



MAREW 2019 Microwave and Radio Electronics Week 2019

APRIL 16-18, 2019
Pardubice | Czech Republic

29th International Conference Radioelektronika 2019
19th International Conference on Microwave Techniques 2019

29th International Conference Radioelektronika 2019

19th Conference on Microwave Techniques

COMITE 2019

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MAREW 2019 - Preliminary Conference program

Tuesday - April, 16 9:00	Wednesday - April, 17 9:00	Thursday - April, 18 8:00
Opening Session: RADIO 2019 and COMITE 2019 Room A 10:30	RADIO 2019 ECaS - Room A 10:20	RADIO 2019 SPaA - Room B 10:20
Coffee break 10:50	Coffee break 11:00	Poster Session Radio & COMITE 11:00
RADIO 2019 ECaS - Room A 12:50	RADIO 2019 SPaA - Room B 12:50	RADIO 2019 - Room A 10:55
Lunch 13:40	RADIO 2019 IT - Room A 12:20	COMITE 2019 - Room B 10:55
RADIO 2019 ECaS - Room A 15:20	Lunch 13:10	Closing Session & Student Award Ceremony Room A 11:30
Coffee break 15:40	RADIO 2019 ECaS - Room A 14:10	Lunch 12:30
RADIO 2015 ECaS - Room A 17:20	COMITE 2019 - Room B 14:10	
COMITE 2019 - Room B 15:20	Brewery Excursion (PARDUBICKÝ PIVOVAR)	
Tuesday 19:00 - 23:00 Evening party		

Registration: Tuesday 16 April 2019 8:00 - 15:00, Wednesday 17 April 2019 9:00 - 10:00

RADIO 2019			Tuesday, April 16, 9:00 - 10:30
A1 - Opening Session (Room H) <i>Session Chair: Zdenek Nemec, Jan Pidanic, University of Pardubice, Czech Republic</i>			
		Welcome addresses	Zdenek Nemec, Jan Pidanic, Paul Charles Hooper University of Pardubice
	A1/1	Matched Feed Design for Offset Reflector Antennas	Bhattacharjee R. Indian Institute of Technology Guwahati, Asam, India
	A1/2	5G NR technology aspects and status – what are the test and measurements challenges for a successful deployment of 5G NR?	Reiner Stuhlfauth Rohde & Schwarz
		Classrooms of the Digital Age	TR Instruments spol. s r.o. Ivo Ricanek
RADIO 2019			Tuesday, April 16, 10:50 - 12:50
A2 - Electronics Circuits and Systems (Room A) <i>Session Chair: Ondrej Fiser, University of Pardubice, Czech Republic</i>			
10:50 - 11:10	A2/1	Integrated Active Filter for M-Sequence UWB Radar	Martin Pecovsky, Pavol Galajda, Miroslav Sokol, Stanislav Slovak
11:10 - 11:30	A2/2	Wideband Receiver for UWB Radars	Stanislav Slovak, Pavol Galajda, Miroslav Sokol, Martin Pecovsky
11:30 - 11:50	A2/3	Operational Frequency Bandwidth Rescalable Implementations of Constant Phase Devices	Roman Sotner, Jan Jerabek, Lukas Langhammer, Ladislav Polak, Winai Jaikla, Pipat Prommee
11:50 - 12:10	A2/4	Design of 4-bit Flash ADC Cell for UWB Sensor Systems	Miroslav Sokol, Pavol Galajda, Stanislav Slovák, Martin Pecovsky
12:10 - 12:30	A2/5	A Multichannel Data Logger for Monitoring FSO Terminal	Petr Skryja, Marek Novák, Peter Barcik
12:30 - 12:50	A2/6	Mathematical Analysis of Parasitic Elements Influence in Resonant Circuit of RFID Antenna	Martin Vestenicky, Peter Vestenicky
B2 - Signal Processing and Applications (Room B) <i>Session Chair: Tomas Kratochvil, Brno University of Technology, Czech Republic</i>			
10:50 - 11:10	B2/1	DNN Based Music Emotion Recognition from Raw Audio Signal	Richard Orjesek, Roman Jarina, Michal Chmulik, Michal Kuba
11:10 - 11:30	B2/2	A Software Defined Radio Based Implementation for the Radio Frequency Analysis of Signals from Unmanned Aerial Systems	Stefan Kunze, Alexander Weinberger, Rainer Poeschl

