

MICROWAVE AND GUIDED WAVE LETTERS®

A PUBLICATION OF THE IEEE MICROWAVE THEORY AND TECHNIQUES SOCIETY



DECEMBER 1994

VOLUME 4

NUMBER 12

IMGLE3

(ISSN 1051-8207)

ANNOUNCEMENT

1994 Reviewer List	389
--------------------------	-----

LETTERS

Accurate Frequency Domain Modelling of Coaxially Driven Axisymmetric Microwave Structures	
..... <i>H. O. Ali and G. I. Costache</i>	390
De-Embedding Slotline Propagation Parameters	
..... <i>M.-H. Murgulescu, P. Legaud, E. Moisan, E. Penard, and I. Zaquine</i>	393
Some Considerations About the Finite Difference Time Domain Method in General Curvilinear Coordinates	
..... <i>E. A. Navarro, C. Wu, P. Y. Chung, and J. Litva</i>	396
A DC to 38-GHz Distributed Analog Multiplier Using InP HEMT's	<i>Y. Imai, S. Kimura, Y. Umeda, and T. Enoki</i> 399
A Simple Technique for Minimization of ABC-Induced Error in the FDTD Analysis of Microstrip Discontinuities	
..... <i>X. P. Lin and K. Naishadham</i>	402
Large Signal Model for Analysis and Design of HEMT Gate Mixer	
..... <i>R. Allam, C. Kolanowski, D. Theron, and Y. Crosnier</i>	405
Rigorous Mode Matching Analysis of Mitered <i>E</i> -Plane Bends in Rectangular Waveguide	
..... <i>F. Alessandri, M. Mongiardo, and R. Sorrentino</i>	408
Heterostructure Barrier Varactor Simulation Using an Integrated Hydrodynamic Device/Harmonic-Balance Circuit Analysis Technique	<i>J. R. Jones, S. H. Jones, G. B. Tait, and M. F. Zybura</i> 411
Characterization of a Monolithic Slot Antenna Using an Electro-Optic Sampling Technique	
..... <i>K. Kamogawa, I. Toyoda, K. Nishikawa and T. Tokumitsu</i>	414
Observation of Chaos in a Microwave Limiter Circuit	<i>C. M. Glenn and S. Hayes</i> 417
Efficient Solution Method for Unified Nonlinear Microwave Circuit and Numerical Solid-State Device Simulation	
..... <i>G. B. Tait</i>	420
Bias-Dependent Noise Up-Conversion Factor in HBT Oscillators	<i>X. Zhang and A. S. Daryoush</i> 423

ASIA-PACIFIC ABSTRACTS

Papers from Journals Published in Australia, India, China, and Japan in 1993	<i>M. Koshiba and S.-J. Xu</i> 426
--	------------------------------------

PATENT ABSTRACTS	<i>W. H. Meise</i> 456
------------------------	------------------------

1994 INDEX	Follows page 460
------------------	------------------



The Microwave Theory and Techniques Society is an organization, within the framework of the IEEE, of members with principal professional interests in the field of microwave theory and techniques. All members of the IEEE are eligible for membership in the Society and will receive the LETTERS upon payment of the annual Society membership fee of \$20.00. Affiliate membership is available upon payment of the annual affiliate fee of \$33.00, plus the Society fee of \$20.00. For information on joining, write to the IEEE at the address below. *Member copies of Transactions/Journals are for personal use only.*

ADMINISTRATIVE COMMITTEE

E. J. CRESCENZI, JR.

C. D. COHEN, *Vice President*S. J. FIEDZIUSZKO, *Secretary*

J. T. BARR
R. E. BRYAN
E. D. COHEN

E. J. CRESCENZI, JR.
M. GOLIO
D. HORNBUECKLER
R. H. JANSEN

M. A. MAURY, JR.
B. S. PERLMAN
R. POLLARD
E. A. REZEK

M. SCHINDLER
R. SUDBURY
D. G. SWANSON
G. THOREN

J. W. WASSEL
D. WEBB
E. YAMASHITA

Honorary Life Members

A. C. BECK
S. B. COHN
A. A. OLINER

T. S. SAAD
K. TOMIYASU
L. YOUNG

Distinguished Lecturers

W. CURTICE
P. GOLDSMITH
F. IVANEK

V. RIZZOLI
J. R. WHINNERY

Past Presidents

P. W. STAECKER (1993)
R. S. KAGIWADA (1992)
F. IVANEK (1991)

S-MTT Chapter Chairmen

Albuquerque: E. G. FARR
Atlanta: J. J. WANG
Baltimore: J. A. MOELLERS
Beijing: Z. SHA
Benelux: K. VAN T. KLOOSTER
Buffalo: M. R. GILLETTE
Central Iowa/Cedar Rapids: D. OLIVER
Central & South Italy: O. M. BUCCI
Central New England/Boston: L. D. POLES
Chicago: E. G. BOGUS
Cleveland: D. A. FORCE
Columbus: R. LEE
Czechoslovakia: Z. SKVOR
Dallas: J. E. WHEELER, III
Dayton: G. R. SIMPSON
Denver-Boulder: R. G. GEYER
Egypt: M. N. I. FAHMY
Finland: E. T. KEMPPINEN
Florida West Coast: L. DUNLEAVY
Foothill: S. M. SAAD
Fort Worth: G. C. MAY
France: V. F. HANNA
Germany: F. ARNDT
Greece: N. K. UZUNOGLU
Houston: J. T. WILLIAMS
R. D. NEVELS
Hungary: I. FRIGYES
Huntsville: H. L. BENNETT

