

2019 29th International Conference Radioelektronika (RADIOELEKTRONIKA 2019)

**Pardubice, Czech Republic
16 – 18 April 2019**



**IEEE Catalog Number: CFP1985B-POD
ISBN: 978-1-5386-9323-0**

**Copyright © 2019 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:	CFP1985B-POD
ISBN (Print-On-Demand):	978-1-5386-9323-0
ISBN (Online):	978-1-5386-9322-3

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

Electronic Circuits and Systems

Comparison of the Methods of Graphical Solution of Symbolic Sensitivity	13
<i>Bohumil Brtnik</i>	
Design of A Low-Dropout Linear Regulator In 0.13 μm CMOS Technology.....	
<i>Mamun Bin Ibne Reaz, Md. Torikul Islam Badal</i>	
Maximizing GHz-MIMO Data Throughput by Optimization of Multi-Wire Transmission Line Port Impedances	22
<i>Jan Ortmann</i>	
Performance Analysis of ESD Structures in 130 nm CMOS Technology for Low-Power Applications	
<i>Lukas Nagy, Ales Chvala, Juraj Marek, Miroslav Potocny, Viera Stopjakova</i>	28
Integrated Active Filter for M-Sequence UWB Radar	34
<i>Martin Pecovsky, Pavol Galajda, Miroslav Sokol, Stanislav Slovak</i>	
Start-up Current Overshoot Mitigation for a Laser Driver in Forward-Bias Drift Circumstance	
<i>Kai-Jun Pai</i>	
On the canonical circuit realizations of fourth-order and fifth-order hyperjerk chaotic function ..	45
<i>Jiri Petrzela</i>	
New Solution of a Frequency Filter with Reconnection-less Reconfiguration of Its Transfer	51
<i>Lukas Langhammer, Roman Sotner, Tomas Dostal</i>	
Ultra-Low Power Identification in Explosive Environments	55
<i>Ales Povalac, Tomas Mikulasek, Filip Zaplata</i>	
Experiments with Coupled Phase Locked Loops	59
<i>Milan Stork</i>	
Linearization performance Vs Implementation properties of Digital Predistorter Modelling for Three-Way Doherty Power Amplifier	63
<i>Chouaib Kantana, Genevieve Baudoin, Olivier Venard</i>	
A Multichannel Data Logger for Monitoring FSO Terminal.....	70
<i>Petr Skryja, Marek Novak, Peter Barcik</i>	
Determination of FR-4 Dielectric Constant for Design of Microstrip Band-Stop Filter Purposes ..	74
<i>Tomas Bielik, Bohumil Adamec, Vladimir Hottmar</i>	

Power Supply System for Industrial Packaged Magnetrons Group	80
<i>Artem I. Zemtsov, Ivan I. Artyukhov</i>	
Operational Frequency Bandwidth Rescalable Implementations of Constant Phase Devices	85
<i>Roman Sotner, Jan Jerabek, Lukas Langhammer, Ladislav Polak, Winai Jaikla, Pipat Prommee</i>	
Multi-band Digital Distributed Antenna System	91
<i>Gyula Miko, András Nemeth</i>	
Comparison of Class C and High Efficiency Class E Amplifiers at 435 MHz	95
<i>Erik Herceg, Tomas Urbanec</i>	
Efficient PRNG Design and Implementation for Various High Throughput Cryptographic and Low Power Security Application.....	99
<i>Bikram Paul, Pidanic Jan, Zdenek Nemec, Gaurav Trivedi</i>	
The Impact of PAPR on the Wireless Power Transfer in IoT Applications.....	105
<i>Janis Eidaks, Anna Litvinenko, Dmitrijs Pikulins, Sergejs Tjukovs</i>	
Optimizing Bias Point of High Efficiency Class-B GaN Power Amplifier for the Best Efficiency	110
<i>Ondrej Fiser, Tomas Gotthans</i>	
Mathematical Analysis of Parasitic Elements Influence in Resonant Circuit of RFID Antenna	114
<i>Martin Vestenický, Peter Vestenický</i>	
Integrated ABB and DVS: A Post-silicon Tuning Approach for Parametric Yield Enhancement in Sub-45nm CMOS Technology	119
<i>Sunil Dutt, Jan Pidanic, Zdenek Nemec, Sukumar Nandi, Gaurav Trivedi</i>	
Design of 4-bit Flash ADC Cell for UWB Sensor Systems	123
<i>Miroslav Sokol, Pavol Galajda, Stanislav Slovak, Martin Pecovsky</i>	
Wideband Receiver for UWB Radars	128
<i>Stanislav Slovak, Pavol Galajda, Miroslav Sokol, Martin Pecovsky</i>	
Design and Practical Realization of Lumped Element RF Bandpass Filter	132
<i>Tomas Bielik, Bohumil Adamec, Vladimir Hottmar</i>	
Nonlinear distortion in a microwave high power amplifier	136
<i>Bezousek Pavel, David Matousek, Luboš Rejsek</i>	
Object Oriented EMT simulation framework for On-Grid Centralized Microgrid.....	140
<i>Swati Shukla, Praveen Tiwari, Pidanic Jan, Zdenek Nemec, Gaurav Trivedi</i>	

