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The *Author Index* contains the primary entry for each item, listed under the first author's name, and cross-references from all coauthors. The *Subject Index* contains several entries for each item under appropriate subject headings, and subject cross-references.

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- Electric variables control**; cf. Phase control
- Electric variables measurement**  
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- Electric variables measurement**; cf. Attenuation measurement; Conductivity measurement; Current measurement; Dielectric measurements; Electromagnetic measurements; Impedance measurement; Integrated-circuit measurements; Power measurement; Scattering parameters measurement; Semiconductor device measurements; Semiconductor materials measurements; Voltage measurement
- Electroacoustics**  
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- Electromagnetic analysis**  
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- Electromagnetic coupling**; cf. Coupled transmission lines; Electromagnetic induction
- Electromagnetic diffraction**; cf. Cylinders; Electromagnetic scattering
- Electromagnetic heating**  
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- Electromagnetic induction**  
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- nonreciprocal 45° Faraday rotator for quasioptical beams at 35 GHz. *Dionne, G. F., + , MWSYM 88 Vol. 1* 127–130
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FETs; cf. Gallium FETs; UHF FETs

Filtering; cf. Limiting

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- GaAs/GaAlAs heterojunction bipolar transistor logarithmic IF amplifier. *Oké, A. K.*, + , *MCS 88* 41–45
- Image enhancement**  
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- Image region analysis**  
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- Imaging/mapping; cf. Infrared imaging/mapping; Microwave imaging/mapping; Millimeter-wave imaging/mapping; Synthetic-aperture imaging**
- IMPATT diode oscillators**  
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- monolithic VCO using GaAs double-drift Read IMPATTs for millimeter-wave applications. *Wang, N.-L.*, + , *MCS 88* 59–62
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- V-band monolithic IMPATT VCO with varactor diode integrated on single chip. *Bayraktaroglu, B.*, *MWSYM 88 Vol. 2* 687–690
- 90-GHz MMIC Schottky diode receiver and CW planar W-band IMPATT diode oscillator circuits. *Buechler, J.*, + , *MCS 88* 67–70
- IMPATT diodes**  
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- Impedance calculations**  
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- impedance simulation model of GaAs p-i-n diodes. *Gopinath, A.*, *MWSYM 88 Vol. 2* 801–802
- Impedance matching**  
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- circuit yield evaluation of lumped and distributed matching structures for amplifier design. *Purviance, J.*, + , *MWSYM 88 Vol. 1* 375–378
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- equivalent transformations for mixed lumped Richards section and distributed transmission line. *Nemoto, Y.*, + , *T-MTT Apr 88* 635–641
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- planar matching of antennas on electrically thick dielectric substrates using layered structures (D). *Rogers, R. L.*, + , *IRMM 87* 288–289
- real-frequency technique applied to synthesis of lumped broadband matching networks with arbitrary nonuniform losses for MMICs. *Zhu, L.*, + , *MWSYM 88 Vol. 2* 555–558
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- transformerless quasi-broadband matching networks for lumped complex loads using nonuniform transmission lines. *Endo, I.*, + , *T-MTT Apr 88* 628–634
- Impedance matching; cf. Baluns; Loaded waveguides; Waveguide transitions**
- Impedance matrix**  
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- Impedance measurement**  
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- mutual impedance between probes in waveguide. *Wang, B.*, *T-MTT Jan 88* 53–60
- Impedance measurement; cf. Scattering parameters measurement**
- Impedance transformers; cf. Impedance matching**
- Implantable biomedical devices**  
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- design optimization of interstitial antennas for microwave hyperthermia. *Iskander, M. F.*, + , *MWSYM 88 Vol. 1* 151–153
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- Inductance calculations**  
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#### Information theory

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#### Infrared detectors

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#### Infrared generation; cf. Synchrotron radiation

#### Infrared imaging/mapping

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#### Infrared interferometry

