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.

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Papers from Journals Published in Germany

Compiled by W. Schlosser and H.-G. Unger, Institut für Hochfrequenztechnik, Technische Hochschule Braunschweig, Braunschweig, Germany.

44
A General Method of Analysis for Optical Resonators and Periodic Lens Systems, by D. Gloge (Institut für Hochfrequenztechnik, Technische Hochschule Braunschweig, 33 Braunschweig, Germany); *Archiv der Elektrischen Übertragung*, vol. 19, pp. 13–26, January 1965.

By series expansion in terms of spheroid functions of the confocal system nonconfocal systems with curvature, offsets, and other imperfections are analyzed. (In German.)

45
A Simple Approximation for the Phase Constant of Fundamental Modes in Rectangular Dielectric Wire, by W. Schlosser (Institut für Hochfrequenztechnik, Technische Hochschule Braunschweig, 33 Braunschweig, Germany); *Archiv der Elektrischen Übertragung*, vol. 19, pp. 166–168, March 1965.

Approximate formulas are obtained by considering the modes in dielectric slabs as limiting cases. The results are compared with exact calculations. (In German.)

46
Light Beam Propagation in Curved Schlieren Guides, by H.-G. Unger (Institut für Hochfrequenztechnik, Technische Hochschule Braunschweig, 33 Braunschweig, Germany); *Archiv der Elektrischen Übertragung*, vol. 19, pp. 189–198, April 1965.

The effects of controlled and random curvature on Hermite-Gaussian wavebeams in uniform, periodic, and helical schlierenguides are analyzed theoretically.

47
A Comparison of Current and Voltage Driven Frequency Multipliers with Varactor Diodes, by B. Schiek and H. Westphalen (Institut für Hochfrequenztechnik, Technische Hochschule Braunschweig, 33 Braunschweig, Germany); *Archiv der Elektrischen Übertragung*, vol. 19, pp. 399–408, August 1965.

The efficiency of doublers and triplers with abrupt and linearly graded PN junctions is analyzed theoretically. The influence of the terminating impedance at 2ω and 3ω is discussed in all cases. (In German.)

48
Wave Propagation in Horns and Through Horn Junctions, by H.-G. Unger (Institut für Hochfrequenztechnik, Technische Hochschule Braunschweig, 33 Braunschweig, Germany); *Archiv der Elektrischen Übertragung*, vol. 19, pp. 459–468, September 1965.

Round horns of variable flare angle are analyzed in natural coordinates. Dominant mode reflection and circular electric wave conversion are considered in detail.

49
Microwave Band Pass Filter with One Dimensional Optical Resonators, by W. Haas and H.-D. Godtmann (Institut für Hochfrequenztechnik, Technische Hochschule Aachen, 51 Aachen, Templergraben 55, Germany); *Archiv der Elektrischen Übertragung*, vol. 19, pp. 551–558, October 1965.

Normal mode resonances of dielectric or ferrite disks in cylindrical waveguides are analyzed theoretically and experimentally for their application in filter arrangements. (In German.)

50
Measurements in an Optical Shuttle Pulse Line, by G. Seifert and D. Gloge (Institut für Hochfrequenztechnik, Technische Hochschule Braunschweig, 33 Braunschweig, Germany); *Archiv der Elektrischen Übertragung*, vol. 19, pp. 633–635, November 1965.

Pure beam waveguide modes are excited and their propagation characteristics under ideal conditions and with imperfections are studied. (In German.)

51
Coaxial Line Filters with Radial Chokes, by H. Westphalen (Institut für Hochfrequenztechnik, Technische Hochschule Braunschweig, 33 Braunschweig, Germany); *Archiv der Elektrischen Übertragung*, vol. 19, pp. 637–646, December 1965.

The boundary value problem is solved by normal mode expansion. Detailed design diagrams are given. The theory is verified experimentally. (In German.)

52
Ferrite Components for Microwave Radio, by P. Emmerich, H. Junker, and E. Pivit (Telefunken A.G., 715 Backnang, Gerberstrasse 34, Germany); *Telefunken-Ztg.*, vol. 38, no. 2, pp. 175–187, January 1965. (In German.)

53
Ferrites for Resonance Isolators and Circulators, by H. Motz and H.-G. Wrede (Telefunken A.G., 715 Backnang, Gerberstrasse 34, Germany); *Telefunken-Ztg.*, vol. 38, no. 2, pp. 187–195, January 1965. (In German.)