Signal Processing and Applications

Automatic analysis of the signals from the FMICW radars	148
<i>Lubos Rejsek, Phuong T. Tran, Dong Si Thien Chau, Ondrej Fiser, Pavel Chmelar, Karel Pitas, Pavel Bezousek</i>	

Polyphase Coded Radar Waveforms in Active Noise Jamming	152
<i>Jozef Perdoch, Zdenek Matousek, Jan Ochodnický, Jan Kurty</i>	
The Application of the Integration-Differentiation Method for the Measurement of the Fundamental Component of the Reactive Power.	158
<i>Andrey N. Serov, Nikolay A. Serov, Vadim A. Loginov</i>	
A Software Defined Radio Based Implementation for the Radio Frequency Analysis of Signals from Unmanned Aerial Systems	164
<i>Stefan Kunze, Alexander Weinberger, Rainer Poeschl</i>	
Sample Rate Converter Is As a Means of Reducing Measurement Error of the Voltage Spectrum by Application of FFT	170
<i>Andrey N. Serov, Aleksander A. Shatokhin, Gennady V. Antipov</i>	
Symbol Based Statistical RF Fingerprinting for Fake Base Station Identification	176
<i>Arslan Ali, Georg Fischer</i>	
Artificial Bandwidth Extension Using H Optimization and Speech Production Model	181
<i>Deepika Gupta, H. S. Shekhawat</i>	
Visual Quality Assessment Considering Ultra HD, Full HD Resolution and Viewing Distance	187
<i>Jan Kufa, Tomas Kratochvil</i>	
A GNU Radio Implementation for Frequency Hopping Spread Spectrum Receiver Synchronization	191
<i>Stefan Kunze, Michael Schiefer, Alexander Weinberger</i>	
Deep Learning Techniques for Speech Emotion Recognition : A Review	197
<i>Sandeep Kumar Pandey, H.S.Shekhwat, S.R.M.Prasanna</i>	
Novice User Experiences with a Voice-Enabled Human-Robot Interaction Tool	203
<i>Matus Pleva, Jozef Juhar, Stanislav Ondas, Christopher R. Hudson, Cindy L. Bethel, Daniel W. Carruth</i>	
Convolutional neural network for sound processing - study of deployed application	208
<i>Petr Dolezel, Dominik Stursa, Daniel Honc</i>	
DNN Based Music Emotion Recognition from Raw Audio Signal	213
<i>Richard Orjesek, Roman Jarina, Michal Chmulík, Michal Kuba</i>	
Reducing the complexity of FS-FBMC receivers using Hopping DFT	217
<i>Husam AL-AMAIREEH, Zsolt Kolla'r</i>	
Accessible Electroencephalograms (EEGs): A Comparative Review with OpenBCI's Ultracortex Mark IV Headset	222
<i>Audrey Aldridge, Eli Barnes, Cindy L. Bethel, Daniel W. Carruth, Marianna Kocturova, Matus Pleva, and Jozef Juhar</i>	
Acoustic events processing with Deep Neural Network	228
<i>David Conka, Anton Cizmar</i>	

