Xu and S.L. Tong, Shanghai University of Science and Technology, Shanghai, P.R. China

W2.4 **"Peniomagnetron Amplifier Theory"** - V.D. Eremka, V.A. Zhurakhovskiy, V.P. Shestopalov, Institute of Radiophysics and Electronics, Academy of Sciences of the UkrSSR, Kharkov, USSR

W2.5 **"Design of a 100 kW Gyro-TWT"** - C.S. Kou, D.B. McDermott, C.K. Chong and N.C. Luhmann, Jr., Department of Electrical Engineering, University of California, Los Angeles, California 90024, USA

Wednesday AM June 21, 1989
Session W3
IR - MMW Magnetospectroscopy
Phoenix Room
Presider: E. Otsuka 8:30 AM

W3.1 **"Far-Infrared Magneto-Optical Resonance as a Fundamental Method of Semiconductor Characterization - State of the Art"** (Invited Paper - 40 min) - E. Otsuka, Osaka University, Toyonaka, Osaka 560, Japan

W3.2 **"Magnetic Resonance in Rb_2MnCl_4 by Sweeping the Frequency in the Millimeter-Wave Range and by Sweeping The Magnetic Field"** - R. Geick, K.H. Strobel, H. Greb and M. Rothaler, Physikalisches Institut der Universität, D-8700 Würzburg, F.R. Germany

W3.3 **"Magnetic Phase Transitions in Rb_2MnCl_4 Studied by Neutron Scattering and Spectroscopic Measurements in the Millimeter-Wave Range"** - R. Geick, H. Rauh, W. Kullmann, H. Sauer, H. Greb and P. Greiner, Physikalisches Institut der Universität, D-8700 Würzburg, F.R. Germany, and W.A.C. Erkens, L.P. Regnault and J. Rossat-Mignod, Laboratoire Diffraction Neutronique, CEN, Grenoble, France

W3.4 **"Nonreciprocal Magnetoplasmon Polaritons in Thin Semiconductor Layers"** - N.N. Beletski, E.A. Gasan and V.M. Yakovenko, Institute of Radiophysics and Electronics, Academy of Sciences of the Ukranian SSR, Kharkov, USSR

Wednesday AM June 21, 1989
Session W4
Integrated Circuits I
Reception Room
Presider: W.X. Zhang 8:30 AM

W4.1 **"Millimeter-Wave Substrate Mounted Antenna Measurements"** - M. Gouker and J. Gallagher, Georgia Tech Research Institute, Atlanta, GA 30332, USA

W4.2 **"A General-Purpose Software for Full-Wave Analysis of Microwave and Millimeter Wave Planar Transmission Lines"** - Z.Q. Chen and B.X. Gao, Dept. of Info. Electronics, Tsinghua University, Beijing 100084, China

W4.3 **"A Study of Suspended Microstripline PIN Diode Switch"** - J.F. Miao, Southeast University, Nanjing, and W.L. Jia, Yangzhou Marine Electronic Instruments Institute, P.R. China

Break

W4.4 **"Resonant Tunneling Studies of Multiple AlGaAs Quantum Well Devices"** - A. Torabi, C.J. Summers, H.M. Harris and C.T. Rucker, Georgia Tech Research Institute, Atlanta, GA 30332, USA

W4.5 **"Study of Twin-Channel Branch Junction in Millimeter Waves"** - C.P. Deng, *et al.*, Beijing Institute of Technology, Beijing, P.R. China

W4.6 **"The Accurate Design of MM-Wave Fin-Line Filter"** - Z.H. Feng, Q.Y. Li, and J. Lei, Tsinghua University, Beijing, P.R. China

W4.7 **"Analysis of a New Type MMW Integrated Directional Coupler"** - R.R. Xu, *et al.*, Southeast University, Nanjing, P.R. China

Wednesday PM June 21, 1989
Session W5
Materials/MMW Apparatus and Measurements II
Dragon Room
Presider: L.J. Zhou 1:30 PM

W5.1 **"Advances in Millimeter-Wave Applications in China"** (Invited Paper - 40 min) - R.P. Zhang, L.H. Jiang and Y.C. Shen, Systems Engineering Development Center of the Ministry of Mechatronics Industry, P.R. China

