
ELECTROMAGNETIC WAVES
PIERC 119

Progress

In

Electromagnetics

Research C

© 2022 EMW Publishing. All rights reserved.

No part of this publication may be reproduced. Request for permission should be addressed to the Publisher.

All inquiries regarding copyrighted material from this publication, manuscript submission instructions, and subscription orders and price information should be directed to: EMW Publishing, P. O. Box 425517, Kendall Square, Cambridge, Massachusetts 02142, USA.

E-ISSN 1937-8718

ELECTROMAGNETIC WAVES
PIERC 119

Progress
In
Electromagnetics
Research C

Chief Editors: Weng Cho Chew and Sailing He

EMW Publishing
Cambridge, Massachusetts, USA

CONTENTS

Redefining of the Radar Cross Section and the Antenna Gain to Make Them Suitable for Surface Wave Propagation	
Quentin Herbette, Muriel Darces, Nicolas Bourey, Stéphane Saillant, Florent Jangal, and Marc Hélier	1
Compact Negative-Permittivity Microstrip Patch Antenna for End-Fire Radiation	
Masoud Ahmadi, Bruce Veidt, and Loïc Markley	17
A New Fault Location Method Independent of Line Parameters	
Lihui Zhao, Jingwei Zhu, Hongzhe Yang, and Bin Gu	31
The Design and Implementation of an RF Energy Harvesting System Using Dynamic Pi-Matching, Enabling Low-Power Device Activation and Energy Storage	
B. V. S. Suwan, W. W. G. Vidula, W. K. I. L. Wanniarachchi, C. H. Manathunga, and S. Jayawardhana	49
Large Intelligent Surface-Assisted Wireless Communication and Path Loss Prediction Model Based on Electromagnetics and Machine Learning Algorithms	
Wael Elshennawy	65
Full Duplex High Speed Data Transmission Based on Partially Coupled Coils in Wireless Power Transmission Systems	
Jianxiong Li and Wenlong Yang	81
Multi-Objective Optimization and Analysis of Six-Pole Outer Rotor Hybrid Magnetic Bearing	
Gai Liu, Zhihao Ma, Huangqiu Zhu, Jingbo Sun, and Junqi Huan	97
Arrow Cross Shape Slotted Fractal Antenna with Enhanced Bandwidth for Wi-Fi/WiMAX/WLAN Applications	
Rani Rudrama Kodali, Polepalli Siddaiah, and Mahendra Nanjappa Giri Prasad	115
Dual Band Two Element Rim Based MIMO Antennas with Coupling Manipulation for Low SAR Mobile Handsets	
Muhammad A. Jamshed, Tim W. C. Brown, and Fabien Héliot	125
Modified Patch and Ground Plane Geometry with Reduced Resonant Frequency	
Khan Masood Parvez, Tabish Ali, and Satyabrata Maiti	135
A Compact Microstrip Four Port Dual Circularly Polarized MIMO Antenna for Sub-6G Application	
Zhong Yu, Leiyan Huang, Qi Gao, and Yanping Chen	145
Design and Characteristics Mode Analysis of a Cantor Set Fractal Monopole Antenna for IoT Applications	
Geeta Kalkhambkar, Rajashri Khanai, and Pradeep Chindhi	161

Tri-Band Bandpass Filter Using Mixed Short/Open Circuited Stubs and Q -Factor with Controllable Bandwidth for WAS, ISM, and 5G Applications

Omar C. Massamba, Pierre Moukala Mpele, Franck Moukanda Mbango,
and Désiré Lilonga-Boyenga 177

A Dual-Band High-Gain Substrate Integrated Waveguide Slot Antenna for 5G Application

Umesh Singh and Rajesh Mishra 191

Beamforming for 5G Cellular Communications with Analyzing the Linear and Circular Polarized Antenna Arrays Gain Effect

Amany Mohamed Saleh, Mahmoud Mohamed Elmesalawy, Korany Ragab Mahmoud,
and Ibrahim Ismail Ibrahim 201

A Flower Shaped Miniaturized 4×4 MIMO Antenna for UWB Applications Using Characteristic Mode Analysis

Ankireddy C. Suresh and Thatiparthi Sreenivasulu Reddy 219

Bat Shaped Circularly Polarized Antenna for X and Ku Band Applications

Sweta Singh, Karunesh Srivastava, Farha Usman, and Ram Suchit Yadav 235

High-Gain Reflectarray with Compact Aperture Size and a Low Profile Using an Active-Integrated Feeding Antenna

Yen-Sheng Chen and Yu-Hong Wu 245

UWB Compact Microstrip Patch Antenna with High Directivity Using Novel Star-Shaped Frequency Selective Surface

Rajesh Kumar and Devi Charan Dhubkarya 255

Scattering of Electromagnetic Waves by Impedance Biconical Vibrators in a Free Space and in a Rectangular Waveguide

Mikhail V. Nesterenko, Andrey V. Gomozov, Victor A. Katrich, Sergey L. Berdnik,
and Victor I. Kijko 275