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#### Infrared lasers; cf. Carbon dioxide lasers

#### Infrared measurements

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#### Infrared modulation/demodulation

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#### Infrared position measurement

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#### Infrared radio propagation meteorological factors

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#### Infrared radiometry; cf. Infrared imaging/mapping

#### Infrared scattering

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#### Infrared spectroscopy

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#### Infrared spectroscopy; cf. Fourier spectroscopy

#### Infrared tracking

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#### Infrared (0.70 – 100 $\mu$ m); cf. Submillimeter-wave (100 $\mu$ m – 1000 $\mu$ m); Submillimeter-wave (300 – 3000 GHz)

#### Injection-locked oscillators

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#### Injection-locked oscillators; cf. Phase-locked oscillators

#### Instrumentation; cf. Measurement

#### Insulation; cf. Liquid dielectric materials/devices

#### Integral equations

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#### Integral equations; cf. Moment methods

#### Integrated-circuit design

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#### Integrated-circuit design; cf. Circuit optimization; Design automation; Design centering; Yield optimization

#### Integrated-circuit fabrication

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#### Integrated-circuit fabrication; cf. Integrated-circuit packaging; Laser applications, materials processing; Specific topic or device

#### Integrated-circuit interconnections

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#### Integrated-circuit interconnections; cf. Printed circuits

#### Integrated-circuit ion implantation

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#### Integrated-circuit measurements

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#### Integrated-circuit metallization; cf. Integrated-circuit interconnections

#### Integrated-circuit modeling; cf. Specific topic or device

#### Integrated-circuit packaging

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#### Integrated-circuit reliability

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#### Integrated circuits; cf. Analog integrated circuits; Application-specific integrated circuits; High-speed integrated circuits; Hybrid integrated circuits; Integrated optoelectronics; Microwave integrated circuits; Millimeter-wave integrated circuits; Monolithic microwave integrated circuits; Thin-film circuits

#### Integrated optics; cf. Integrated optoelectronics

#### Integrated optoelectronics

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#### Interchannel interference; cf. Crosstalk

#### Interconnected circuits; cf. Cascade circuits

#### Interconnections, integrated circuits; cf. Integrated-circuit interconnections Interferometry; cf. Infrared interferometry; Submillimeter-wave interferometry

#### Intermodulation distortion

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#### Inverse problems

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**Ion radiation effects;** cf. Integrated-circuit ion implantation

**Iris;** cf. Waveguide discontinuities

## J

### Japan

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**Jitter;** cf. Phase jitter; Timing jitter

**Junction lasers;** cf. Gallium materials/lasers; Semiconductor lasers

**Junctions;** cf. Hybrid junctions; Waveguide junctions

## K

### Kerr effect

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### Klystrons

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### Land mobile radio base stations

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### Land mobile radio cellular systems

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**Large-signal ...;** cf. Nonlinear ...

**Laser applications;** cf. Laser radar; Light-triggered switches

**Laser applications, materials processing**

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### Laser applications, measurements

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**Laser applications, measurements;** cf. Electrooptic materials/devices; Laser radar

**Laser diodes;** cf. Gallium materials/lasers; Semiconductor lasers

**Laser frequency stability;** cf. Laser stability

### Laser measurements

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### Laser modes

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### Laser radar

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### Laser stability

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### Laser tuning

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**Lasers;** cf. Carbon dioxide lasers; Free-electron lasers; Gallium materials/lasers; Raman lasers; Ring lasers; Semiconductor lasers; Submillimeter-wave lasers

### Lattice circuits

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**Layered media;** cf. Electromagnetic propagation, nonhomogeneous media

### Leaky-wave antennas

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### Leaky waves

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**Lens waveguides;** cf. Beam waveguides

**Lidar;** cf. Laser radar

### Light-triggered switches

optically activated bulk GaAs devices for high-power VHF generation. *Kim, A., + , MWSYM 88 Vol. 2* 1071–1074