W5.2 **"Light Scattering From Coherently Excited Bulk and Surface Phonon-Polaritons"** - Yu.N. Polivanov and R.Sh. Sayakhov, Institute of General Physics, Moscow, USSR

W5.3 **"Study of Solid-Plasma Control Components for Millimeter Frequencies"** - V.I. Miteva and K.P. Ivanov, Institute of Electronics, Bulgarian Academy of Sciences, Sofia, Bulgaria

W5.4 **"A New Four-Port Two-State Reflectometer"** - D.F. Li, F.L. Liu and C.J. Cheng, Millimeter-waves Laboratory, University of Science and Technology of China, P.R. China

W5.5 **"A CAT System for Network Analysis at Q-Band"** - T.Y. An, Microwave Institute, East China Normal University, Shanghai, China

Break

W5.6 **"A Therapeutic Apparatus Using the Millimeter Waves and Its Application to Clinical Treatment"** - W.Z. Huang, J.Z. Hong and F.C. Mao, Fujian Research Institute of Light Industry, and Q.X. Wu and B. Zhou, Dong-fang Hospital of Nanjing Military Area, P.R. China

W5.7 **"A New Design of Six-Port Reflectometer Without Power Meter"** - H.R. Gu, Shanghai Research Institute of Microwave Technology, P.O. Box 5321, Shanghai, P.R. China

W5.8 **"Measurement of Two-Port Networks by a Single Six-Port Reflectometer"** - X.M. Lou, Southeast University Nanjing, P.R. China

W5.9 **"Broad-Band MM-Wave Power Meter"** - L.H. Kuang, Institute of Electronics, Academia Sinica, Beijing, China

W5.10 **"Measuring Complex Dielectric Constant of Dielectric Material in Millimeter Waves by Radiating Technique"** - G.D. Li, C.S. Shi, and Q. Sun, Tsinghua University, Beijing, China

W5.11 **"Protective and Anti-Reflection Carbon Coatings for IR Optics Materials"** - A.A. Gorbunov, V.F. Konor, Ju. M. Starodumov, USSR Academy of Sciences, Moscow, and G.K. Baranova, A.U. Gorbunov, Academy of Sciences of the USSR, Chernogolovka, USSR

W5.12 **"The Method of Simultaneous Measurement of Energy and Forms of the Radiation Pulse of the Powerful CO_2 Laser"** - E.M. Barkhudarov, G.V. Gelashnil, G.G. Gumberidze, and M.I. Taktakishvili, Academy of Sciences of the Georgia SSR, USSR

Wednesday PM June 21, 1989
Session W6
Gyrotron II
Theater Hall
Presider: S.G. Liu 1:30 PM

W6.1	**Gyrotron Research at the Naval Research Laboratory"** (Invited Paper - 40 min) - A.K. Ganguly, A.H. McCurdy, S.Y. Park, C.M. Armstrong, S. Ahn and R.K. Parker, U.S. Naval Research Lab, Washington, District of Columbia 20375, USA
W6.2	**"High Power K-Band Microwave Emission From an Intense e-Beam Cyclotron Maser"** - R.M. Gilgenbach, J.G. Wang, J.J Choi, C.A. Qutten, and T.A. Spencer, Intense Energy Beam Interaction Laboratory, Nuclear Engineering Department, University of Michigan, Ann Arbor, MI, USA
W6.3	**"Detection and Conversion of Superpower Microwave Radiation"** - G.A. Askarjan, G.M. Batanov, N.K. Berezhetskaya, V.A. Ivanov, I.A. Kossyl, Institute of General Physics of USSR Academy of the Sciences, Moscow, USSR
	Break
W6.4	**"CARM EC Heating Source for High Field Plasmas"** (Invited Paper - 40 min) - Q.S. Wang, A.T. Lin, N.C. Luhmann, Jr. and D.B. McDermott, University of California, Los Angeles, California 90024, K.R. Chu, National Tsing Hua University, Taipei, China
W6.5	**"Initial Operation of a Cherenkov CARM"** - H.B. Cao, D.B. McDermott and N.C. Luhmann, Jr., Department of Electrical Engineering, University of California, Los Angeles, California 90024, USA
W6.6	**"Analysis of Whispering-Gallery Superconducting Dielectric Resonator"** - Y. Li and S.D. Zhou, Shanghai University of Science and Technology, Shanghai, P.R. China

