Hyletronics Corp. at Burlington, Mass., engaged in the development and manufacture of microwave solid-state components and subsystems. In 1962 he was appointed to the faculty of the Department of Physics at Worcester Polytechnic Institute, Worcester, Mass., where he now holds the position of Professor of Physics. Since 1962 Dr. Weiss also has served as consultant to the Array Radars Group at the Massachusetts Institute of Technology Lincoln Laboratory, Lexington, where he is concerned with ferrite components and other problems relating to phased-array system design.

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From 1938 to 1947 he taught in high schools and junior colleges in California, except from 1942 to 1946, when he was an Officer in the United States Navy. From 1947 to 1951 he was an Assistant Professor of Physics at Fresno State College, Fresno, Calif. From 1951 to 1957 he was a graduate student in physics and a Research Assistant in the Microwave Laboratory, Stanford University. Since 1957 he has been a Research Associate and Research Engineer at the Microwave Laboratory doing research in high-power traveling-wave tubes, microwave properties of ferrites, the interaction of the acoustic waves with laser beams, and microwave acoustics.

Dr. Winslow is a member of Sigma Xi and the American Physical Society.

Microwave Abstracts

Based on technical merit and timeliness, microwave papers in journals published outside the United States have been selected and compiled below, generally with brief abstracts. Reprints of the papers may be obtainable by writing directly to the author or to the source quoted.

—F. G. R. Warren, *Associate Editor for Abstracts*
RCA Limited, Montreal, Canada

Papers from Journals Published in Japan

Compiled by Prof. T. Okoshi, Department of Electronic Engineering, University of Tokyo. Prof. Okoshi points out that, where articles in J. IECEJ *or* Trans. IECEJ, *in Japanese, are referenced, these may be available in English translation, with a few months' delay, in* Electronics and Communications in Japan.

42
Dielectric-Surface-Loaded GaAs Bulk Element, by S. Kataoka (Electronic Device Division, Electrotechnical Laboratory, Tanashi-shi, Tokyo); *J. IECEJ*, vol. 52, pp. 1388–1392, November 1969.

By coating the surface of a planar-type GaAs Gunn device with a dielectric material (e.g., $BaTiO_3$), one suppresses the traveling high-field domain which is usually observed in Gunn oscillators. Such a device can be used as a special-waveform generator or as an amplifier. Basic phenomena and potential applications are discussed. (In Japanese.)

43
Injection-Synchronized Amplifier Circuits, by T. Isobe (Fujitsu Laboratories, Ltd., Kawasaki-shi, Kanagawa); *J. IECEJ*, vol. 52, pp. 1416–1419, November 1969.

An injection-synchronized oscillator can be used as an amplifier for FM or PCM signals. It is especially useful in the microwave region where solid-state amplifiers are available only at small-signal levels. The basic theory, an experimental IMPATT amplifier, and a proposal for an integrated version are described. (In Japanese.)

44
Traveling-Wave-Type Semiconductor Amplifiers, by J. Koyama (The Electrical Communication Laboratory, N.T.T., Musashinoshi, Tokyo); *J. IECEJ*, vol. 52, pp. 1420–1423, November 1969.

Experiments on traveling-wave amplifiers using the growing wave in a GaAs sample are described. The typical characteristics are sample dimensions $0.6 \times 1 \times 0.1$ mm, applied voltage 540 volts, center frequency 1.2 GHz, gain 14 dB, saturation power 2 mW, and 3-dB bandwidth 40 percent. In a capacity-loaded version, a 30-dB gain and a 3.5-mW saturation power are obtained. (In Japanese.)

45
Amplifier and Converter Circuits in Distributed or Constant-*K*-Type Configurations, by J. Nishizawa (Solid State Electronics Research Division, Research Institute of Electrical Communication, Tohoku University, Sendai-shi, Miyagi); *J. IECEJ*, vol. 52, pp. 1423–1426.

Distributed or constant-*K*-type tunnel-diode amplifiers and parametric devices are discussed. The history of the investigations is reviewed, and design theory is presented. (In Japanese.)

46
The Planar Circuit, by T. Okoshi (Department of Electronic Engineering, University of Tokyo, Bunkyo-Ku, Tokyo); *J. IECEJ*, vol. 52, pp. 1430–1432, November 1969.

The planar circuit is a new circuit concept proposed by the author which should be

positioned between the distributed-constant circuit (1-dimensional circuit) and the waveguide circuit (3-dimensional circuit). The features and potential applications of such new-type circuitry are described. The basic theory and computer-aided design procedure are discussed. (In Japanese.)