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### Limiting

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### Linear arrays

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**Linear FM;** cf. Chirp modulation; Chirp radar

**Linear systems;** cf. Sensitivity

### Liquid dielectric materials/devices

broadband method for automatic measurement of complex permeability and permittivity of materials at microwave frequencies. *Szendrenyi, B. B., + , MWSYM 88 Vol. 2* 743–746

**Liquids;** cf. Water

**Lithography;** cf. Integrated-circuit fabrication

**Loaded antennas;** cf. Active antennas

### Loaded waveguides

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**Loaded waveguides;** cf. Circulators; Dielectric-loaded waveguides; Ferrite-loaded waveguides; Plasma-loaded waveguides; Waveguide discontinuities; Waveguide filters

### Local area networks

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**Locked oscillators;** cf. Injection-locked oscillators; Phase-locked oscillators

### Log-periodic antennas

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### Log-spiral antennas

planar antennas on thick dielectric substrates (D). *Lee, K. A., + , IRMM 87* 216–217

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- GaAs heterojunction bipolar transistor MMIC logarithmic IF amplifiers; true log amp and successive-detection designs. *Okfi, A. K.*, + , *T-MTT Dec 88* 1958–1965
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- Logic circuits; cf.** Counting circuits; Flip-flops
- Loop antennas**
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- Lossy media; cf.** Absorbing media
- Low-pass filters**
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- variational method analysis of cascaded step discontinuities in boxed microstrip; application to filters. *Railton, C. J.*, + , *T-MTT Jul 88* 1177–1185
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- distributed up-scaling of microwave power MESFETs and comparison with lumped scaling. *Mondal, J. P.*, *MWSYM 88 Vol. 1* 351–354
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- Magnetic confinement, plasma measurements; cf.** Stellarators, plasma measurements; Tokamaks, plasma measurements
- Magnetic-field effects**
- induced magnetic-field perturbations during electromagnetic heating of plasmas (D). *Lee, M. C.*, + , *IRMM 87* 364–365
- Magnetic films/devices; cf.** YIG films/devices
- Magnetic materials/devices; cf.** Electromagnetic propagation, magnetic media; Ferrite-loaded waveguides; Magneto-optic materials/devices; Powdered magnetic materials/devices
- Magnetic measurements**
- ferrite cylinder coupled to microstrip for measuring magnetic properties at microwave frequencies. *Modelski, J.*, + , *MWSYM 88 Vol. 1* 125–126
- Magnetic measurements; cf.** Magneto-optic measurements
- Magnetic resonance; cf.** Ferroresonance
- Magnetization processes**
- simple approximations for longitudinal magnetic polarizabilities of some small apertures. *McDonald, N. A.*, *T-MTT Jul 88* 1141–1144
- Magneto-optic materials/devices**
- nonreciprocal single-mode conversion in five-layer magneto-optical waveguides (D). *Hernández, J.*, + , *IRMM 87* 188–189
- Magneto-optic measurements**
- direct measurements of complex permittivity and permeability of magnetic materials from 50 – 450 GHz using dispersive Fourier transform spectrometric technique (D). *Afsar, M. N.*, + , *IRMM 87* 18–18b
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- Magnetostatic surface waves**
- insertion loss of magnetostatic surface-wave delay lines using conductor – dielectric – YIG – GGG structure. *Bajpai, S. N.*, + , *T-MTT Jan 88* 132–136
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**Partial differential equations; cf. Boundary-element methods; Finite-element methods****Particle beams; cf. Electron beams**

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**Waveguide bends**

- finite curvature and corrugations in dielectric ridge waveguides; generalized local-modes formulation. *Rozzi, T., + , T-MTT Jan 88* 68–79
- low-loss twists in oversized rectangular waveguide. *Doane, J. L., T-MTT Jun 88* 1033–1042