Wednesday PM June 21, 1989
Session W7
Spectroscopy
Phoenix Room
Presider: F.C. De Lucia 1:30 PM

W7.1	**"Spectroscopic Probes of Nonambient Environments"** (Invited Paper - 40 min) - F.C. De Lucia, Department of Physics, Duke University, Durham, NC 27706, USA
W7.2	**"Temperature Dependence of Some Absorption Bands in the Far IR Region"** - M.I. Nasser, National Research Center, Dokki, Cairo, Egypt
W7.3	**"Nonlinear Solid-State Spectroscopy in the Far-Infrared"** (Invited Paper - 40 min) - F. Kellmann, Max-Planck-Institut für Festkörperforschung, 7000 Stuttgart 80, F.R. Germany
	Break
W7.4	**"Some Progress in Far Infrared Spectroscopic Techniques"** - S.C. Shen, J.W. Su and Z.Y. Yu, Laboratory for Infrared Physics, Shanghai Institute of Technical Physics, Academia Sinica, Shanghai, China
W7.5	**"Pressure Broadening in the Millimeter Wave Spectrum of Freon"** - D.P. Campbell and J.J. Gallagher, Georgia Tech Research Institute, Atlanta, GA 30332, USA
W7.6	**"Atmospheric Spectroscopic Investigations in a Large Cryogenic Pressure Chamber"** - G.W. Grams, J.J. Gallagher and P.H. Wine, Georgia Tech Research Institute, Atlanta, GA 30332, USA
W7.7	**"A Radiospectrometer of Millimeter Range and Investigations of Dielectric Properties of Some Gaseous Media"** - K. Aganbekyan, V.B. Ermakov and V.V. Kulikov, Institute of Radioengineering and Electronics, Moscow, USSR
W7.8	**"EPR Study of TEA $(TCNQ)_2$ in the Far Infrared"** - P. Janssen, K.U. Leuven, Laboratorium voor Lage Temperaturen en Hoge - Veldenfysika, Leuven, Belgium

Wednesday PM June 21, 1989
Session W8
Sources, Source Technology I
Reception Room
Presider: F.J. Liao 1:30 PM

W8.1	**"Millimeter-Wave Spatial Power Combining Techniques"** (Invited Paper - 40 min) - Kai Chang, Department of Electrical Engineering, Texas A&M University, College Station, Texas 77843-3128, USA
W8.2	**"Finite Element Analysis of the Dielectric Resonator"** - J.B. Tang and M.S. Sun, Department of Radio Engineering, Southeast University, P.R. China
W8.3	**"Far Infrared Radiation from Uniaxially Compressed p-Type Germanium"** (Invited Paper - 40 min) - I.V. Altukhov, M.S. Kagan and V.P. Sinis, Institute of Radioengineering and Electronics, Academy of the Sciences of the USSR, Moscow, USSR
W8.4	**"Developing Status of Millimeter Wave Tubes in China"** (Invited Paper - 40 min) - F.J. Liao, Beijing Vacuum Electronics Research Institute, Beijing, China, X.Z. Zhuang, Institute of Electronics, Academia, Sinica, Y.L. Mo, University of Electronics Science and Technology, Changdu, Sichuan Providence, P.R. China
W8.5	**"D-Band Silicon IMPATT Sources"** - L.R. Jin, M.S. Wang, R.H. Huang, W.X. Zhang, Z.Y. Huang, B.W. Qiao and D.Y. Chen, Institute of Nanjing Electronic Devices, Nanjing, P.R. China
	Break
W8.6	**"The Millimeter Wave Gunn Oscillator and Self-Oscillating Mixer Using the Nonradiative Dielectric Waveguide"** - S.M. Liu and L.C. Liao, Huazhong University of Science and Technology, Wuhan, Hubei, P.R. China
W8.7	**"Study on Broadband Millimeter Wave Oscillators"** - W. Hong and S. Li, Radio Department of Southeast University, Nanjing, P.R. China
W8.8	**"Influences of Moisture on Cavity-Stabilized Oscillators"** - D.F. Li, D.J. Wang and L.G. Zheng, University of Science and Technology of China, Hefei, P.R. China

