
ELECTROMAGNETIC WAVES

PIER 159

Progress

In

Electromagnetics

Research

© 2017 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.

ISSN 1070-4698

E-ISSN 1559-8985

ELECTROMAGNETIC WAVES
PIER 159

Progress
In
Electromagnetics
Research

Chief Editors: Weng Cho Chew and Sailing He

EMW Publishing
Cambridge, Massachusetts, USA

CONTENTS

Multilayered Broadband Antenna for Compact Embedded Implantable Medical Devices: Design and Characterization

Aleix Garcia-Miquel, Sergio Curto, Neus Vidal, Jose Maria Lopez-Villegas, Francisco M. Ramos and Punit Prakash 1

A Compact CPW Fed CRR Loaded Four Element Metamaterial Array Antenna for Wireless Application

Naveen Mishra and Raghvendra Kumar Chaudhary 15

Multi-Band Antenna Array Based on Double Negative Metamaterial for Multi Automotive Applications

Abdulrahman S. M. Alqadami, Mohd F. Jamlos, Imtiaz Islam, Ping J. Soh, Rizalman Mamat Khairil A. Khairi and Adam Narbudowicz 27

Layer-by-Layer Design of Bianisotropic Metamaterial and Its Homogenization

Liang Peng, Xiaoxiao Zheng, Kewen Wang, Shuaifei Sang, Yuntian Chen, and Gaofeng Wang ... 39

On the Radiation from a Short Current-Carrying Straight Wire Oriented Perpendicular to a Stratified Medium

Mauro Parise and Giulio Antonini 49

Electromagnetic Theory with Discrete Exterior Calculus

Shu C. Chen and Weng Cho Chew 59

An X/Ku-Band Focusing Anisotropic Metasurface for Low Cross-Polarization Lens Antenna Application

Hai-Peng Li, Guang-Ming Wang, Xiang-Jun Gao, Jian-Gang Liang, and Hai-Sheng Hou 79

Illumination Optics in Emerging Naked-Eye 3D Display

Aiqin Zhang, Jiahui Wang, Haowen Liang, Hang Fan, Kunyang Li, Peter Krebs and Jianying Zhou 93

Magneto-Inductive Magnetic Resonance Imaging Duodenoscope

Richard R. A. Syms, Evdokia Kardoulaki, Marc Rea, Kaushal Choonee, Simon Taylor-Robinson Christopher Wadsworth and Ian R. Young 125

State-of-the-Art Electromagnetics Research in Electric and Hybrid Vehicles

Kwok Tong Chau, Chaoqiang Jiang, Wei Han, and Christopher H. T. Lee 139