**Waveguide components**

- Advanced Toroidal Facility electron cyclotron's heating waveguide component development and testing (D). *Bigelow, T. S., + , IRMM 87* 210–211
- dielectric-loaded waveguide polarizer with large cross-polarization bandwidth. *Lier, E., + , T-MTT Nov 88* 1531–1534
- waveguide polarization adaptor circuit for VSAT satellite terminals. *Kim, C. S., + , MWSYM 88 Vol. 2* 669–671

**Waveguide components; cf.** Specific topic or device

**Waveguide discontinuities**

- admittance matrix formulation of waveguide discontinuity problems; computer-aided design of branch guide directional couplers. *Alessandri, F., + , T-MTT Feb 88* 394–403
- beam propagation method applied to step discontinuity in dielectric planar waveguides; power transmission and loss for TE modes. *Gomaa, L. R., T-MTT Apr 88* 791–792
- computer-aided analysis of arbitrarily shaped coaxial discontinuities; equivalence to planar circuit on nonhomogeneous medium. *Gwarek, W. K., T-MTT Feb 88* 337–342
- field distribution in ridge waveguides and finlines; application to analysis of E-plane discontinuities. *Mansour, R. R., + , MWSYM 88 Vol. 2* 713–716
- field distribution in ridge waveguides and finlines; application to analysis of E-plane discontinuities. *Mansour, R. R., + , T-MTT Dec 88* 1825–1832
- finite-element analysis of dispersion in waveguides with sharp metal edges. *Webb, J. P., MWSYM 88 Vol. 1* 391–394
- finite-element analysis of dispersion in waveguides with sharp metal edges. *Webb, J. P., T-MTT Dec 88* 1819–1824
- Galerkin solution for thin circular iris in TE<sub>11</sub>-mode circular waveguide. *Scharstein, R. W., + , T-MTT Jan 88* 106
- integrated-circuit discontinuities and radiation with respect to A. A. Oliner's contributions. *Alexopoulos, N. G., MWSYM 88 Vol. 1* 141–143
- matched dielectric windows using inductive irises; design curves for circular waveguide TE<sub>11</sub>-mode. *Carin, L., + , T-MTT Sep 88* 1359–1362
- modal analysis of gap effect in waveguide dielectric measurements. *Wilson, S. B., T-MTT Apr 88* 752–756
- multifilament moment solution for composite dielectric posts in waveguide. *Sheaffer, G. S., + , T-MTT Apr 88* 779–783
- mutual impedance between probes in waveguide. *Wang, B., T-MTT Jan 88* 53–60
- realizability of impedance matrix for lossy dielectric waveguide posts using lattice networks. *Hsu, C.-I. G., + , T-MTT Apr 88* 763–765
- role of complex modes in modeling step discontinuity at junction between two dielectric-loaded waveguides. *Chen, S.-W., + , MWSYM 88 Vol. 1* 207–210
- role of complex modes in modeling step discontinuity at junction between two dielectric-loaded waveguides. *Zaki, K. A., + , T-MTT Dec 88* 1804–1810
- scattering by lossy dielectric cylinder in rectangular waveguide using orthogonal expansion method. *Gesche, R., + , T-MTT Jan 88* 137–144
- semi-infinite circular waveguide with wall corrugations; mode-matching for reflection and transmission coefficients. *Lundqvist, S. L. G., T-MTT Jan 88* 28–33
- step-periodic structures for backward-wave interaction (D). *Bunch, K. J., + , IRMM 87* 99–100
- technique for propagation characteristics of dielectric-rod-loaded waveguides. *Rothwell, E. J., + , T-MTT Mar 88* 594–600
- thick circular iris in TE<sub>11</sub>-mode circular waveguide; Galerkin's method analysis. *Scharstein, R. W., + , T-MTT Nov 88* 1529–1531