47

Passive Networks Made with Multiwire Strip-Line, by A. Matsumoto and N. Nagai (The Research Institute of Applied Electricity, Hokkaido University, Sapporo-shi, Hokkaido); *J. IECEJ*, vol. 52, pp. 1433–1441, November 1969.

Theory and applications of two-wire stripline circuits, stripline baluns, and distributed-constant hybrid circuits are discussed. Applications to microwave integrated circuits are implicitly assumed in discussions. (In Japanese.)

48

A PCM-AM Pulse Regenerator in the 4 GHz Band, by M. Sugiyama and Y. Matsuo (Central Research Laboratories, Nippon Electric Co., Ltd., Kawasaki-shi); *Trans. IECEJ*, vol. 53-B, pp. 70–76, February 1970.

A pulse regenerator to be used in the IF stage (4 GHz) of a repeater in a PCM-AM millimeter wave communication system is experimented. It features the use of injection locking and hysteresis of an Esaki-diode oscillator. The error rate is measured and discussed. (In Japanese.)

49

Analysis of Transmission Loss Characteristics of Lecher Wire Covered with Three Layer Media, by T. Shibuya (Defense Agency, Tokyo), Y. Kuboyama, and R. Sato (Faculty of Engineering, Tohoku University, Sendai-shi, Miyagi); *Trans. IECEJ*, vol. 53-B, pp. 92–99, February 1970.

The loss versus frequency characteristic is analyzed and compared with experimental characteristics, which usually show steep variations. It is shown that the variation is due to the excitation of the hybrid dipole mode. Theory and experiment. (In Japanese.)

50

A 4 GHz Multi-Stage Transistor Amplifier of New Circuit Configuration, by K. Ayaki, E. Igarashi, and Yuji Kajiwara (Central Research Laboratories, Nippon Electric Co., Ltd., Kawasaki-shi, Kanagawa); *Trans. IECEJ*, vol. 53-B, pp. 100–106, February 1970.

A new circuit configuration of a multistage transistor amplifier is proposed and experimented. The new circuit configuration features short additional transmission lines inserted between stages. Experiments were performed for 3-, 4-, 5-, 6-, and 7-stage amplifiers. Good agreement with theory was obtained. (In Japanese.)

51

The Practical Wide Band Absorbing Wall Using Dielectric Material, by Y. Shimizu and K. Suetake (Faculty of Engineering, Tokyo Institute of Technology, Meguro-Ku, Tokyo); *Trans. IECEJ*, vol. 53-B, pp. 143–150, March 1970. (In Japanese.)

Conditions for obtaining a thinner absorbing wall for radio waves have been investigated by the author. This paper describes newly developed ones having half thickness as compared with conventional ones. Model 1 is 45-cm thick and has VSWR less than 1.1 at frequencies above 400 MHz. Model 2 is 21 cm thick and has VSWR less than 1.1 at frequencies above 1 GHz. (In Japanese.)

52

Stabilization of Solid-State Microwave Oscillators by a Reflection Cavity, by S. Nagano (Central Research Laboratories, Nippon Electric Co., Ltd., Kawasaki-shi, Kanagawa); *Trans. IECEJ*, vol. 53-B, pp. 151–152, March 1970.

The frequency stability of an 11-GHz IMPATT oscillator is improved experimentally by a factor of 1/10. Conditions to suppress the mode jumping are considered. It is shown that a stability improvement of 1/27 is theoretically possible within practical conditions. (In Japanese.)

53

Response of Gaussian Beam with Mismatching Incidence Upon Periodic Waveguide Consisting of Lens-Like Media, by S. Suwa and N. Kumagai (Faculty of Engineering, Osaka University, Suita, Osaka); *Trans. IECEJ*, vol. 53-B, pp. 152–154, March 1970.

The "mismatching incidence" is an incidence condition which excites a nonperiodic Gaussian beam in the lens-like waveguide. The stability criteria are considered. Calculations only. (In Japanaese.)

54

On the Group-Delay Characteristic of a Parametric Amplifier, by M. Yamaguchi and T. Takei (Research and Development Laboratory, Kokusai Denshin Denwa Co., Ltd., Meguro-ku, Tokyo); *Trans. IECEJ*, vol. 53-B, pp. 155–157, March 1970.

The group delay of a parametric amplifier is computed for some simple circuit configurations. Calculations only. (In Japanese.)