

such as balsa wood, and particularly for those comparisons where densities do not differ greatly. The pronounced rise of loss tangent around the 200-MHz region appears to stem from chemical compounds intrinsic to cork bark itself and not from additives such as glue and paraformaldehyde which are introduced in the formation of a composition product. Although the relatively low dielectric constants observed throughout all tests indicate a very limited molecular polarizability, the loss generating parameters maintain surprisingly high values throughout the entire range of tests. The data reported were obtained from samples on an "as received" basis, and considerable caution must be

exercised in any further investigations involving the evaluation of dielectric constant and loss tangent since their values significantly follow variations of ambient humidity.

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- [2] R. A. Waldron, "Perturbation theory of resonant cavities," IEEE Monograph 373E, April 1960.
- [3] R. V. Langmuir, *Electromagnetic Fields and Waves*. New York: McGraw-Hill, 1961, pp. 166-170.

## Correction to "Nonsymmetrical Coupled Lines of Reentrant Cross Section"

The author of the above correspondence<sup>1</sup> has brought the following to the attention of the Editor.

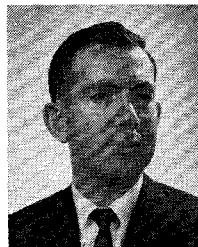
Equation (7), page 530, should have read

$$C_{ng}/\epsilon = \alpha + \beta + \frac{\alpha\beta}{\gamma} \quad (7)$$

EDWARD G. CRISTAL  
Stanford Research Inst.  
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<sup>1</sup> IEEE. *Trans. Microwave Theory and Techniques (Correspondence)*, pp. 529-530, September 1967.

## Contributors



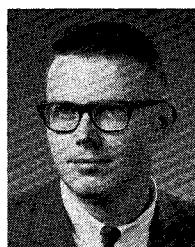
**Henry Berger** (M'64) was born in New York, N. Y., on February 8, 1936. He received the B.S. and M.S. degrees in physics, and the Ph.D. degree in electrophysics, from the Polytechnic Institute of Brooklyn, Brooklyn, N. Y., in 1957, 1959, and 1967, respectively.

From 1957 to 1959 he was a Research Assistant in the Rocket Propulsion Laboratory of the Polytechnic Institute of Brooklyn, Farmingdale, N. Y., engaged in studies of nonlinear wave phenomena. From 1959 to 1962 he was an engineer at the Sperry Gyroscope Co., Great Neck, N. Y., working on the research and development of microwave devices. In 1962 he began full-time graduate research in the areas of transient wave propagation in dispersive waveguides, microwave device theory, and the relativistic electrodynamics of moving media. In 1967 he joined the General Telephone and Electronics Laboratories, Inc., Bayside, N. Y., in the Exploratory High Frequency Solid State Devices Group.

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

netic fields and electronics and supervises research in the area of plasma-microwave interaction. He also serves as consultant on VHF-UHF television tuners to Oak Electronics Corp., Crystal Lake, Ill.

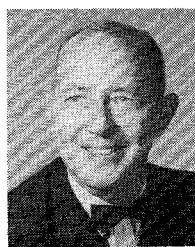
Dr. Beyer is a member of Eta Kappa Nu and Sigma Xi.



**Roger J. Chaffin** (S'62-M'67) was born in Ripon, Wis., on April 29, 1941. He received the B.S., M.S., and Ph.D. degrees in electrical engineering from the University of Wisconsin, Madison, in 1963, 1964, and 1967, respectively.

He was a Research Assistant from 1963 to 1967 and a Teaching Assistant from 1966 to 1967 at the University of Wisconsin. Currently he is a Technical Staff Member with the Radar Systems Development Division, Sandia Corp., Albuquerque, N. M., where his research activities are in the microwave solid-state area.

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**Robert S. Elliott** (S'46-A'52-SM'54-F'61) was born in Brooklyn, N. Y., on March 9, 1921. He received the A.B. degree in English literature and the B.S.E.E. degree from Columbia University, New York, N. Y., in 1942 and 1943, respectively, and the M.S. and Ph.D. degrees from the University of Illinois, Urbana, in 1947 and 1952, respectively.

He was affiliated with the Applied Physics Laboratory of The Johns Hopkins University, Baltimore, Md., from 1943 to 1946, and was an Assistant Professor at the University of Il-

linois, Urbana, from 1946 to 1952. In 1952 he served with the U. S. Navy on a missile development program. From 1953 to 1956 he was Head of the antenna research activities at Hughes Research Laboratories, Culver City, Calif., responsible principally for work on surface-wave antennas and arrays. In 1956 he participated in the formation of the Rantec Corp., Calabasas, Calif., and was also its Vice President and Technical Director. Since 1958 he has been Professor of Engineering at the University of California, Los Angeles, where his specialty is electromagnetic theory. He is the author of a recent textbook on special relativity and electromagnetic theory.