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- unusual identities for special functions arising from propagation in waveguides with step discontinuities. *Cochran, J. A.*, *T-MTT Mar 88* 611–614
- variational bound analysis of discontinuity in nonradiative dielectric waveguide. *Olivier, J. C.*, + , *T-MTT Jun 88* 1105–1107
- 3-D discontinuous dielectric waveguide circuit analysis. *Tsuji, M.*, + , *MWSYM 88 Vol. 2* 635–638
- Waveguide discontinuities**; cf. Loaded waveguides; Transmission-line discontinuities; Waveguide bends; Waveguide junctions; Waveguide transitions
- Waveguide filters**
- computer-aided design of evanescent-mode waveguide filter with nontouching *E*-plane fins. *Zhang, Q.*, + , *T-MTT Feb 88* 404–412
- computer-aided design of parallel-connected millimeter-wave duplexers/multiplexers. *Vahldieck, R.*, + , *MWSYM 88 Vol. 1* 435–438
- magnetically tunable waveguide and finline *E*-plane metal-insert bandpass filters. *Uher, J.*, + , *T-MTT Jun 88* 1014–1022
- waveguide multiplexers using metallic *E*-plane printed-circuit filters; diplexer and triplexer designs. *Dittloff, J.*, + , *MWSYM 88 Vol. 1* 431–434
- waveguide T-junction duplexers using metallic *E*-plane filters; rigorous field theory for design. *Dittloff, J.*, + , *T-MTT Dec 88* 1833–1840
- 3-D discontinuous dielectric waveguide circuit analysis; application to image-guide grating filters. *Tsuji, M.*, + , *MWSYM 88 Vol. 2* 635–638
- Waveguide filters**; cf. Cavity-resonator filters
- Waveguide junctions**
- coplanar *E* – *H* plane T-junction using dissimilar rectangular waveguides. *Das, B. N.*, + , *T-MTT Mar 88* 604–606
- dispersion and coupling in image guide couplers used in millimeter-wave integrated circuits (D). *Qi, L.*, + , *IRMM 87* 354–355
- numerical analysis of loaded *H*-plane waveguide junctions using combined finite-element and boundary-element methods. *Ise, K.*, + , *T-MTT Sep 88* 1343–1351
- role of complex modes in modeling step discontinuity at junction between two dielectric-loaded waveguides. *Chen, S.-W.*, + , *MWSYM 88 Vol. 1* 207–210
- role of complex modes in modeling step discontinuity at junction between two dielectric-loaded waveguides. *Zaki, K. A.*, + , *T-MTT Dec 88* 1804–1810
- volume integral equations for analysis of dielectric branching waveguides. *Tanaka, K.*, + , *T-MTT Aug 88* 1239–1245
- Waveguide junctions**; cf. Waveguide discontinuities; Waveguide transitions
- Waveguide obstacles**; cf. Waveguide discontinuities
- Waveguide transitions**
- broadband microwave superconducting thin-film transformer using Dolph – Chebyshev tapered microstrip/coplanar waveguide transmission line. *McGinnis, D. P.*, + , *T-MTT Nov 88* 1521–1525
- compact broadband high-efficiency mode converters for high-power microwave tubes with  $TE_{0n}$  or  $TM_{0n}$  mode outputs. *Buckley, M. J.*, + , *MWSYM 88 Vol. 2* 797–800
- compact quasi-periodic and aperiodic mode converters for 60 and 140 GHz gyrotrons (D). *Buckley, M. J.*, + , *IRMM 87* 214–215
- computer-aided analysis and design of circular waveguide tapers. *Flügel, H.*, + , *T-MTT Feb 88* 332–336
- frequency doubler for millimeter-wave applications using combined suspended-microstrip/finline mount (D). *Hong, J. S.*, + , *IRMM 87* 248
- input impedance of microstrip-to-waveguide end launchers. *Ho, T. Q.*, + , *T-MTT Mar 88* 561–567
- linear operator theory applied to waveguide – microstrip transitions and discontinuity problems. *Mahmoud, S. M.*, + , *MWSYM 88 Vol. 1* 367–370
- scattering-parameters-matrix determination for  $TE_{11}$ -to- $HE_{11}$  corrugated cylindrical waveguide mode-converters. *da Silva, L. C.*, *T-MTT Mar 88* 480–488
- waveguide-to-coaxial line probe transition using full band matched monopole. *de Ronde, F. C.*, *MWSYM 88 Vol. 2* 591–594
- waveguide-to-microstrip probe transitions for 26 – 110-GHz frequency range. *Shih, Y.-C.*, + , *MWSYM 88 Vol. 1* 473–475
- Waveguides**
- nonlinear optimization of shape functions in finite-element method when determining cutoff frequencies of waveguides of arbitrary cross section. *Utjes, J. C.*, + , *T-MTT Jan 88* 151–152
- using Coulomb gauge for solving source-excited boundary value electromagnetics problems. *Michalski, K. A.*, + , *T-MTT Sep 88* 1328–1333
- Waveguides**; cf. Beam waveguides; Circular waveguides; Coaxial waveguides; Corrugated waveguides; Dielectric-loaded waveguides; Dielectric waveguides; Electromagnetic surface-wave waveguides; Ferrite-loaded waveguides; Finline; Loaded waveguides; Microstrip; Millimeter-wave waveguides; Plasma-loaded waveguides; Ridge waveguides; Semiconductor waveguides; Slotline; Strip transmission lines; Stripline; Submillimeter-wave waveguides; Thin-film waveguides
- Wedges**
- Monte Carlo method for Dirichlet problem of dielectric wedges. *Schlott, R.*, *T-MTT Apr 88* 724–730
- Wiring**; cf. Integrated-circuit interconnections; Printed circuits