India: S. K. KOUL
Indonesia: S. NATANAGARA
Israel: A. MADJAR
Ithaca: L. PALAMATEER
Kitchener-Waterloo: A. NATHAN
Y. L. CHOW
Los Angeles: M. A. THORNBURN
Milwaukee: J. RICHIE
Montreal: G. L. YIP
New Hampshire: T. O. PERKINS
New Jersey Coast: V. K. VARMA
New South Wales: C. D. WILSON
New York/Long Island: S. J. BLANK
North Italy: C. N. NALDI
North Jersey: R. V. SNYDER
Oregon: K. SHENAI
Orlando: W. S. ARCENEAUX
Ottawa: D. H. REEKIE
Philadelphia: A. HOORFAR
Phoenix: J. ABERLE
Poland: J. W. MODELSKI
Portland: D. SHENAI
Princeton: A. KATZ
Rio de Janeiro: J. R. BERGMANN
San Diego: R. LEVY
San Fernando Valley: A. M. MADNI
Santa Clara Valley/San Francisco: M. MOSTAFAVI
Schenectady: R. J. GUTMANN

Seattle: D. T. HARVEY
Seoul: J. S. MYUNG
Singapore: L. M. SENG
South Africa: B. J. E. TAUTE
South Australia: B. D. BATES
South Brazil: D. CONSONI
Southeastern Michigan: J. W. BURNS
Spain: M. P. SIERRA
Spokane: W. A. FLATT
Springfield: K. M. LAU
St. Louis: R. W. KIEFEL
Sweden: J. F. JOHANSSON
Switzerland: L. PROST
Syracuse:
Taipei: C. C. TZUANG
Tokyo: K. KAGOSHIMA
Toronto: T. E. VAN DEVENTER
Tucson: H. C. KOHLBACHER
Turkey: A. BUYUKAKSOY
Twin Cities: A. GOPINATH
United Kingdom/Ireland: T. H. OXLEY
Utah/Salt Lake City: M. F. ISKANDER
Vancouver:
Venezuela: A. N. BIANCHI
Virginia Mountain: I. J. BAHAL
Washington/Northern Virginia: J. I. UPSHUR
Winnipeg: H. MOHEB
Yugoslavia: B. JOCANOVIC

IEEE MICROWAVE AND GUIDED WAVE LETTERS

Editor-in-Chief

T. ITOH
Assistant
D. BINDER

Associate Editors

M. KOSHIBA (*Asia-Pacific Abstracts*)
Sub-Associate Editor
S. XU

W. H. MEISE (*Patent Abstracts*)

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.
Officers

H. TROY NAGLE, *President*
JAMES T. CAIN, *President-Elect*
LUIS T. GANDIA, *Secretary*
V. THOMAS RHYNE, *Treasurer*
KENNETH R. LAKER, *Vice President, Educational Activities*

W. KENNETH DAWSON, *Director, Division IV—Electromagnetics and Radiation*

Executive Staff

JOHN H. POWERS, *Executive Director and General Manager*
PHYLLIS HALL, *Staff Executive, Publications*
FRANK R. MOORE, *Staff Executive, Volunteer Activities*
RICHARD D. SCHWARTZ, *Staff Executive, Business Administration*

CHARLES K. ALEXANDER, *Vice President, Professional Activities*
LOYD A. MORLEY, *Vice President, Publication Activities*
VIJAY K. BHARGAVA, *Vice President, Regional Activities*
WALLACE S. READ, *Vice President, Standards Activities*
DONALD M. BOLLE, *Vice President, Technical Activities*

IRVING ENGELSON, *Staff Director, Corporate Activities*
W. R. HABINGREITHER, *Staff Director, Customer Service Center*
PETER A. LEWIS, *Staff Director, Educational Activities*
MELVIN I. OLKEN, *Staff Director, Regional Activities*

ANDREW G. SALEM, *Staff Director, Standards Activities*
W. THOMAS SUTTLE, *Staff Director, Professional Activities*
ROBERT T. WANGEMANN, *Staff Director, Technical Activities*

Transactions/Journals Department

Director: PATRICIA WALKER
Manager: GAIL S. FERENC
Electronic Production Manager: JERI L. UZZO
Managing Editor: VALERIE CAMMARATA
Senior Associate Editor: ROBERT W. DAVIDSON

IEEE MICROWAVE AND GUIDED WAVE LETTERS is published monthly by The Institute of Electrical and Electronics Engineers, Inc. Responsibility for the contents rests upon the authors and not upon the IEEE, the Society/Council, or its members. **IEEE Corporate Office:** 345 East 47th Street, New York, NY 10017-2394. **IEEE Operations Center:** 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331. **NJ Telephone:** 908-981-0060. **Price/Publication Information:** Individual copies: IEEE Members \$10.00 (first copy only), nonmembers \$20.00 per copy. (Note: Add \$4.00 postage and handling charge to any order from \$1.00 to \$50.00, including prepaid orders.) Member and nonmember subscription prices available on request. Available in microfiche and microfilm. **Copyright and Reprint Permissions:** Abstracting is permitted with credit to the source. Libraries are permitted to photocopy for private use of patrons, provided the per-copy fee indicated in the code at the bottom of the first page is paid through the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923. For all other copying, reprint, or republication permission, write to Copyrights and Permissions Department, IEEE Publications Administration, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331. Copyright © 1994 by The Institute of Electrical and Electronics Engineers, Inc. All rights reserved. Second-class postage paid at New York, NY, and at additional mailing offices. **Postmaster:** Send address changes to IEEE MICROWAVE AND GUIDED WAVE LETTERS, IEEE, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331. GST Registration No. 125634188. Printed in U.S.A.