11:30 - 11:50	B2/3	The Fine Plane Range Estimation From Point Cloud	Natalija Chmelarova, Pavel Chmelar, Lubos Rejfk
11:50 - 12:10	B2/4	Acoustic events processing with Deep Neural Network	David Conka, Anton Cizmar
12:10 - 12:30	B2/5	Visual Quality Assessment Considering Ultra HD, Full HD Resolution and Viewing Distance	Jan Kufa, Tomas Kratochvil
12:30 - 12:50	B2/6	Novice User Experiences with a Voice-Enabled Human-Robot Interaction Tool	Matus Pleva, Jozef Juhar, Stanislav Ondas, Christopher R. Hudson, Cindy L. Bethel, Daniel W. Carruth
RADIO 2019 & COMITE 2019			Tuesday, April 16, 13:40 - 15:20
A3 - Electronics Circuits and Systems (Room A)			
<i>Session Chair: Oleksii Fedorov, Kharkiv National University of Radio Electronics, Ukraine</i>			
13:40 - 14:00	A3/1	New Solution of a Frequency Filter with Reconnection-less Reconfiguration of Its Transfer	Lukas Langhammer, Roman Sotner, Tomas Dostal
14:00 - 14:20	A3/2	Ultra-Low Power Identification in Explosive Environments	Ales Povalac, Tomas Mikulasek, Filip Zaplata
14:20 - 14:40	A3/3	Design and Practical Realization of Lumped Element RF Bandpass Filter	Tomas Bielik, Bohumil Adamec, Vladimir Hottmar
14:40 - 15:00	A3/4	Power Supply System for Industrial Packaged Magnetrons Group	Artem I. Zemtsov, Ivan I. Artyukhov
15:00 - 15:20	A3/5	Comparison of Class C and High Efficiency Class E Amplifiers at 435 MHz	Erik Herceg, Tomas Urbanec
B3 - COMITE (Room B)			
<i>Session Chair: Ratnajit Bhattacharjee, Indian Institute of Technology, India</i>			
		Measurement and simulation of electromagnetic wave scattering	SVS FEM s.r.o. Tibor Bachorec, Petr Svoboda
13:40 - 14:00	B3/1	Steerable Bifocal Lens-Array Antenna at 57-64 GHz	Olesya Bolkhovskaya, Valentin Seleznev, Alexander Rulkov, Alexander Maltsev
14:00 - 14:20	B3/2	Design of Electronically Steered Antenna Array in the X band	Ondřej Jaros, Ladislav Beran
14:20 - 14:40	B3/3	Design of a Triangular Slotted Parasitic Yagi Uda Antenna for Underwater Linear Sensor Network	Aliyu Dala and Arslan Tughrul

14:40 - 15:00	B3/4	ICAO Antenna for sidelobe suppression	Vadim Zavodny
15:00 - 15:20	B3/5	A New Design of Multi-band Antenna Array for 5G Cellular Phones Applications	Asma Khabba, Saida Ibnyaich , Moha M'Rabet Hassani
RADIO 2019 & COMITE 2019			Tuesday, April 16, 15:40 - 17:20
A4 - Electronics Circuits and Systems (Room A) <i>Session Chair: Jozef Perdoch, Armed Forces Academy of gen. M. R. Stefanik, Slovak Republic</i>			
15:40 - 16:00	A4/1	Comparison of the Methods of Graphical Solution of Symbolic Sensitivity	Bohumil Brtnik
16:00 - 16:20	A4/2	Performance Analysis of ESD Structures in 130 nm CMOS Technology for Low-Power Applications	Lukas Nagy, Ales Chvala, Juraj Marek, Miroslav Potocny, Viera Stopjakova
16:20 - 16:40	A4/3	Integrated ABB and DVS: A Post-silicon Tuning Approach for Parametric Yield Enhancement in Sub-45nm CMOS Technology	Sunil Dutt, Jan Pidanic, Zdenek Nemecek, Sukumar Nandi, Gaurav Trivedi
16:40 - 17:00	A4/4	Experiments with Coupled Phase Locked Loops	Milan Stork
17:00 - 17:20	A4/5	On the canonical circuit realizations of fourth-order and fifth-order hyperjerk chaotic function	Jiri Petrzela
RADIO 2019 & COMITE 2019			Tuesday, April 16, 15:40 - 17:20
B4 - COMITE (Room B) <i>Session Chair: Gaurav Trivedi, Indian Institute of Technology, India</i>			
15:40 - 16:00	B4/1	Identification and Suppression of Slot Modes in a Coaxial Magnetron	Mohit Kumar Joshi, Sandeep Kumar Vyas, Tapeswar Tiwari, Jan Pidanic, Zdenek Nemecek, Ratnajit Bhattacharjee
16:00 - 16:20	B4/2	Design and Realization of Novel RF Bandpass Filter Using Short-Circuited Coupling Element	Tomas Bielik, Bohumil Adamec, Vladimir Hottmar
16:20 - 16:40	B4/3	Waveguide Tuning Stub with Internal Choke	Vladimir Bilik
16:40 - 17:00	B4/4	Broadband Differentially-Fed Substrate-Integrated Directional Coupler	Slawomir Gruszczynski, Artur Rydosz, Robert Smolarz, Krzysztof Wincza
17:00 - 17:20	B4/5	Adaptive Pulse Compression Filter in Radar Receiver Application	Pavel Bezousek, Simeon Karamazov, Jiri Rolecek