Dr. Elliott is a member of Sigma Xi, Tau Beta Pi, and the New York Academy of Sciences.



**John W. E. Griemsmann** (M'39-SM'57-F'59) was born in Brooklyn, N. Y., on May 31, 1916. He received the M.E.E. and D.E.E. degrees from the Polytechnic Institute of Brooklyn, Brooklyn, N. Y., in 1938 and

1946, respectively.

From 1939 to 1942 he was a Research Engineer in the Insulation Department of the Westinghouse Research Laboratories. In 1942 he returned to the Polytechnic Institute of Brooklyn, Farmingdale, N. Y., as a Research Associate working on radar components and microwave measuring instruments under the Office of Scientific Research and Development. He has since been associated with the Microwave Research Institute, becoming Associate Director in 1952. In 1953 he was appointed Research Professor of the Polytechnic Institute of Brooklyn. Since 1945 he has also been active in standardization work on microwave transmission lines and components, as a participant in the Army-Navy RF Cable Coordinating Committee, and as a

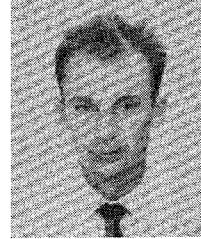
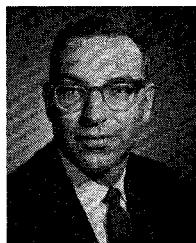


**James B. Beyer** (M'62) was born in Horicon, Wis., on July 7, 1931. He received the B.S.E.E., M.S., and Ph.D. degrees from the University of Wisconsin, Madison, in 1957, 1959, and 1961, respectively.

From 1950 to 1954 he served in the U. S. Navy as an electronics technician engaged in shipboard radar maintenance. In 1954 he held both teaching and research appointments at the University of Wisconsin, where presently, as Associate Professor, he teaches courses in electromag-

member of the Research and Development Board Sub-Panel on Transmission Lines and Components, the EIA, and the Insulation Conference of the National Research Council. Since 1954 he has been the U. S. Joint Chief Delegate to various transmission-line committees of the International Electro-technical Commission.

Dr. Griemsmann is a member of Eta Kappa Nu, Sigma Xi, and the AAAS.



**Harald Hahn** was born in Constanta, Roumania, on May 27, 1932. He was graduated in 1957 from the Technical University of Stuttgart, Germany, and attended the National Institute of Nuclear Science and Technology, Saclay,

France, on a scholarship from the French Government. He received the Ph.D. degree in accelerator physics and the D.Sc. degree, both from the University of Paris, in 1960 and 1965, respectively.

In 1960 he joined the Accelerator Department of Brookhaven National Laboratory, Upton, N. Y., where he first worked on the RF system of the alternating gradient synchrotron and later was responsible for the design of the RF beam separator. At present he holds the position of Physicist and is carrying out research on the microwave properties of superconducting cavities.

Dr. Hahn is a member of the American Physical Society and the Verein Deutscher Elektrotechniker.

From 1950 to 1953 he worked on the development of radio frequency and microwave test equipment at Polarad Electronics Corp., Long Island City, N. Y. During this time he also served as Lecturer in the Evening Division of the City College of New York. From 1953 to 1958 he participated in the design of video and radio receivers and consumer electronic products for Kaye Halbert Corp., Culver City, Calif., and Precision Radiation Instruments, Inc., Los Angeles, Calif. In 1958 he joined the faculty at California State College, Los Angeles, where he is now Professor of Engineering. During the 1966-1967 academic year he was Visiting Research Fellow at the University of Leeds, England. His research interests are in the fields of microwaves and active electronic circuits.

Dr. Kopp is a member of Tau Beta Pi, Eta Kappa Nu, and the AAUP.



Since 1965 he has been employed by the Radio and Electrical Engineering Division, National Research Council of Canada, Ottawa, Ontario, where he has been working in the field of auroral physics.

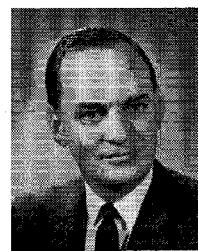


**Don R. McDiarmid** (S'58-M'64) was born in Vancouver, Canada, on April 6, 1937. He received the B.A.Sc., M.A.Sc., and Ph.D. degrees from the University of British Columbia, Vancouver, in 1960, 1961, and 1965, respectively. Since 1965 he has been employed by the Radio and Electrical Engineering Division, National Research Council of Canada, Ottawa, Ontario, where he has been working in the field of auroral physics.

