University of Birmingham, U. K.); *Proc. IEE*, vol. 114, pp. 859–863, July 1967.

This has direct application to methods whereby a small modulated loop is used to measure incident magnetic fields.

42

Numerical Solution of Waveguide Discontinuity Problems, by P. J. B. Clarricoats and K. R. Slinn (Dept. of Electronic Engineering, University of Leeds, U. K.); *Proc. IEE*, vol. 114, pp. 878–886, July 1967.

A computer method is described which may be used to determine the behavior of waveguide discontinuities which lie in a plane transverse to the direction of propagation. Several examples are considered and comparison is made with other methods.

43

Experimental Data on X-Band Surface Waveguides and Launchers, by H. Bialous (Plessey Co. Ltd., Roke Manor, Romsey, Hants., U.K.); *Proc. IEE*, vol. 114, pp. 1021–1029, August 1967.

Attenuation coefficients are given for several wire guides together with details of the mode launchers.

44

Effect of Degenerate $E_{11\nu}$ Mode in $H_{01\nu}$ Mode Cavity on the Measurement of Complex Permittivity, by C. P. Aron (Dept. of Electrical Engineering, Imperial College of Science and Technology, London, U. K.); *Proc. IEE*, vol. 114, pp. 1030–1034, August 1967.

45

Oblique-Incidence Millimetre-Wave Plasma Diagnostics, by M. M. Z. Kharadly and A. L. Cullen (Dept. of Electrical Engineering, University of Sheffield, U. K.); *Proc. IEE*, vol. 114, pp. 1035–1044, August 1967.

A beam of millimeter wave radiation enters a plasma at some angle of incidence θ and emerges by refraction a distance D from the point of entry. It is shown that the electron-density distribution can be deduced from the way D varies with θ.

46

Guided Waves in an Infinite Cylindrical Cavity in a Magneto-Ionic Medium, by S. R. Seshadri and K. L. Bhatnagar (Applied Research Laboratory, Sylvania Electronic Systems, Waltham, Mass., and Dept. of Electrical Engineering, University of Toronto, Canada); *Internat'l J. Electronics*, vol. 22, pp. 239–275, No. 3, 1967.

The characteristics of the guided waves supported by an infinitely long cylindrical cavity of free space immersed in a magneto-ionic medium are investigated.

47

Tunable Microwave-Frequency Light Modulator, by A. J. Fox and J. R. Mansell (Mullard Research Laboratories, Redhill, Surrey, U. K.); *Proc. IEE*, vol. 114, pp. 741–744, June 1967.

A tunable microwave-frequency light modulator using A.D.P. operates from 1.2 to 4.8 GHz. A modulation depth of 10 percent at 3.5 W was measured.

Contributors

John W. Bandler (S'66–M'67) was born in Jerusalem, Palestine, on November 9, 1941. He received the B.Sc. (Eng.) degree of the University of London in electrical engineering at the Imperial College of Science and Technology, London, England, in 1963 and the Ph.D. degree of the University of London and the Diploma of Imperial College in 1967. He held a Research Studentship from the Science Research Council at Imperial College from 1963 to 1966. His work in the Department of Electrical Engineering concerned the stability and optimization of microwave tunnel-diode amplifiers.

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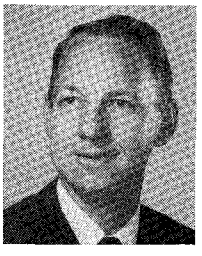
Dr. Bandler is an Associate of the City and Guilds of London Institute and an associate member of the Institution of Electrical Engineers (Great Britain).



Edmond S. Gillespie (S'50–A'51–M'56) was born in Birmingham, Ala., on May 13, 1928. He received the B.E.E. degree in 1951 from Auburn University, Auburn, Ala., and the M.S. and Ph.D. degrees in engineering from the University of California at Los Angeles in 1961 and 1967, respectively.

During 1946 and 1947 he served in the U. S. Air Force as an Instructor at the USAF Radar School at Boca Raton, Fla. From 1951 through 1955 he was employed by the Sandia Corporation, Albuquerque, N. M., where he was primarily concerned with the development of telemetry antenna and transmission-line systems. From 1955 to 1963 he was a Senior Research Specialist with the Lockheed Aircraft Corporation, Burbank, Calif., where his duties included research and development of aircraft antennas and studies of surface wave phenomena with emphasis on the antenna problem. While studying for the doctoral degree, he received a teaching appointment as Associate in the Department of Engineering at UCLA. From 1963 to 1965 he was a Senior Engineer at UCLA's Institute of Geophysics and Planetary Physics. In 1965 he joined the faculty of the San Fernando Valley State College, Northridge, Calif., as an Associate Professor in the School of Engineering.

Dr. Gillespie is a member of Eta Kappa Nu and Tau Beta Pi.

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Dr. Gustincic is a member of Sigma Xi.