Microwave Imaging Algorithm for Detecting Brain Disorders	232
<i>Imran Saied, Tughrul Arslan</i>	
A Somewhat Homomorphic Encryption Scheme based on Multivariate Polynomial Evaluation ..	237
<i>Uddipana Dowerah, Srinivasan Krishnaswamy</i>	
Radar Workstation Simulator - Indispensable Part of the Digital Simulator of Radar Targets and Clutter	243
<i>Sinisa Lackovic, Mirko Jukl, Fran Pregernik</i>	
Total Electron Content Measurements by Single-Frequency GPS Receiver	248
<i>Lubos Rejsek, Karel Pitas, Jaroslav Urbar, Pavel Chmelar</i>	
Evaluation of FMCW Radar for Vibration Sensing in Industrial Environments	253
<i>Christian Zeintl, Florian Eibensteiner, Josef Langer</i>	
The Automatic Undistortion Strength Estimation for Any Describable Optical Distortion	258
<i>Natalija Chmelarova, Pavel Chmelar, Lubos Rejsek</i>	
The Fine Plane Range Estimation From Point Cloud	263
<i>Natalija Chmelarova, Pavel Chmelar, Lubos Rejsek</i>	
A Beam Coding Technique for Direction Finding of Moving Object.....	268
<i>Thanh Bang Le, Jiri Vesely</i>	
Vibration measurement and analysis of mechanical design of the antenna radar system	274
<i>Josef Jordan</i>	
Simple Calibration of FMCIW 35 GHz Meteorological Radar “PCDR 35”.....	278
<i>Ondrej Fiser, Karel Pitas</i>	
Discrete Wavelet Design for Target Classification in Pulse-Doppler Surveillance Radar	282
<i>Michael Mesarcik, Simon Lewis, Amit Mishra, Jan Pidanic, Karel Juryca</i>	
Tuning Parameters of the Koch and Zhao Stego Algorithm	288
<i>Oleksii Fedorov, Anatolii Omelchenko, Andrii Yaurov</i>	
Detection and Recognition of Signals in HF Radio Monitoring	293
<i>Valeriy Bezruk, Stanislav Ivanenko, Oleksii Fedorov, Zdenek Nemec, Jan Pidanic</i>	

Information Technologies

Comparison of Helix Antennas Operated on 2.4, 5.2 and 9.2GHz for FSO/RF Hybrid System.....	300
<i>Michal Marton, Lubos Ovsenik, Jan Turan, Michal Spes, Jakub Urbansky</i>	
Evaluation of CP-DQPSK Modulated DWDM System with Highly Nonlinear Fiber in C Band	
<i>Tomas Huszanik, Jan Turan, Lubos Ovsenik</i>	

Analysis of Indoor LTE-DL/Wi-Fi Coexistence Scenarios with Automated Measurement Testbed	308
<i>Jiri Milos, Ladislav Polak, Stanislav Rozum</i>	
Efficient Partial Firmware Update for IoT Devices with Lua Scripting Interface	313
<i>Marek Novak, Petr Skryja</i>	
Radio resource management for wireless networks.	317
<i>Dominik Neznik, Lubomir Dobos, Jan Papaj</i>	
The Concept of 2-Layer Routing for Wireless 5G Networks and Beyond	323
<i>David Hrabcak, Lubomir Dobos, Jan Papaj</i>	
Low-level Code Auto-tuning for State-of-the-art Multicore Architectures	328
<i>Alexey Ivutin, Anna Troshina, Alexander S. Novikov</i>	
An Overview of the IEEE 802.15.4z Standard and its Comparison to the Existing UWB Standards	334
<i>Petr Sedlacek, Martin Slanina, Pavel Masek</i>	
Utilization of machine learning to detect sudden water leakage for smart water meter	340
<i>Jan Merta, Jan Fikejz</i>	
Optimization Strategies for Automated Parallelization for Multicore Architectures	345
<i>Alexey Ivutin, Anna Troshina, Alexander S. Novikov</i>	
Estimation of the Capacity of Human Perception using	351
<i>Marie Nedvedova, Jaroslav Marek</i>	