

## Featured Books from Cambridge!

### *The Cambridge RF and Microwave Engineering Series*

#### **Handbook of RF and Microwave Power Amplifiers**

*Edited by John L.B. Walker*  
Hb: 978-0-521-76010-2

#### **Nonlinear Transistor Model Parameter Extraction Techniques**

*Edited by Matthias Rudolph, Christian Fager, and David E. Root*  
Hb: 978-0-521-76210-6

#### **Nonlinear RF Circuits and Nonlinear Vector Network Analyzers** Interactive Measurement and Design Techniques

Patrick Roblin  
Hb: 978-0-521-88995-7

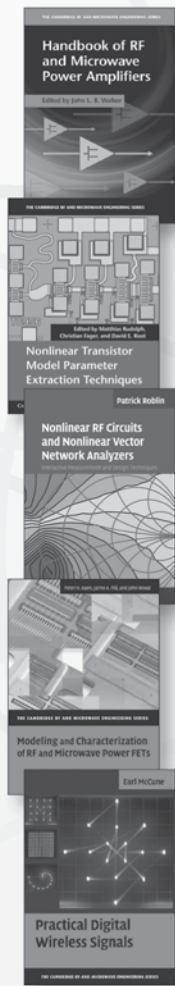
New in Paperback!

#### **Modeling and Characterization of RF and Microwave Power FETs**

Peter H. Aaen, Jaime A. Plá, and John Wood  
Pb: 978-0-521-33617-8

#### **Practical Digital Wireless Signals**

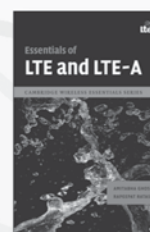
Earl McCune  
Hb: 978-0-521-51630-3



### *Cambridge Wireless Essentials Series*

#### **Essentials of LTE and LTE-A**

Amitabha Ghosh and Rapeepat Ratasuk  
Hb: 978-0-521-76870-2



#### **Carbon Nanotube and Graphene Device Physics**

H.-S Philip Wong and Deji Akinwande  
Hb: 978-0-521-51905-2

Second Edition

#### **Computational Electromagnetics for RF and Microwave Engineering**

David B. Davidson  
Hb: 978-0-521-51891-8



Prices subject to change.

#### **Digital Front-End in Wireless Communications and Broadcasting** Circuits and Signal Processing

*Edited by Fa-Long Luo*  
Hb: 978-1-107-00213-5

#### **Numerical Electromagnetics** The FDTD Method

Urman S. Inan and Robert A. Marshall  
Hb: 978-0-521-19069-5

Visit [www.cambridge.org/rf12](http://www.cambridge.org/rf12) to view our 2012 RF and Microwave Engineering Catalogue



INTERNATIONAL JOURNAL OF  
**MICROWAVE AND WIRELESS TECHNOLOGIES**

Special Issue: European Microwave Week 2011

Guest Editors: Ian Robertson, Stepan Lucyszyn and Tony Brown

## CONTENTS

### GUEST EDITORIAL

#### Guest Editorial, EuMW Special Issue

Ian Robertson, Stepan Lucyszyn and Tony Brown 257

### RESEARCH PAPERS

#### Active frequency-tripler MMICs for 300 GHz signal generation

Ulrich Johannes Lewark, Axel Tessmann, Hermann Massler, Sandrine Wagner, Arnulf Leuther and Ingmar Kalfass 259

#### A high-gain high-power amplifier MMIC for V-band applications using 100 nm AlGaIn/GaN dual-gate HEMTs

Dirk Schwantuschke, Christian Haupt, Rudolf Kiefer, Peter Brückner, Matthias Seelmann-Eggebert, Axel Tessmann, Michael Mikulla, Ingmar Kalfass and Rüdiger Quay 267

#### Low-power 8-bit 5-GS/s digital-to-analog converter for multi-gigabit wireless transceivers

Behnam Sedighi, Mahdi Khafaji and Johann Christoph Scheytt 275

#### A G-band cryogenic MMIC heterodyne receiver module for astronomical applications

Patricia Voll, Lorene Samoska, Sarah Church, Judy M. Lau, Matthew Sieth, Todd Gaier, Pekka Kangaslahti, Mary Soria, Sami Tantawi and Dan Van Winkle 283

#### Wireless multi-gigabit data transmission using active MMIC components at 220 GHz

Jochen Antes, Daniel Lopez-Diaz, Axel Tessmann, Arnulf Leuther, Hermann Massler, Thomas Zwick, Oliver Ambacher and Ingmar Kalfass 291

#### Technology developments for a large-format heterodyne MMIC array at W-band

Matthew Sieth, Sarah Church, Judy M. Lau, Patricia Voll, Todd Gaier, Pekka Kangaslahti, Lorene Samoska, Mary Soria, Kieran Cleary, Rohit Gawande, Anthony C.S. Readhead, Rodrigo Reeves, Andrew Harris, Jeffrey Neilson, Sami Tantawi and Dan Van Winkle 299

#### A 120 GHz FMCW radar frontend demonstrator based on a SiGe chipset

Martin Jahn and Andreas Stelzer 309

#### 76.5 GHz millimeter-wave radar for foreign objects debris detection on airport runways

Karim Mazouni, Armin Zeitler, Jérôme Lanteri, Christian Pichot, Jean-Yves Dauvignac, Claire Migliaccio, Naruto Yonemoto, Akiko Kohmura and Shunichi Futatsumori 317

#### 24GHz Digital beamforming radar with T-shaped antenna array for three-dimensional object detection

Marlene Harter, Tom Schipper, Lukasz Zwirello, Andreas Ziroff and Thomas Zwick 327

#### Study of receiver design in a MIMO SAR configuration

Vishal Riché, Stéphane Méric and Éric Pottier 335

#### A low-cost millimeter-wave whispering gallery-mode-based sensor: design considerations and accurate analysis

Aidin Taeb, Mohammad Neshat, Suren Gigoyan and Safieddin Safavi-Naeini 341

#### A time domain transmission measurement system for dielectric characterizations

Bianca Will, Michael Gerding, Christian Schulz, Christoph Baer, Thomas Musch and Ilona Rolfes 349

#### Finite-element analysis of infinite and finite arrays

John B. Manges, John W. Silvestro and Kezhong Zhao 357

#### An enhanced integral-equation formulation for accurate analysis of frequency-selective structures

Guido Valerio, Alessandro Galli, Donald R. Wilton and David R. Jackson 365

#### Design of wide-band dual-polarized aperture array antennas

Yongwei Zhang and Anthony K. Brown 373

#### Advanced characterization of a W-band phase shifter based on liquid crystals and MEMS technology

Carsten Fritzsche, Flavio Giacomozzi, Onur Hamza Karabey, Saygin Bildik, Sabrina Colpo and Rolf Jakoby 379

#### New pulsed measurement setup for GaN and GaAs FETs characterization

Alberto Santarelli, Rafael Cignani, Daniel Niessen, Pier Andrea Traverso and Fabio Filicori 387

#### Wireless space-division-multiplexed signal discrimination device using electro-optic modulator with antenna-coupled electrodes and polarization-reversed structures

Hiroshi Murata, Ryota Miyayaka and Yasuyuki Okamura 399