
ELECTROMAGNETIC WAVES
PIER 171

Progress

In

Electromagnetics

Research

© 2021 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 171

Progress
In
Electromagnetics
Research

Chief Editors: Weng Cho Chew and Sailing He

EMW Publishing
Cambridge, Massachusetts, USA

CONTENTS

Non-Hermitian Electromagnetic Metasurfaces at Exceptional Points

Zhipeng Li, Guangtao Cao, Chenhui Li, Shaohua Dong, Yan Deng, Xinke Liu, John S. Ho
and Cheng-Wei Qiu 1

Multimodal 2.5D Convolutional Neural Network for Diagnosis of Alzheimer’s Disease with Magnetic Resonance Imaging and Positron Emission Tomography

Xuyang Zhang, Weiming Lin, Min Xiao, and Huazhi Ji 21

Analytical Kirchhoff Solutions (AKS) and Numerical Kirchhoff Approach (NKA) for First-Principle Calculations of Coherent Waves and Incoherent Waves at P Band and L Band in Signals of Opportunity (SoOp)

Bowen Ren, Jiyue Zhu, Leung Tsang, and Haokui Xu 35

Free-Electron Radiation Engineering via Structured Environments

Hao Hu, Xiao Lin, and Yu Luo 75

Reconfigurable Antennas: A Review of Recent Progress and Future Prospects for Next Generation

Ryan J. Beneck, Arkaprov Das, Galestan Mackertich-Sengerdy, Ryan J. Chaky, Yuhao Wu
Saber Soltani and Douglas H. Werner 89

A Novel Model of Unipolar Induction Phenomena Based on Direct Interaction between Conductor Charges

Christof Baumgärtel, Ray T. Smith, and Simon Maher 123

Calculations of Bands and Band Field Solutions in Topological Acoustics Using the Broadband Green’s Function-KKR-Multiple Scattering Method

Leung Tsang, Tien-Hao Liao, and Shurun Tan 137

Biosensing Performance of a Plasmonic-Grating-Based Nanolaser

Haoran Zhang, Jiacheng Sun, Jie Yang, Israel De Leon, Remo Proietti Zaccaria, Haoliang Qian
Hongsheng Chen, Gaofeng Wang, and Tao Wang 159

Mechanisms and Modeling of 2D-Materials-Based Resistive Random Access Memory Devices

Hao Xie, Zhili Wang, Yanbin Yang, Xiaohui Hu, Hong Liu, and Wei Qi 171

Deep Neural Networks for Image Super-Resolution in Optical Microscopy by Using Modified Hybrid Task Cascade U-Net

Dawei Gong, Tengfei Ma, Julian Evans, and Sailing He 185