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, Japan, and his committee[1]

12

Dielectric Constant Measurement in Millimeter Wave Region by N. Ogasawara, S. Yoshida, L. Inao, and S. Omae (Faculty of Engineering, Tokyo Metropolitan University, Tokyo, Japan, and Furukawa Electric Co., Ltd., Yokohama, Japan); *The Furukawa Electric Review*, no. 37, pp. 1–5, February 1965.

Practical measuring method of dielectric constant with helix waveguide type resonator. (In Japanese, English summary.)

13

Measurement of the Chromium-Doped Rutile Maser Operating at Liquid Nitrogen Temperature by R. Hayashi and T. Igarashi (Radio Research Laboratories, Kokubunji, Tokyo, Japan); *J. Radio Research Laboratories*, vol. 12, no. 59, pp. 53–58, January 1965. (In English.)

14

Measurements of Total Cross Sections of Water Drops at 5 mm Wavelength Utilizing the "Shadow Theorem" by Kenji Funakawa (Radio Research Laboratories, Kokubunji, Tokyo, Japan); *J. Radio Research Laboratories*, vol. 12, no. 60, pp. 111–126, March 1965.

Total cross sections of falling water drops with radii between 1.25 mm and 3.38 mm were measured at 60 Gc/s. To verify the measurement, total cross sections of metal spheres with radii between 1.98 mm and 4.35 mm were measured, and the results are in good agreement with theoretical values. (In English.)

15

An Application of Coupling between Two Pairs of Parallel Wires—Suggestion for a Train Communication and Obstacle Detection System by T. Nakahara, N. Kurauchi, and T. Nagao (Sumitomo Electric Ind., Ltd., Osaka, Japan); *The Sumitomo Electric Review*, no. 88, pp. 49–52, April 1965.

The results of basic experiments on two pairs of parallel wires are described, and an application of them for train is suggested. (In Japanese, English summary.)

[1] T. Iijima, Y. Kasai, T. Nakahara, B. Oguchi, S. Okamura, T. Sekiguchi, K. Suetake, and A. Uchiyama.

16

4-Gc Tracking Receiver for Space Communication by Y. Takeuchi and T. Izutani (Fuchu Works, Nippon Electric Co., Ltd., Fuchu, Tokyo, Japan); *NEC*, no. 71, pp. 72–78, May 1965.

Design and results of automatic tracking control system with antenna patterns radiated from TM_{01} and TE_{11} modes of circular waveguide. (In Japanese.)

17

Transient Analysis Approach to Optical Maser by N. Kumagai and H. Yamamoto (Faculty of Engineering, Osaka University, Osaka, Japan); *J. Inst. Elect. Commun. Engrs. Japan*, vol. 48, no. 6, pp. 1039–1045, June 1965.

Theoretical treatment of optical maser amplifier by transient analysis and discussion of design data for maximum gain and relations of gain and bandwidth. (In Japanese.)

18

Equivalent Width of Waveguide by T. Matsumoto, M. Suzuki, and C. Funatsu (Faculty of Engineering, Hokkaido University, Sapporo, Japan, and Tokyo Communication Co., Ltd., Kawasaki, Japan); *J. Inst. Elect. Commun. Engrs. Japan*, vol. 48, no. 6, pp. 1046–1052, June 1965.

Theoretical analysis of equivalent width of non-conventional waveguide, such as strip line waveguide, etc., and confirmation of these results with experiments. (In Japanese.)

19

Effect of Grid on Cavity of Electron Tube by T. Matsumoto, M. Suzuki, and C. Funatsu (Faculty of Engineering, Hokkaido University, Sapporo, Japan, and Tokyo Communication Co., Ltd., Kawasaki, Japan); *J. Inst. Elect. Commun. Engrs. Japan*, vol. 48, no. 6, pp. 1053–1056, June 1965.

Analysis of impedance of several types of grids for electron passage in a klystron tube with discussion of the results. (In Japanese.)

20

Radiation Pattern and Power Gain of Antennas Immersed in a Dissipative Medium by H. Kikutani and Y. Mushiake (Shibaura Institute of Technology, Tokyo, Japan, and Faculty of Engineering, Tohoku University, Sendai, Japan); *J. Inst. Elect. Commun. Engrs. Japan*, vol. 48, no. 6, pp. 1057–1062, June 1965.

Theoretical and experimental analysis of linear antennas immersed in a dissipative medium using a conventional method. (In Japanese.)

21

Resonant Cavity Type TE_{01}–TE_{01} Mode Transducer by S. Shimada (Hitachi Central Research Laboratory, Tokyo, Japan); *J. Inst. Elect. Commun. Engrs. Japan*, vol. 48, no. 7, pp. 1206–1215, July 1965.

Theoretical and experimental results on a new resonant cavity type of mode transducer from rectangular to circular waveguide. (In Japanese.)

22

Circuital Theory Consideration on the Maximization of Laser Output by N. Kumagai and M. Matsuda (Faculty of Engineering, Osaka University, Osaka, Japan); *J. Inst. Elect. Commun. Engrs. Japan*, vol. 48, no. 7, pp. 1216–1221, July 1965.

Theoretical analysis of laser action by circuital theory consideration and discussion of the conditions for maximum laser output. (In Japanese.)

23

Diffraction of Plane Wave by Perfectly Conducting Elliptic Cylinder—A Study by Conformal Mapping by K. Udagawa and Y. Miyazaki (Faculty of Engineering, Nagoya University, Nagoya, Japan); *J. Inst. Elect. Commun. Engrs. Japan*, vol. 48, no. 7, pp. 1222–1231, July 1965.

Theoretical analysis of diffraction of plane wave by perfectly conducting elliptic cylinder applying the conformal mapping technique and integral equation. (In Japanese.)

24

Cerenkov Radiation in an Anisotropic Plasma by M. Ohkubo (Faculty of Engineering, Gumma University, Kiryu, Gumma, Japan); *J. Inst. Electrical Engineers of Japan*, vol. 85, no. 7, pp. 1193–1199, July 1965.

Theoretical analysis of Cerenkov radiation by a magnetic current source in an anisotropic plasma. (In Japanese.)