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Curtis P. Hartwig (S'59—M'66) was born in Boston, Mass., on July 13, 1939. He received the S.B. and S.M. degrees in 1962 and the Ph.D. degree in 1966, all in electrical engineering, from the Massachusetts Institute of Technology, Cambridge.

While at M.I.T., he was a Research Assistant in the Microwave and Quantum Magnetics Group of the Center for Materials Science, investigating spin wave instabilities in microwave ferrites. In 1966 he joined the Raytheon Research Division as a staff member of the Microwave Semiconductor and Integrated Circuits Group.

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Daniel Massé (M'58) was born in Provins, France, on April 5, 1929. He received the Diploma of Engineering from the École Centrale de TSF, Paris, France, in 1951.

In 1951 and 1952 he worked on remote control equipment at SECRE, Paris, France. From 1952 to 1957 he was with CSF, Paris, France, working on analog fire control computers. From 1957 to 1961 and 1962 to 1967 he was with Raytheon Special Microwave Devices Operation where he was engaged in the development of ferrite components specializing in TEM devices. In 1961 he came to Raytheon's Research Division, Waltham, Mass., to study nonlinear microwave ferroelectric devices. In 1967 he joined the Microwave Semiconductoss and Integrated Circuits Group of Raytheon's Research Division where he is engaged in research and development of planar devices and circuits.

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Robert A. Pucel (S'48—A'52—M'56—SM'64) was born in Ely, Minn., on December 27, 1926. After serving in the U. S. Navy, he entered the Massachusetts Institute of Technology, Cambridge, in 1947 and received the B.S. and M.S. degrees in electrical engineering in 1951. From 1948 to 1951 he was enrolled in the M.I.T. Cooperative Course with the

General Electric Company. He received the D.Sc. degree in electrical engineering in 1955, also from M.I.T.

Following graduation in 1951, he joined the Research Division of Raytheon Company, Waltham, Mass., where he was a member of the Microwave Noise Study Group. In 1952 when he returned to M.I.T. as a doctoral candidate, he was a staff member of the Research Laboratory of Electronics conducting research in network theory. In 1955 he rejoined the Research Division of Raytheon as a staff member of the Theoretical Physcis Group. Here he has been principally engaged in the study and application of new solid-state device concepts. Presently he is the Program Manager of the Microwave Semiconductors and Integrated Circuits Group in the Research Division.

Dr. Pucel is a registered professional engineer of the Commonwealth of Massachusetts.

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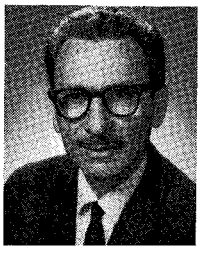

Bernard M. Schiffman (S'51–A'53–M'57) was born in New York, N. Y., on December 5, 1915. He received the M.S. degree in electrical engineering from Stanford University, Stanford, Calif.

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Mr. Schiffman is a member of the Scientific Research Society of America and the Optical Society of America.

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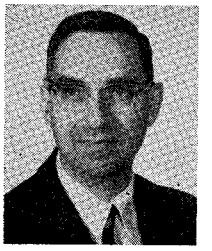

Leo Young (M'54–SM'56–F'68) was born in Vienna, Austria, on August 18, 1926. He received B.A. degrees in mathematics, in 1945, and in physics, in 1947, and the M.A. degree in 1950, all from the University of Cambridge, England. He received the M.S. degree in 1956 and the Ph.D. degree in 1959, both in electrical engineering, from the Johns Hopkins University, where he held a Westinghouse B.G. Lamme Scholarship.

From 1953 until 1960, he was employed in the Electronics Division, Westinghouse Electric Corporation, Baltimore, Md. He joined Stanford Research Institute in 1960, where he has worked on the design of microwave filters and components, antennas and phased arrays, acoustic transducers, and optical interference filters. During the summer of 1966 he was visiting professor at Leeds University, England, where he also lectured at the first IEE summer school. He is coauthor of *Microwave Filters, Impedance-Matching Networks, and Coupling Structures* (McGraw-Hill, 1964), Editor of the series *Advances in Microwaves* (Academic Press, 1966), and author of *Systems of Units in Electricity and Magnetism* (Oliver and Boyd, 1968).

Dr. Young is a member of the Institution of Electrical Engineers (London), the Scientific Research Society of America, and the Optical Society of America. He has been a member of the Technical Program Committees for the G-MTT National Symposiums for several years, and in 1966 served as Chairman. He is past Chairman of the San Francisco Chapter of the G-MTT, and is G-MTT National Lecturer for 1968. In 1963 he was awarded the IEEE Microwave Prize. He is Vice-Chairman of the Administrative Committee of the IEEE Microwave Theory and Techniques Group for 1968. He was a member of the IEEE 1968 International Convention and Exhibition Technical Program Committee, and Chairman of the Committee on Special Microwave Presentations.