54
Circulators with Lumped Circuit Elements, by E. Pivit (Telefunken A.G. 715 Backnang, Gerberstrasse 34, Germany); *Telefunken-Ztg.*, vol. 38, no. 2, pp. 206–213, January 1965. (In German.)

55
Dynamic Range, Tuning Range and Non-Linear Distortions in Parametric Amplifiers with Varactor Diodes, by W. Heinlein (Siemens und Halske A.G., Zentrallaboratorium, 8 München 25, Hofmannstrasse 51, Germany); *Frequenz*, vol. 19, pp. 80–88, March 1965.

Si-diodes are more suitable than GaAs-diodes. They show less gain reduction and deformation with increasing input power. The change in operating point capacitance with signal power detunes and deforms the gain characteristic and leads to cubic distortion. (In German.)

56
A Tunable Delay Equalizer for Microwaves, by G. Pfitzenmaier (Siemens und Halske A.G., Zentrallaboratorium, 8 München 25, Hofmannstrasse 51, Germany); *Frequenz*, vol. 19, pp. 338–341, October 1965.

Two arms of a 3 dB-hybrid are coupled to resonators. By varying the coupling and resonance the equalizer is continuously tuned. (In German.)

57
A Frequency Selective H_{10}-H_{01} Transducer and Its Utilization as Branching Filter, by E. Schuegraf (Siemens und Halske A.G.,

Zentrallaboratorium, 8 München 25, Hofmannstrasse 51, Germany); *Frequenz*, vol. 19, pp. 341–347, October 1965.

Four cavity resonators in a symmetrical arrangement are fed from rectangular and coupled to circular waveguide. At 36 GHz the passband is 1.6 GHz wide with 1 dB loss. (In German.)

58

Rapidly Converging Approximation for Volume Distorted Waveguides, by W. Nowak (Institut für Hochfrequenztechnik u.Nachrichtenelektronik, Technische Universität Dresden, Dresden, DDR, Germany); *Hochfrequenz und Elektroakustik*, vol. 74, no. 3, pp. 94–102, June 1965.

Generalized telegraphist's equations are used to approximately analyze wave-propagation in waveguides with anisotropic and inhomogeneous cross section. (In German.)

59

Zinc Selenide as High Refractive Index Material in Dielectric Mirror Layers for Laser Resonators and Interference Filters, by W. Heitmann (Fernmeldetechnisches Zentralamt, 61 Darmstadt, Rheinstrasse 110, Germany); *Zeitschr. f. Angew. Physik*, vol. 19, pp. 392–395, September 1965.

Seven to eleven layers have from 97.7 to 99.7 percent reflection and from 0.1 to 0.3 percent absorption. (In German.)

60

Wide Band Absorption of Electromagnetic Waves by Thin Ferrite Layers, by H.-W. Helberg and V. Kose (III. Physikalisches Institut, Universität Göttingen, 34 Göttingen, Germany); *Zeitschr. f. Angew. Physik*, vol. 19, pp. 509–514, October 1965.

Various nickel zinc ferrites are investigated experimentally in multilayer arrangements. Ferrite-air-ferrite-metal arrangements have less than 10 per cent reflection between 20 and 910 MHz.

61

Transition of a Dielectric Waveguide Through an Iris, by E.-G. Neumann and U. Stumper (III. Physikalisches Institut, Universität Göttingen, 34 Göttingen, Germany); *Zeitschr. f. Angew. Physik*, vol. 20, pp. 56–64, November 1965.

Transmission, reflection and radiation of the fundamental mode in a round dielectric waveguide incident on a coaxial iris is investigated theoretically and experimentally. (In German.)

62

A Flexible Microwave Power-Guide with Low Attenuation (Flexwellhohlleiter), by W. Krank and E. Schüttlöffel (Telefunken A.G., 715 Backnang, Gerberstr. 34, Germany); *Nachrichtentechnische Zeitschrift*, vol. 18, pp. 607–614, October 1965. (In German.)

63

Mechanical Characteristics of a Flexible Microwave-Powerguide of Noncircular Cross Section, by G. Herberts (Telefunken A.G., 715 Backnang, Gerberstr. 34, Germany); *Nachrichtentechnische Zeitschrift*, vol. 18, pp. 637–642, November 1965.

Elliptical waveguide with helical wall corrugations is flexible, has low echo distortion and attenuation. Mechanical construction and electrical characteristics are discussed in detail. (In German.)