Thursday AM June 22, 1989
Session Th1
Applications/Systems I
Dragon Room
Presider: S.F. Li 8:30 AM

Th1.1	**"Millimeter Waves for Communications"** - E.N. Barnhart, Georgia Tech Research Institute, Atlanta, GA 30332, USA
Th1.2	**"Mini-TEA CO_2 Laser Arrays"** - C.Z. Pan, M. Zhai and X.P. Li, Beijing Vacuum Electronics Research Institute, Beijing, P.R. China
Th1.3	**"Measurement of Submillimeter Wave Attenuation in Biological Materials"** - T. Fuse, M. Taki, O. Yokoro, Tokyo Metropolitan University, Tokyo, Japan
Th1.4	**"A Quasi-Optical Impedance Measurement in Dielectric Image Line"** - K. Kikuchi, National Defense Academy, Yokosuka, Japan
Th1.5	**"Dynamic Characteristics of Microstrip Lines on Magnetized Ferrimagnetic Substrates"** - M. Albuquerque, A. Assunção, M. Maia, Department of EE, Federal University of Rio Grande Do Norte, Natal, Brazil, and A. Giarola, School of EE, State University of Campinas, Campinas, Brazil
	Break
Th1.6	**"Modern K_a -Band/Millimeter Wave Radar System"** (Invited Paper - 40 min) - S.L. Johnston, International Radar Directory, 4015 Devon Street, Huntsville, AL 35802, USA

Thursday AM June 22, 1989
Session Th2
Sources, Source Technology II
Theater Hall
Presider: H.R. Fetterman 8:30 AM

Th2.1	**"Millimeter-Wave Generation and Characterization of a GaAs FET by Optical Mixing"** (Invited Paper - 40 min) - D. Ni, W. Chew and H.R. Fetterman, Department of Electrical Engineering, University of California, Los Angeles, CA 90024, USA
Th2.2	**"New NRD Guide Oscillator"** - J.F. Miao and Y. Ping, Department of Radio Engineering, Southeast University, China, Nanjing, Jiangsu, P.R. China
Th2.3	**"8mm Pulsed IMPATT Oscillators"** - Y.F. Yang, Institute of Semiconductors, Academia Sinica, Shanghai, P.R. China
	Break
Th2.4	**"Novel Large Signal Mathematical Model of Millimeter-Wave Gunn Device"** - N. Chen, Z.L. Sun and S.F. Li, Electronic System Application Lab, Department of Radio Engineering, Southeast University, Nanjing, P.R. China
Th2.5	**"A VCO for Millimeter Wave Phase-Locked Source"** - D.J. Wang and D.F. Li, University of Science and Technology of China, Hefei, P.R. China
Th2.6	**"A New Viewpoint on the Operation Principles of the Reflection Type Cavity-Stabilized Gunn Oscillator"** - D.J. Wang, University of Science and Technology of China, Hefei, P.R. China
Th2.7	**"Operation of a Sixteenth Harmonic Cuspiron Oscillator"** - S.P. Kuo and K.K. Tiong, Polytechnic University, Farmingdale, NY, USA

Thursday AM June 22, 1989
Session Th3
Integrated Circuits II
Phoenix Room
Presider: A.M. Prokhorov 8:30 AM

