

IEEE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES

A PUBLICATION OF THE IEEE MICROWAVE THEORY AND TECHNIQUES SOCIETY



DECEMBER 2002

VOLUME 50

NUMBER 12

IETMAB

(ISSN 0018-9480)

SPECIAL ISSUE ON 2002 INTERNATIONAL MICROWAVE SYMPOSIUM

2002 Symposium Issue

Editors' Overview	A. Weisshaar, G. L. Heiter, and W. J. R. Hoefer	2660
IMS 2002 Celebrates the 50th Anniversary of the MTT-S	D. T. Harvey	2664
The IMS2002 Technical Program	E. W. Strid and E. Godshalk	2668
2002 MTT-S Awards	Peter W. Staecker	2671

MICROWAVE SYMPOSIUM PAPERS

Electromagnetic Field Analysis

The Danger of High-Frequency Spurious Effects on Wide Microstrip Line.	F. Mesa and D. R. Jackson	2679
Approximate Analytical Evaluation of the Continuous Spectrum in a Substrate-Superstrate Dielectric Waveguide	P. Baccarelli, P. Burghignoli, F. Frezza, A. Galli, G. Lovat, and D. R. Jackson	2690
Planar Negative Refractive Index Media Using Periodically L - C Loaded Transmission Lines.	G. V. Eleftheriades, A. K. Iyer, and P. C. Kremer	2702
Dual-Frequency Electric-Magnetic-Electric Microstrip Leaky-Mode Antenna of a Single Fan Beam.	Y.-C. Chen, C.-K. Wu, and C.-K. C. Tzuang	2713
Efficient Analysis of Microwave Passive Structures Using 3-D Envelope-Finite Element (EVFE)	H.-P. Tsai, Y. Wang, and T. Itoh	2721
A TLM-SPICE Interconnection Framework for Coupled Field and Circuit Analysis in the Time Domain	P. P. M. So and W. J. R. Hoefer	2728
A New 2-D Image Reconstruction Algorithm Based on FDTD and Design Sensitivity Analysis.	N.-W. Kang, Y.-S. Chung, C. Cheon, and H.-K. Jung	2734

Computer-Aided Design

EM-Based Optimization Exploiting Partial Space Mapping and Exact Sensitivities.	J. W. Bandler, A. S. Mohamed, M. H. Bakr, K. Madsen, and J. Søndergaard	2741
Feasible Adjoint Sensitivity Technique for EM Design Optimization	N. K. Georgieva, S. Glavic, M. H. Bakr, and J. W. Bandler	2751
Addressing Transient Errors in Passive Macromodels of Distributed Transmission-Line Networks.	A. Dounavis, R. Achar, and M. S. Nakhla	2759
Neural-Based Dynamic Modeling of Nonlinear Microwave Circuits.	J. Xu, M. C. E. Yagoub, R. Ding, and Q.-J. Zhang	2769

(Contents Continued on Page 2658)



