

Belge de Lampes et de Matériel Electronique, Brussels. He was Associate Professor of Electrical Engineering at Washington University, St. Louis, Mo., from 1954 to 1956, and at the University of Wisconsin, Madison, from 1956 to 1964. He is currently Professor of Electrical Engineering at the University of Ghent, Belgium, and Director of the Laboratory for Electromagnetism and Acoustics of the University.

Dr. Van Bladel is a member of Sigma Xi and Eta Kappa Nu.



Ohio State University, Columbus, in 1964.

**R. E. Van Doeren** was born in Tulsa, Okla., on March 31, 1937. He received the B.Sc. degree in geophysics from the Colorado School of Mines, Golden, in 1960, and the M.Sc. degree in electrical engineering from the

From 1960 to 1964 he worked as a physicist in the Radome Group at the U. S. Naval Air Development Center, Johnsville, Pa., where he was engaged in research and development pertaining to radomes, microwave antennas, and microwave measurements. In 1964 he joined the Ohio State University Antenna Laboratory where he has been primarily concerned with research on polarization phenomena.

Mr. Van Doeren is an associate member of Sigma Xi.

## Microwave Abstracts

Based on technical merit and timeliness, microwave papers in journals published outside the United States have been selected and compiled below, many with annotations. Reprints of the papers may be obtainable by writing directly to the author or to the source quoted. The papers are in English unless noted otherwise.

—K. Tomiyasu, *Associate Editor for Abstracts*

### PAPERS FROM JOURNALS PUBLISHED IN JAPAN

*Compiled by Professor H. Iwakata,  
Waseda University, Tokyo, and his committee<sup>1</sup>*

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**Measurement of Total Cross Section of Water Drops at 5 mm Wavelength Utilizing the "Shadow Theorem"** by K. Funakawa (Radio Research Laboratories, Ministry of Posts & Telecommunications, Tokyo, Japan); *J. Inst. Elect. Commun. Engrs. Japan*, vol. 48, pp. 1440-1446, August 1965.

Method of measurement of total cross section of water drops and the results are given and compared with theoretical calculations. (In Japanese.) (See earlier Microwave Abstract 1966-14.)

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**Traveling-Wave Phase Modulation of Coherent Light** by T. Matsumoto, M. Suzuki, and Y. Kinoshita (Faculty of Engineering, Hokkaido Univ., Sapporo, Japan); *J. Inst. Elect. Commun. Engrs. Japan*, vol. 48, pp. 1511-1516, September 1965.

Theoretical analysis of plane wave propagation in an anisotropic medium having variable parameters of time and position. (In Japanese.)

<sup>1</sup> T. Iijima, Y. Kasai, T. Nakahara, B. Oguchi, S. Okamura, T. Sekiguchi, K. Suetake, and A. Uchiyama.

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**Delay Equalizer Using Tapered Cutoff Waveguide** by F. Ishihara and N. Ishida (Electrical Communication Laboratory, Musashino, Tokyo, Japan; Waseda Univ., Tokyo, Japan); *J. Inst. Elect. Commun. Engrs. Japan*, vol. 48, pp. 1543-1550, September 1965.

Theoretical analysis and experimental results are given on a phase equalizer using tapered waveguide. Design data are also given and confirmed by experiments. (In Japanese.)

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**On Resonance in Slightly Tilted Waveguide** by T. Itakura and K. Yasuura (Faculty of Engineering, Kyushu Univ., Fukuoka, Japan); *J. Inst. Elect. Commun. Engrs. Japan*, vol. 48, pp. 1629-1639, October 1965.

A new approximate method using a concept of perfect wave functions is given on the analysis of boundary value problems. Two-dimensional waveguide with tilt is analyzed as an example. (In Japanese.)

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**Analysis of the Idealized Light Waveguide Using Gas Lens** by Y. Suematsu and H. Fukinuki (Department of Electronics, Tokyo Institute of Technology, Tokyo, Japan); *J. Inst. Elect. Commun. Engrs. Japan*, vol. 48, pp. 1684-1690, October 1965.

Theoretical analysis of the response for Hermite or Laguerre-Gaussian waves in a beam waveguide by a new concept of  $F$ -matrix similar to the  $F$ -matrix of a transmission line. (In Japanese.)

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**Electromagnetic Fields in Anisotropic Plasmaguides Considering Electron Collision Losses** by M. Ohkubo (Faculty of Engineering, Gumma Univ., Kiryu, Gumma, Japan); *J. Inst. Elect. Engrs. Japan*, vol. 85, pp. 1776-1780, October 1965.

Effects of electron collisions on the transmission characteristics of waveguide filled with an anisotropic medium are theoretically analyzed. (In Japanese.)

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**Broad Band and High Efficiency Thermistor Mounts for Millimeter Wave Frequencies** by Toshio Aoki, Seizo Azuma, and Sousuke Ishii (Hitachi Electronics Co., Ltd., Kodaira, Tokyo, Japan); *The Hitachi Hyoron*, vol. 47, no. 10, pp. 38-43, October 1964.

Broadband and high efficiency power meter with improved thermistor beads and new type mounts for 35, 50, and 100 Gc/s bands. (In Japanese.)

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**On Observations of the Upper Atmosphere by Ruby Laser** by K. Nishikori, T. Ishida, K. Uchikura, K. Muranaga, M. Ichinose, Y. Masuda, T. Nagatake, T. Igarashi, and M. Hirono (Radio Research Laboratories, Kokubunji, Tokyo, Japan); *Rev. Radio Research Labs.*, vol. 11, no. 54, pp. 119-131, May 1965.

Method of observation and results of preliminary experiments on the upper atmosphere using a laser are described. (In Japanese, English summary.)