Y

**Yield optimization**

- circuit optimization; state-of-the-art review for microwave CAD. *Bandler, J. W.*, + , *T-MTT Feb 88* 424–443
- circuit yield evaluation of lumped and distributed matching structures for amplifier design. *Purviance, J.*, + , *MWSYM 88 Vol. 1* 375–378
- circuit yield evaluation of lumped and distributed matching structures for amplifier design. *Monteith, D. H.*, + , *T-MTT Dec 88* 1621–1628
- network sensitivity figure for yield improvement in gradient-type optimizers. *Purviance, J. E.*, + , *T-MTT Feb 88* 413–417

**YIG films/devices**

- insertion loss of magnetostatic surface-wave delay lines using conductor – dielectric – YIG – GGG structure. *Bajpai, S. N.*, + , *T-MTT Jan 88* 132–136
- 13-GHz YIG-film-tuned oscillator for VSAT applications. *Mizunuma, Y.*, + , *MWSYM 88 Vol. 2* 1085–1088
- 13-GHz YIG-film-tuned oscillator for VSAT (very small aperture communication terminal) applications. *Mizunuma, Y.*, + , *T-MTT Dec 88* 1885–1889

**YIG filters**

- microwave circuit model for magnetostatic-wave filter. *Stitzer, S. N.*, *MWSYM 88 Vol. 2* 875–878
- 13-channel magnetostatic-wave filterbank. *Adam, J. D.*, + , *MWSYM 88 Vol. 2* 879–882

**YIG materials/devices**

- magnetostatic waves in waveguide-enclosed YIG slab; integral equation formulation. *Radmanesh, M.*, + , *MWSYM 88 Vol. 2* 765–768

**YIG-tuned oscillators**

- 13-GHz YIG-film-tuned oscillator for VSAT applications. *Mizunuma, Y.*, + , *MWSYM 88 Vol. 2* 1085–1088
- 13-GHz YIG-film-tuned oscillator for VSAT (very small aperture communication terminal) applications. *Mizunuma, Y.*, + , *T-MTT Dec 88* 1885–1889

**Yttrium materials/devices**; cf. Superconducting materials/devices

Z

**Zeros**; cf. Eigenvalues/eigenvectors