RADIO 2019			Wednesday, April 17, 9:00 - 10:20
A5 - Electronics Circuits and Systems (Room A) <i>Session Chair: Vadim Zavodny, ELDIS Pardubice, s.r.o., Czech Republic</i>			
9:00 - 9:20	A5/1	Maximizing GHz-MIMO Data Throughput by Optimization of Multi-Wire Transmission Line Port Impedances	Jan Ortmann
9:20 - 9:40	A5/2	Determination of FR-4 Dielectric Constant for Design of Microstrip Band-Stop Filter Purposes	Tomas Bielik, Bohumil Adamec, Vladimir Hottmar
9:40 - 10:00	A5/3	Evaluation of CP-DQPSK Modulated DWDM System with Highly Nonlinear Fiber in C Band	Tomas Huszanik, Jan Turan, Lubos Ovsenik
10:00 - 10:20	A5/4	Comparison of Helix Antennas Operated on 2.4, 5.2 and 9.2GHz for FSO/RF Hybrid System	Michal Marton, Lubos Ovsenik, Jan Turan, Michal Spes, Jakub Urbansky
B5 - Signal Processing and Applications (Room B) <i>Session Chair: Oleksii Fedorov, Kharkiv National University of Radio Electronics, Ukraine</i>			
9:00 - 9:20	B5/1	Simple Calibration of FMCIW 35 GHz Meteorological Radar "PCDR 35"	Ondrej Fiser
9:20 - 9:40	B5/2	Evaluation of FMCW Radar for Vibration Sensing in Industrial Environments	Christian Zeintl, Florian Eibensteiner, Josef Langer
9:40 - 10:00	B5/3	Polyphase Coded Radar Waveforms in Active Noise Jamming	Jozef Perdoch, Zdenek Matousek, Jan Ochodnický, Jan Kurty
10:00 - 10:20	B5/4	Automatic analysis of the signals from the FMCIW radars	Lubos Rejfeč, Phuong T. Tran, Đồng Sĩ Thiên Châu, Ondrej Fiser, Pavel Chmelr Karel Pitas
RADIO 2019			Wednesday, April 17, 11:00 - 12:20
A6 - IT (Room A) <i>Session Chair: Petr Filip, University of Pardubice, Czech Republic</i>			
11:00 - 11:20	A6/1	Analysis of Indoor LTE-DL/Wi-Fi Coexistence Scenarios with Automated Measurement Testbed	Jiri Milos, Ladislav Polak, Stanislav Rozum
11:20 - 11:40	A6/2	An Overview of the IEEE 802.15.4z Standard and its Comparison to the Existing UWB Standards	Petr Sedlacek, Martin Slanina, Pavel Masek