Computer-Aided Tuning of Microwave Filters Using Fuzzy Logic	V. Miraftab and R. R. Mansour	2781
On the Synthesis of Equivalent-Circuit Models for Multiports Characterized by Frequency-Dependent Parameters	R. Neumayer, A. Stelzer, F. Haslinger, and R. Weigel	2789
Optimal Parameter Extraction and Uncertainty Estimation in Intrinsic FET Small-Signal Models	C. Fager, L. J. P. Linnér, and J. C. Pedro	2797
A Peeling Algorithm for Extraction of the HBT Small-Signal Equivalent Circuit	B. Sheinman, E. Wasige, M. Rudolph, R. Doerner, V. Sidorov, S. Cohen, and D. Ritter	2804
Characterization and Modeling of Bias Dependent Breakdown and Self-Heating in GaInP/GaAs Power HBT to Improve High Power Amplifier Design	S. Heckmann, R. Sommet, J.-M. Nébus, J.-C. Jacquet, D. Floriot, P. Auxemery, and R. Quéré	2811
Global Coupled EM–Electrical–Thermal Simulation and Experimental Validation for a Spatial Power Combining MMIC Array	W. Batty, C. E. Christoffersen, A. B. Yakovlev, J. F. Whitaker, A. Mortazawi, A. Al-Zayed, M. Ozkar, S. C. Ortiz, R. M. Reano, K. Yang, L. P. B. Katehi, C. M. Snowden, and M. B. Steer	2820
Prediction of IMD in LDMOS Transistor Amplifiers Using a New Large-Signal Model	C. Fager, J. C. Pedro, N. B. de Carvalho, and H. Zirath	2834
Quantifying Memory Effects in RF Power Amplifiers	H. Ku, M. D. McKinley, and J. S. Kenney	2843
<i>Passive Microwave Components</i>		
High-Performance Air-Gap Transmission Lines and Inductors for Millimeter-Wave Applications	I. Jeong, S.-H. Shin, J.-H. Go, J.-S. Lee, C.-M. Nam, D.-W. Kim, and Y.-S. Kwon	2850
Fabrication of MOD-Derived YBCO Films on (001)LaAlO ₃ and Their Application to $\lambda/4$ CPW SIR BPFs	A. Sanada, M. Kimura, T. Yamamoto, and I. Awai	2856
Synthesis of Advanced Microwave Filters Without Diagonal Cross-Couplings	R. J. Cameron, A. R. Harish, and C. J. Radcliffe	2862
Integrated Power Transistor in 0.18- μ m CMOS Technology for RF System-on-Chip Applications	H.-M. Hsu, J.-G. Su, C.-W. Chen, D. D. Tang, C. H. Chen, and J. Y.-C. Sun	2873
Dual-Mode Filters With Grooved/Splitted Dielectric Resonators for Cellular-Radio Base Stations	L. Accatino, G. Bertin, M. Mongiardo, and G. Resnati	2882
Suspended Resonators for Filters-Reduced λ_g Excitation of Evanescent Cavities Using High Dielectric Constant Feedlines	R. V. Snyder, E. Niver, K. Um, and S. Shin	2890
Novel Coupling Schemes for Microwave Resonator Filters	U. Rosenberg and S. Amari	2896
A Wide-Band Reflection-Type Phase Shifter at S-Band Using BST Coated Substrate	D. Kim, Y. Choi, M. G. Allen, J. S. Kenney, and D. Kiesling	2903
Microstrip and Stripline Ferrite-Coupled-Line (FCL) Circulators	C. K. Queck and L. E. Davis	2910
V-Band 2-b and 4-b Low-Loss and Low-Voltage Distributed MEMS Digital Phase Shifter Using Metal–Air–Metal Capacitors	H.-T. Kim, J.-H. Park, S. Lee, S. Kim, J.-M. Kim, Y.-K. Kim, and Y. Kwon	2918
Ultra-Selective 22-Pole 10-Transmission Zero Superconducting Bandpass Filter Surpasses 50-Pole Chebyshev Filter	G. Tsuzuki, S. Ye, and S. Berkowitz	2924
<i>Active Microwave Components</i>		
A Fully Integrated Broad-Band Amplifier MMIC Employing a Novel Chip-Size Package	Y. Yun, M. Nishijima, M. Katsuno, H. Ishida, K. Minagawa, T. Nobusada, and T. Tanaka	2930
Ultralow DC Power VCO Based on InP-HEMT and Heterojunction Interband Tunnel Diode for Wireless Applications	A. Cidronali, G. Collodi, M. Camprini, V. Nair, G. Manes, J. Lewis, and H. Goronkin	2938
A Filter Synthesis Technique Applied to the Design of Multistage Broad-Band Microwave Amplifiers	J.-P. Rooney, R. Parry, I. Hunter, and R. D. Pollard	2947
Optimum Bias Conditions for Linear Broad-Band InGaP/GaAs HBT Power Amplifiers	M. Iwamoto, C. P. Hutchinson, J. B. Scott, T. S. Low, M. Vaidyanathan, P. M. Asbeck, and D. C. D'Avanzo	2954
A 1.8-GHz High-Efficiency 34-dBm Silicon Bipolar Power Amplifier	F. Carrara, A. Scuderi, T. Biondi, and G. Palmisano	2963
Parameter Extraction for Symmetric Coupled-Resonator Filters	H.-T. Hsu, Z. Zhang, K. A. Zaki, and A. E. Atia	2971
Power-Amplifier Module With Digital Adaptive Predistortion for Cellular Phones	S. Kusunoki, K. Yamamoto, T. Hatsugai, H. Nagaoka, K. Tagami, N. Tominaga, K. Osawa, K. Tanabe, S. Sakurai, and T. Iida	2979
Carrier Power to Intermodulation-Distortion Power-Ratio-Increasing Technique in Active Phased-Array Antenna Systems	T. Kaho, T. Nakagawa, K. Araki, and K. Horikawa	2987

