

2025 IEEE Texas Symposium on Wireless and Microwave Circuits and Systems (WMCS 2025)

**Waco, Texas, USA
8-9 April 2025**



**IEEE Catalog Number: CFP25WMD-POD
ISBN: 979-8-3315-0813-5**

**Copyright © 2025 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP25WMD-POD
ISBN (Print-On-Demand):	979-8-3315-0813-5
ISBN (Online):	979-8-3315-0812-8
ISSN:	2638-3845

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

A Low-Profile Spiral Antenna Design for Airborne UHF Satellite Communications Systems	1
<i>Pedro Rodriguez-Garcia, Clayton Weatherly, Juan Guerrero</i>	
Design of a SiGe BiCMOS Broadband Amplifier for an Electron Paramagnetic Resonance Spectrometer.....	5
<i>Selina Eckel, Ahmet Çagri Ulusoy</i>	
Correction for Dispersion in Waveguide Media for Improved Resolution of Time-Domain Analysis of Localized Impairments.....	9
<i>Brian Walker, Subbaiah M. Pemmaiah</i>	
A Probe Antenna with an Integrated Band-Pass Filter Via Shielded SIW	14
<i>Pouya Faeghi, Jeffrey S. Walling</i>	
On the Performance of Multi-Wavelength Underwater Optical Channels in the Presence of Optical Turbulence.....	18
<i>Shideh Tayebnaimi, Kamran Kiasaleh</i>	
A 2.4 GHz Adaptive Radar Platform for Educational Activities on Cognitive Radars.....	24
<i>Roman Venegas, Wesley Miller, Ahsan Mehmud, Mariea S. Anzum, Arya Menon</i>	
Evaluating Microwave BJTs for Use as a 6 GHz Noise Source	30
<i>Thomas Henderson</i>	
A Psuedo-Differential Transimpedance Amplifier with 36 GHz Bandwidth Via Inductive Peaking in 22-nm FDSOI CMOS.....	34
<i>Sareh Bavandi, Kamran Entesari</i>	
Development and Flight Tests of Wing-Mounted T/R Modules for a UAS-borne Multichannel VHF Ice Penetrating Radar	38
<i>J. Barnhill, W. Fischer, C. Lindsey, S. McMillan, B. Mura, B. Peek, M. Rahman, A. Sethi, E. Arnold, D. Gomez-Garcia, S. Kaundinya, C. Leuschen, J. Li, F. Rodriguez-Morales</i>	
Design of a Beam-Steering Algorithm with a Reconfigurable Reflectarray.....	43
<i>Luke Mello, Justin Roessler, Austin Egbert, Charles Baylis, Robert J. Marks, Alex Bouvy, Benjamin Kirk</i>	
Estimating FPGA-Based Terahertz Transmitter Chain Performance for Live Data Flow	47
<i>G. Levi Captain, John F. O'Hara</i>	
Model Enhancement for UAV Stealth in X-Band.....	53
<i>Dizdar Unalir, Bengisu Yalcinkaya, Elif Aydin</i>	
Dynamic Blazed Metasurface Grating Mechanism for Terahertz Beam Steering	58
<i>Fahim Ferdous Hossain, John F. O'Hara</i>	
Measurement Validation of AI-Powered Multidimensional Nonlinear Load-Pull Extrapolation	63
<i>Jonathan E. Swindell, Adam C. Goad, Austin Egbert, Casey Latham, Matthew Ozalas, Andy Howard, Daren McClearnon, Charles Baylis, Robert J. Marks</i>	
Dual-Band Planar Magneto-Inductive Waveguide for WiFi Operating Frequencies.....	67
<i>Daniel Agu, Jayshri Kulkarni, Yang Li</i>	