Th3.1	**"Analysis and Design of a New Millimeter-Wave Microslab Waveguide"** - G.S. Pu and C.G. Liao, Xidian University, P.R. China
Th3.2	**"Analysis of Groove NRD Waveguide Using Eigen-Weighted BIEM"** - W.X. Zhang and L. Zhu, Southeast University, P.R. China
Th3.3	**"The Analysis of the Dispersion Characteristics of Edge-Coupled Suspended Substrate Stripline with the Method of Lines"** - G.L. Wang, Y.Y. Wang and Y.H. Shu, Southeast University, P.R. China
Th3.4	**"The Impedance Characteristic of NRD Waveguide"** - L. Liang and S.M. Liu, Radio Department, Huazhong University of Science and Technology, Wuhan, P.R. China
	Break
Th3.5	**"Dielectric Resonators in Nonradiative Dielectric Waveguide"** - L.C. Liao and S.M. Liu, Huazhong University of Science and Technology, Wuhan, Hubei, P.R. China
Th3.6	**"Sub-Quarter-Micron Gate Length High Electron Mobility Transistors Processing Technology"** - Y.F. Yang, Institute of Semiconductors, Academia Sinica, P.R. China
Th3.7	**"An Influence of Surface Polaritons on Damping of Modes in an IR Irregular Hollow Dielectric Waveguide"** - N.I. Lipatov, P.P. Pashinin and A.M. Prokhorov, Institute of General Physics, Moscow, USSR

Thursday AM June 22, 1989
Session Th4
Quasi-Optics
Reception Room
Presider: J.J. Gallagher 8:30 AM

Th4.1	**"Millimeter Wave Stable Solid State Sources With Spheroechelette Open Oscillating System"** (Invited Talk - 40 min) - A.V. Arkhipov, O.I. Belous, B.M. Bulgakov, A.I. Fisun and A.M. Fursov, Institute of Radiophysics and Electronics, Academy of Sciences of the Ukranian SSR, Kharkov 85, USSR
Th4.2	**"Open Resonator Measurement of the Propagation Parameters of Ferromagnetic Materials at Q-Band Frequencies"** - R.J. Bott and A.N. Imani, Portsmouth Polytechnic, Department of Electronic Engineering, Anglesea Road, Portsmouth, PO1 3DJ, Hants. United Kingdom
Th4.3	**"A Quasi-Optical Method of Measuring Polarized Wave Grids at Short Millimeter Wavelengths"** - Z.Q. Wang and B.Q. Zhou, Shanghai Institute of Technical Physics, Shanghai, P.R. China
	Break
Th4.4	**"Facilities of Focusator Calculations and Constructions for Millimeter and Centimeter Wavebands"** - A.L. Gutmann, Voronezh Institute of Wood Technology, Voronezh, USSR, and S.N. Satunin and V.A. Silin, General Physics Institute, Academy of the Sciences of the USSR, 117942 Moscow, Vavilova 38, USSR
Th4.5	**"IR-Image Visualization in Resonant Gas Media"** - G.G. Adonts, G.P. Djotyan and E.G. Kanetsyan, NPO "Lasernaya Tekhnika" Yerevan State University, Yerevan, USSR
Th4.6	**"On Fourier-Transform Far-Infrared Imaging by DC Josephson Effect"** - Yu.Ya. Divin, Institute of Radioengineering and Electronics of the USSR Academy of Sciences, Marx Avenue 18, Moscow 103907, USSR
Th4.7	**"Design for the Quasi-Optical Source Array in 3mm Band"** - Q.M. Wang, Tianjin University, and C.T. Xue, Nankai University, P.R. China
Th4.8	**"Measuring Quasi-Optic Complex for Spectroscopic Investigations at $h\nu/kT \gg 1$"** - A.A. Vertiy, I.V. Ivanchenko, N.A. Popenko, S.I. Tarapov and V.P. Shestopalov, Institute of Radiophysics and Electronics, Kharkov, USSR

Thursday PM June 22, 1989
Session Th5
Applications/Systems II
Dragon Room
Presider: G.T. Wrixon 1:30 PM