<i>Millimeter-Wave Technologies and Photonics</i>	
Compact Single-Chip W-Band FMCW Radar Modules for Commercial High-Resolution Sensor Applications	2995
.....A. Tessmann, S. Kudszus, T. Feltgen, M. Riessle, C. Sklarczyk, and W. H. Haydl	
Direct Optical Injection Locking of InP/InGaAs HPT Oscillator ICs for Microwave Photonics and 40-Gbit/s-Class Optoelectronic Clock Recovery	3002
.....H. Kamitsuna, T. Shibata, K. Kurishima, and M. Ida	
Millimeter-Wave Power-Fading Compensation for WDM Fiber-Radio Transmission Using a Wavelength-Self-Tunable Single-Sideband Filter	3009
.....E. Vourc'h, B. Della, D. Le Berre, and D. Hervé	
<i>Packaging, Integration, and Test</i>	
Realistic Power-Amplifiers Characterization With Application to Baseband Digital Predistortion for 3G Base Stations	3016
.....S. Boumaiza and F. M. Ghannouchi	
Enhanced On-Wafer Time-Domain Waveform Measurement Through Removal of Interconnect Dispersion and Measurement Instrument Jitter	3022
.....J. B. Scott, J. Verspecht, B. Behnia, M. Vanden Bossche, A. Cognata, F. Verbeyst, M. L. Thorn, and D. R. Scherrer	
<i>Applications</i>	
Theoretical Evaluation of GSM/UMTS Electromagnetic Fields on Neuronal Network Response	3029
.....F. Apollonio, M. Liberti, and G. D'Inzeo	
Modeling of Planar Applicators for Microwave Thermotherapy	3036
.....J. Carlier, V. Thomy, J.-C. Camart, L. Dubois, and J. Pribetich	
Performance Characterization of FPGA Techniques for Calibration and Beamforming in Smart Antenna Applications.	3043
.....T. W. Nuteson, J. E. Stocker, J. S. Clark, IV, D. S. Haque, and G. S. Mitchell	
A Smart Antenna Receiver Array Using a Single RF Channel and Digital Beamforming	3052
.....J. D. Fredrick, Y. Wang, and T. Itoh	
A Microwave Communication Link With Self-Heterodyne Direct Down Conversion and System Predistortion	3059
.....J. Park, Y. Wang, and T. Itoh	
Design of High-Speed Master-Slave D-Type Flip-Flop in InP DHBT Technology	3064
.....A.-E. Kasbari, P. André, A. Konczykowska, M. Riet, S. Blayac, H. Ouslimani, and J. Godin	
Integrated Microwave Sensors for Cavity-Length Measurement in Machine Engineering	3070
.....A. Megej, K. Beilenhoff, M. Schüßler, A. Zirotf, B. Mottet, O. Yilmazoglu, K. Mutamba, C. D. Hamann, R. Baican, and H. L. Hartnagel	
Information for Authors	3077
CALLS FOR PAPERS	
Special Issue on Terahertz Electronics	3078
International Microwave and Optoelectronics Conference 2003.	3079
2002 INDEX OF MTT TRANSACTIONS AND MTT-SPONSORED CONFERENCES	Follows page 3080