11:40 - 12:00	A6/3	Low-level Code Auto-tuning for State-of-the-art Multicore Architectures	Alexey Ivutin, Anna Troshina, Alexander S. Novikov
12:00 - 12:20	A6/4	Radio resource management for wireless networks	Dominik Neznik, Lubomir Dobos, Jan Papaj
B6 - Signal Processing and Applications (Room B) <i>Session Chair: Vadim Zavodny, ELDIS Pardubice, s.r.o., Czech Republic</i>			
11:00 - 11:20	B6/1	Tuning Parameters of the Koch and Zhao Stego Algorithm	Oleksii Fedorov, Anatolii Omelchenko, Andrii Yaurov
11:20 - 11:40	B6/2	A Beam Coding Technique for Direction Finding of Moving Object	Thanh Bang Le, Jiri Vesely
11:40 - 12:00	B6/3	A GNU Radio Implementation for Frequency Hopping Spread Spectrum Receiver Synchronization	Stefan Kunze, Michael Schiefer, Alexander Weinberger
12:00 - 12:20	B6/4	Symbol Based Statistical RF Fingerprinting for Fake Base Station Identification	Arslan Ali, Georg Fischer
RADIO 2019 & COMITE 2019			Wednesday, April 17, 13:10 - 14:10
A7 - COMITE (Room A) <i>Session Chair: Lubos Rejfk, University of Pardubice, Czech Republic</i>			
13:10 - 13:30	A7/1	Optical Sensors Utilization as a Part of Intelligent Transport Systems	Jozef Dubovan, Michal Frniak, Jan Litvik, Miroslav Markovic, Milan Dado
13:30 - 13:50	A7/2	Possibilities of Using the Modified Equivalent Temperature Gradient for a Turbulent Atmosphere	Lucie Hudcova, Otakar Wilfert
13:50 - 14:10	A7/3	Theoretical Analysis of Slow-light in π -phase-shifted fiber Bragg grating for sensing applications	Krishna Mohan Dwivedi, Tomasz Osuch, Karel Juryca, Jan Pidanic, Gaurav Trivedi
B7 -Signal Processing and Applications(Room B) <i>Session Chair: David Matousek, University of Pardubice, Czech Republic</i>			
13:10 - 13:30	B7/1	The Application of the Integration-Differentiation Method for the Meas. of the Fundamental Component of the Reactive Power	Andrey N. Serov, Nikolay A. Serov, Vadim A. Loginov
13:30 - 13:50	B7/2	Detection and Recognition of Signals in HF Radio Monitoring	Valeriy Bezruk, Stanislav Ivanenko, Oleksii Fedorov, Zdenek Nemeč, Jan Pidanic
13:50 - 14:10	B7/3	Accessible Electroencephalograms (EEGs): A Comparative Review with OpenBCI's Ultracortex Mark IV Headset	Audrey Aldridge, Eli Barnes, Cindy L. Bethel, Daniel W. Carruth, Marianna Kocturova, Matus Pleva, and Jozef Juhar

RADIO 2019			Thursday, April 18, 8:00 - 9:20
A8 - Radioelektronika (Room A) <i>Session Chair: Tomas Zalabsky, University of Pardubice, Czech Republic</i>			
8:00 - 8:20	A8/1	Linearization performance Vs Implementation properties of Digital Predistorter Modelling for Three-Way Doherty Power Amplifier	Chouaib Kantana, Genevive Baudoin, Olivier Venard
8:20 - 8:40	A8/2	Efficient PRNG Design and Implementation for Various High Throughput Cryptographic and Low Power Security Application	Bikram Paul, Pidanic Jan, Zdenek Nemeec, Gaurav Trivedi
8:40 - 9:00	A8/3	Efficient Partial Firmware Update for IoT Devices with Lua Scripting Interface	Marek Novak, Petr Skryja
9:00 - 9:20	A8/4	The Concept of 2-Layer Routing for Wireless 5G Networks and Beyond	David Hrabcak, Lubomir Dobos, Jan Papaj
B8 - Signal Processing and Applications (Room B) <i>Session Chair: Gaurav Trivedi, Indian Institute of Technology, India</i>			
8:00 - 8:20	B8/1	Artificial Bandwidth Extension Using H Optimization and Speech Production Model	Deepika Gupta, H. S. Shekhawat
8:20 - 8:40	B8/2	Vibration measurement and analysis of mechanical design of the antenna radar system	Josef Jordan
8:40 - 9:00	B8/3	A Somewhat Homomorphic Encryption Scheme based on Multivariate Polynomial Evaluation	Uddipana Dowerah, Srinivasan Krishnaswamy
RADIO 2019 & COMITE 2019			Thursday, April 18, 9:40 - 10:55
A9 - Radioelektronika (Room A) <i>Session Chair: Ondrej Fiser, University of Pardubice, Czech Republic</i>			
9:40 - 9:55	A9/1	Deep Learning Techniques for Speech Emotion Recognition: A Review	Sandeep Kumar Pandey, H.S.Shekhawat, S.R.M.Prasanna
9:55 - 10:10	A9/2	Total Electron Content Measurements by Single-Frequency GPS Receiver	Lubos Rejfek, Karel Pitas, Jaroslav Urbar, Pavel Chmelar