Th5.1	**"Stochastic Resonance Enhancement of Imaging System Signal to Noise"** - A.K. Garrison, Georgia Tech Research Institute, Atlanta, GA 30332, USA, and R. Rao, Department of Physics, Georgia Institute of Technology, Atlanta, GA 30332, USA
Th5.2	**"Model Simulation of Target Characteristics Employing Millimeter Wave System"** - B.H. Chen, No. 802 Research Institute, Shanghai, P.R. China
Th5.3	**"The Engineering of Over-Moded Components and Systems for ECR-Preionization and ECRH"** - L.G. Xu and J.H. Lu, Beijing Vacuum Electronics Research Institute, and R.H. Zhan and B.L. Ding, Institute of Plasma Physics, Academia Sinica, Hefei, P.R. China
	Break
Th5.4	**"A Scanning Mirror Short Millimeter Wave Field Pattern Measuring System"** - Z.G. Du, et al., Zhongshan University, P.R. China
Th5.5	**"A Multimode Conical Feed Horn in 8mm Wave Band"** - Z.S. Lin, *et al.*, Zhongshan University, P.R. China
Th5.6	**"Development of a K_a-Band Communications Receiver Front-End and its Noise Analysis"** - X.Y. Zhong, *et al.*, The 16th Research Institute of Electronic Industry Ministry, P.R. China
Th5.7	**"Recording Materials for Holography in the 10.6 Micron Region"** - L. Libera, G. Marx, A. Mrva, G. Riedel, K. Haman, M. Shtarke, Technische Hochschule, Karl-Marx-Staadt, M.D. Grodzinskaya, E.B. Kaganovich, I.K. Ostrovskaya, A.V. Savchuk, E.N. Salkova and M.S. Soskin, Institute of Physics, Academy of Sciences of the Ukranian SSR, E.M. Barkhudarov, V.P. Berezovskii, M.O. Mdivnishvli, M.K. Taktakishvili, I.Ia. Cheildze, Institute of Physics, Academy of Sciences of the Georgian SSR
Th5.8	**"A Low-Cost V-Groove Waveguide to Microstrip Transition"** - Y.M. Choi, J.Y. Leung, Hong Kong Polytechnic, Hong Kong
Th5.9	**"Pulsed CO_2 Laser Treatment of Diamond Films"** - N.I. Chapliev, V.I. Konov, S.M. Pimenov, USSR Academy of Sciences, Moscow, USSR

Thursday PM June 22, 1989
Session Th6
Sources, Source Technology III
Theater Hall
Presider: J.T. Lin 1:30 PM

Th6.1 **"Recent Developments on the Orbitron Maser"** (Invited Paper - 40 min) - I. Alexeff, University of Tennessee, Knoxville, TN, USA

Th6.2 **"Thermal-Emitting Diodes for IR"** (Invited Paper - 40 min) - V.K. Malyutenko, A.I. Liptuga, Institute of Semiconductors, Kiev, USSR

Th6.3 **"An Absolute Radiometric Evaluation of the Spectral Irradiance Created by the Optical Radiation Sources"** - V.M. Feru and G.P. Ispăsolu, National Institute of Metrology, Bucharest, Romania, and D.G. Sporea, Central Institute of Physics, Bucharest, Romania

Th6.4 **"Negative Effective Mass Maser - a New Type of Millimeter and Submillimeter Semiconductor Generator"** - V.I. Gavrilenko and Z.F. Krasil'nik, Institute of Applied Physics, Academy of Sciences of the USSR, Gorky, USSR

Th6.5 **"Saturation Absorption in p-Ge of IR-FIR Radiation and Its Technics Utilization"** - E.V. Beregulin, S.D. Ganichev, K.Yu. Glookh, I.D. Yaroshetskii and I.N. Yassievich, A.F. Ioffe Physicotechnical Institute, USSR Academy of the Sciences, Leningrad, 194021, USSR

Th6.6 **"Radiowave Excitation of Resonant D.C. Electromotive Force in Metals"** - I.E. Aronov and V.L. Falko, Institute of Radiophysics and Electronics, Academy of Sciences of the Ukranian SSR, 12, Acad. Proskura st., Kharkov 85, USSR

Break

Th6.7 **"Instability of Electromagnetic Oscillations of the Millimeter Wave Range Specified by Injection of Charge Carrier in Inhomogeneous Semiconductor Structure"** - M.V. Burtyka, O.V. Glukhov and V.M. Yakovenko, Institute of Radiophysics and Electronics, Academy of Sciences of the Ukranian SSR, Kharkov, USSR

Th6.8 **"Stability Condition for Millimeter-Wave Phase-Locked Loops"** - D.F. Li and X.H. Yun, Millimeter-Wave Laboratory, University of Science and Technology, P.R. China