**Kenneth E. Mortenson** (S'46-A'50-M'55-SM'57) was born in Melrose, Mass., on December 14, 1926. He was educated at Wesleyan University, Middletown, Conn., and Rensselaer Polytechnic Institute, Troy, N. Y., receiving the B.S. at the latter in 1947, the B.E.E. and M.E.E. degrees in 1948 and 1950, respectively, and his Ph.D. in applied physics in 1954. From 1947 to 1956 he taught in both the Physics and Electrical Engineering Departments at Rensselaer Polytechnic Institute, where he became an Assistant Professor in 1953. From 1949 to 1956 he participated in, and later directed, sponsored research on radiation and leakage, electromagnetic coupling devices, broadband interference, and transistor circuitry. In 1956 he joined the General Electric Research Laboratory, Schenectady, N. Y., as a Research Associate in studies of the physical operation, electrical characterization, and fabrication of transistors and special high-frequency diodes. In 1960 he became Director of Research and Development, Microwave Semiconductor Components and Devices, Microwave Associates, Burlington, Mass., where he was initially engaged in di-

recting efforts in the development of semiconductor, microwave control and generating components, and related semiconductor devices such as varactors, *p-i-n*, and tunnel diodes. From 1963 to 1967 he was Professor of Electrical Engineering and Chairman of the Department at Rensselaer Polytechnic Institute, where he continued research on bulk and junction semiconductor devices for microwave applications. In 1967 he was made Associate Dean of the School of Engineering responsible for all research and advanced study activities.

Dr. Mortenson is a member of Eta Kappa Nu, Sigma Xi, the American Society for Engineering Education, American Association for the Advancement of Science, and the New York Academy of Science.



**George B. Walker** (S'49-A'50-M'59) was born in Thaxkerton, Scotland, on January 24, 1919. He received the M.A. degree in mathematics and natural philosophy from the University of Glasgow, Scotland, in 1940, and the Ph.D. degree from the University of London, England, in 1950. He held a Turner and Newall Fellowship at Imperial College, London, from 1947 to 1950.

From 1940 to 1946 he was on the research staff of the Mullard Radio Valve Co., Ltd., Mitcham, England. From 1950 to 1959 he was a Lecturer in Electrical Engineering at the Universities of Sheffield and London, and in 1959 became a Research Professor at the University of British Columbia, Vancouver, Canada. In 1964 he was appointed Professor and Head of the Department of Electrical Engineering, University of Alberta, Edmonton. He has directed numerous projects on microwaves, particle accelerators, and space research. He is a consultant to Atomic Energy of Canada, Ltd.

Dr. Walker is an associate member of the IERE and a member of the IEE (London).



**Joseph F. White** (S'60-M'61) was born in Cleveland, Ohio, on June 5, 1938. He received the B.S.E.E. degree from Case Institute of Technology, Cleveland, Ohio, in 1960, the M.S.E.E. degree from Northeastern University, Boston, Mass., in 1965, and the Ph.D. degree from Rensselaer Polytechnic Institute, Troy, N. Y., in 1968.

From 1960 to 1961 he was employed at the MITRE Corp., Bedford, Mass. Since that time he has been with Microwave Associates, Inc., Burlington, Mass., designing semiconductor microwave control devices. The latter association has been part-time during the last two years while he served as a Research Assistant at Rensselaer Polytechnic Institute, Troy, N. Y., and performed graduate study for the Ph.D. degree.

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



**Henry J. Halama** (M'59) was born in Hustirov, Czechoslovakia on February 16, 1929. He was graduated as Electrical Engineer in 1952 from the Technical University of Prague.

From 1955 to 1958 he was on the staff of Isotope Products, Ltd., Oakville, Canada (subsequently acquired by the Curtiss-Wright Co., N. J.), engaged in the development of measuring instruments using radioactive isotopes, and in the design of process control equipment. In December, 1958, he joined the Accelerator Department of Brookhaven National Laboratory, Upton, N. Y., where initially he worked on the design of the RF system for the 30 BeV synchrotron. Later, with Dr. H. Hahn, he designed and developed the RF particle separator. More recently he has been working on problems associated with superconducting microwave cavities.

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**Eugene H. Kopp** (S'50-A'51-M'56-SM'65) was born in New York, N. Y., on October 1, 1929. He received the B.E.E. and M.E.E. degrees from the City College of New York, N. Y., in 1950 and 1953, respectively, and the Ph.D. degree in engineering from the University of California, Los Angeles, in 1965.

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