10:10 - 10:25	A9/3	The Impact of PAPR on the Wireless Power Transfer in IoT Applications	Janis Eidaks, Anna Litvinenko, Dmitrijs Pikulins, Sergejs Tjukovs
10:25 - 10:40	A9/4	Object Oriented EMT simulation framework for On-Grid Centralized Microgrid	Swati Shukla, Praveen Tiwari, Pidanic Jan, Zdenek Nemec, Gaurav Trivedi
10:40 - 10:55	A9/5	Optimizing Bias Point of High Efficiency Class-B GaN Power Amplifier for the Best Efficiency	Ondřej Fišer, Tomáš Gotthans
B9 - COMITE (Room B) <i>Session Chair: Tomas Zalabsky, University of Pardubice, Czech Republic</i> <i>Ratnajit Bhattacharjee, Indian Institute of Technology, India</i>			
9:40 - 9:55	B9/1	Complex Relative Permittivity Measurement of Selected 3D-Printed Materials up to 10 GHz	Jaroslav Zechmeister, Jaroslav Lacik
9:55 - 10:10	B9/2	Inkjet Printed vs Screen Printed Microstrip Line on LTCC substrates	Krzysztof Szostak, Milena Kiliszkiwicz, Laura Jasinska, Piotr Słobodzian, Ryszard Korbutowicz, Karol Malecha
10:10 - 10:25	B9/3	Hexagonal-Cell Artificial Magnetic Conductor Waveguide	Martin Kokolia
10:25 - 10:40	B9/4	Accurate Excitation of Waveguides Using Discrete Ports Together With TRL Calibration	Ulrich Schumann, Andreas Jöstingmeier, Abbas Omar
10:40 - 10:55	B9/5	Beam-Steering Millimeter-Wave Antenna Array for Fifth Generation Smartphone Applications	Asma Khabba , Saida Ibnyaich , Moha M'Rabet Hassani
RADIO 2019 & COMITE 2019			Thursday, April 18, 11:10 - 11:30
Closing Session and Student Award Ceremony <i>Session Chair: Pidanic J., Nemec Z., University of Pardubice, Czech Republic</i>			

RADIO 2019 & COMITE 2019		Wednesday, April 17, 10:20 - 11:00
Poster Session (Room P)		
<i>Session Chairs: Pidanic J., Nemeč Z., University of Pardubice, Czech Republic</i>		
P/1	Discrete Wavelet Design for Target Classification in Pulse-Doppler Surveillance Radar	Michael Mesarcik, Simon Lewis, Amit Mishra, Jan Pidanic, Karel Juryca
P/2	Sample Rate Converter Is As a Means of Reducing Measurement Error of the Voltage Spectrum by Application of FFT	Andrey N. Serov, Aleksander A. Shatokhin, Gennady V. Antipov
P/3	Convolutional neural network for sound processing - study of deployed application	Petr Dolezel, Dominik Stursa, Daniel Honc
P/4	Reducing the complexity of FS-FBMC receivers using Hopping DFT	Husam AL-Aamaireh, Zsolt Kolla'r
P/5	Radar Workstation Simulator - Indispensable Part of the Digital Simulator of Radar Targets and Clutter	Siniša Lackovic, Mirko Jukl, Fran Pregernik
P/6	The Automatic Undistortion Strength Estimation for Any Describable Optical Distortion	Natalija Chmelarova, Pavel Chmelar, Lubos Rejfeč
P/7	Design of A Low-Dropout Linear Regulator In 0.13 μm CMOS Technology	Mamun Bin Ibne Reaz, Md. Torikul Islam Badal
P/8	Start-up Current Overshoot Mitigation for a Laser Driver in Forward-Bias Drift Circumstance	Kai-Jun Pai
P/9	Multi-band Digital Distributed Antenna System	Gyula Mika, Andras Nemeth
P/10	Nonlinear distortion in a microwave high power amplifier	Bezousek Pavel, David Matousek, Lubos Rejfeč
P/11	Utilization of machine learning to detect sudden water leakage for smart water meter	Jan Merta, Jan Fikejz
P/12	Optimization Strategies for Automated Parallelization for Multicore Architectures	Alexey Ivutin, Anna Troshina, Alexander S. Novikov
P/13	Estimation of the Capacity of Human Perception using	Marie Nedvedova, Jaroslav Marek
P/14	Lightweight Microstrip Patch Array for Broadband UAV Applications over 5G networks	Maximilian James Arpaio, Franco Fuschini Enrico Maria Vitucci Vittorio Degli Eesposti, Marina Barbiroli, Diego Masotti
P/15	Dielectric Properties of $(\text{Mg}(1-x)\text{Co})_2\text{SnO}_4$ for Application in Dielectric Resonator Temperature Sensor	Yih-Chien Chen, Yue-Xuan Du
P/16	Microwave Imaging Algorithm for Detecting Brain Disorders	Imran Saied, Tughrul Arslan