Th6.9 **"An Overmode Power Combiner for 8mm IMPATT Diode"** - W.J. Bi, Beijing University of Science and Engineering, Beijing, P.R. China

Th6.10 **"Varactor-Tuned K_a-Band Gunn Oscillator"** - H.F. Zhang, *et al.*, No. 16 Research Institute, P.R. China

Th6.11 **"7 mm Traveling-Wave Maser with Gain Bandwidth Exceeding 200 MHz"** - A.A. Lavrinovich, T.A. Smirnova and N.T. Cherpak, Academy of Sciences of the Ukranian SSR, Kharkov, USSR

Thursday PM June 22, 1989
Session Th7
Integrated Circuits III
Phoenix Room
Presider: C.J. Summers 1:30 PM

Th7.1	**"The Optimum Design On Microstrip Antenna Arrays For Millimeter Wave"** - X.H. Zhou and J.D. Xu, Northwestern Polytechnical University, P.R. China
Th7.2	**"Optimizing Design of Finline Filter for Millimeter Wave"** - E.X. Feng and J.M. Fu, Xi'an Jiaotong University, Xi'an, P.R. China
Th7.3	**"Improved Perturbation Analysis of Dielectric Grating Antenna"** - S.J. Xu, *et al.*, University of Science and Technology of China, P.R. China
Th7.4	**"A Traveling-Wave Structure for Millimeter Wave Antennas"** - K.M. Huang and Y.S. Zhao, The Applied Physics Institute of The Science and Technology University of China, P.R. China
Th7.5	**"Performance Improvements of Nonradiative Dielectric Guide Leaky-Wave Antenna in 8mm Wavelength"** - Q. Han and Y.C. Liu, Radio Department, Huazhong University of Science and Technology, Wuhan, P.R. China
	Break
Th7.6	**"Delta-Doped Heterojunction Structures for High-Speed, High-Power MODFETs"** - H.M. Harris and A. Torabi, Georgia Tech Research Institute, Atlanta, GA 30332, USA
Th7.7	**"An Improved Finite Element Analysis for Open Dielectric Waveguides"** - S.J. Xu, *et al.*, Electronics University of Science and Technology of China, P.R. China
Th7.8	**"The Closed-Form Formulas of Fin-Line Discontinuities at Millimeter Wave Bands"** - R.R. Xu, *et al.*, Southeast University, Nanjing, P.R. China

Thursday PM June 22, 1989
Session Th8
Optically Pumped Lasers
Reception Room
Presider: Y.K. Lin 1:30 PM

Th8.1	**"Theoretical Study of Quasi Continuously Tunable Optically Pumped NH_3 Lasers"** (Invited Paper 40 min) - Y.K. Lin, X.D. Yang, Zhongshan University, Guangzhou, P.R. China
Th8.2	**"Assignments and Experimental Verification of FIR CD_3OH Laser Lines"** - Shozo Kon and Kenji Takeshita, Department of Applied Physics, School of Engineering, Nagoya University, Japan
Th8.3	**"Hole Burning Effect in Lasers Containing Saturable Absorber With Dominant Inhomogeneous Broadening"** - V.H. Dinh, Department of Physics, University of Hanoi, S R. Vietnam
Th8.4	**"A Newly Designed Pulsed and Optically Pumped FIR Laser"** - C.Z. Pan and J.M. Zhan, Beijing Vacuum Electronics Research Institute, Beijing, China
	Break
Th8.5	**"Intracavity Pumped FIR Lasers"** - L.N. Orlov, Ya.I. Nekrashevich, and D.L. Galko, Institute of Physics, Byelorussian Academy of Sciences, Minsk, USSR
Th8.6	**"Temperature Dependence of FIR Laser Output Power"** - L.N. Orlov, Institute of Physics, Byelorussian Academy of Sciences, Minsk, USSR
Th8.7	**"Electron Beam Controlled Discharge N_2O Laser"** - A. Ionin, A. Suchkov and K. Frolov, P.N. Lebadev Physical Institute, Academy of Sciences of the USSR, Moscow, USSR