In-Situ Current Measurements of Wideband Signals for Radar Arrays.....	72
<i>David W. Cox, Adam C. Goad, Jonathan E. Swindell, Austin Egbert, Charles Baylis, Robert J. Marks</i>	
A MEMS-Switched Decade-Bandwidth Tunable Notch Filter for Low-Loss, High-Linearity, Wideband Receiving Applications.....	78
<i>Justin Roessler, Emma Lever, Luke Mello, Austin Egbert, Charles Baylis, Robert J. Marks, Alex Bouvy, Benjamin Kirk</i>	
Effect of Implantable Pulse Generator (IPG) Impedance on the MRI Conditionality of AIMDs Under 1.5T MRI.....	82
<i>Farshad Ebrahimi, Farzad Mir, Yuhui Xu, Qingyan Wang, Jianfeng Zheng, Ji Chen</i>	
An Asymmetric Tandem Coupler with Impedance Matching Elements for 12.5–25 GHz Operation.....	86
<i>Osian Jones, Taylor Barton</i>	
An Analysis of the Accuracy of the Added Length De-Embedding Methods for Coaxial to Waveguide Adapters in the X-Band	90
<i>Eric Bauman, James Depoy, Sterling Light, Arya Menon, Marco Iskander</i>	
A Comparative Study of Cuff Electrode Designs: RF-Induced Heating in MRI and Therapeutic Efficiency	96
<i>Yuhui Xu, Lijian Yang, Lingfei Zhang, Zhongrui Wang, Ji Chen</i>	
Neural Network Based Dynamic Impedance Matching for Transmitter Efficiency Enhancement in Implantable Devices	101
<i>Shobak Kythakyapuzha, Oren Eliezer, Sule Ozev, Jennifer Kitchen</i>	
Cost-Effective 4×4 3D Printed Interdigital Fed SRR Based MIMO Antenna for IoT Application	105
<i>Tanner O'Neill, Russell Capuno, Daniel Agu, Yang Li, Tamid Latif, Jayshri Kulkarni</i>	
A Tilted Beam Circularly Polarized Air Filled SIW Multi-Beam Antenna Array	111
<i>Asif Alam, Muhammad Shah Alam, Khalid Almuhanna</i>	
Investigation of Numerical Techniques for Analyzing Periodic Leaky-Wave Antennas Using Commercial Full-Wave Solvers.....	116
<i>Pratik Deb, David R. Jackson, Francisco Mesa, Guido Valerio, Oscar Quevedo-Teruel</i>	
Alleviating Notch Filtering Impacts on Radar Range Detection with the Gerchberg-Saxton Algorithm	121
<i>Emma Lever, Justin Roessler, Austin Egbert, Charles Baylis, Robert J. Marks, Alex Bouvy, Benjamin Kirk</i>	
Detection of Eye Blinking in Automotive Environments Using a FMCW Radar	126
<i>James Usher, Yang Li</i>	
Ray-Tracing Antenna Array Simulation in MATLAB with Steering Vectors and Element-Level Design in Real-World Environments.....	130
<i>Erik Pineda-Alvarez, Ifana Mahub</i>	
Underground Wireless Communication Using Toroidal Antennas and Steel Casing in Downhole Environments.....	136
<i>Tauseef Ashraf, Jiefu Chen, Shubin Zeng</i>	

Flexible Substrates Toward Deformable, Stretchable and Deployable Smart-Skins Integrating Energy-Efficient Active-Antennas Using Correlation Technologies	142
<i>S. Wane, T. V. Dinh, A. E. Cabrera, M. Harnois, T. Boisseau, D. Bajon, M. Bouchez, D. Gonzalez-Ovejero, A. Bousseksou, C.-A. Tavernier, D. Floriot, W. Saabe, T. Gasselting</i>	
AI-Powered Physics-Informed Correlation Technologies for Advanced Thermal-Imaging in Near and Far Fields	148
<i>S. Wane, D. Kendig, T. V. Dinh, A. E. Cabrera, Q. H. Tran, D. Bajon, P. Eudeline, I. K. Tanke, D. W. Van Der Weide</i>	
Reduction of Mutual Coupling in K-Band Microstrip Antennas: A Study on 4×4 Arrays with Defected Ground Structures	154
<i>Nayan Sarker, Ifana Mahbub</i>	
Design of a Compact Implantable Antenna for ISM-Band Biomedical Telemetry	158
<i>Eduarda V. M. Santos, Sandro T. M. Goncalves, Ursula C. Resende, Davi V. Q. Rodrigues</i>	
A K-Band Horn Antenna Assembled from Two 3D Printed and Painted Halves	163
<i>Joseph Cameron, Christopher Williams, Aaron B. Carmen, Changzhi Li</i>	

Author Index