



2021 IEEE Wireless and Microwave Technology Conference (WAMICON)

April 28-29, 2021
Location: Online



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Wednesday April 28

8 AM

W1A: Passive Components I

Chair: Jim Culver, Co-Chair: Eduardo Rojas

8:00 – Novel Synthesis Methodology of Lowpass Networks Comprising Generalized Cascaded Quadruplets

Wael M Fathelbab (Northrop Grumman Corporation, USA)

8:15 – Novel Synthesis Methodology of Lowpass Networks Comprising Generalized Cascaded Trisections

Wael M Fathelbab (Northrop Grumman Corporation, USA)

8:30 – Radiation Shielding Effectiveness of Additively Manufactured Antenna-on-Package for Space Environments

Carlos Roberto Mejias-Morillo, Sabrina Yopez, Blake Roberts, Hugo Castillo and Eduardo Rojas (Embry-Riddle Aeronautical University, USA)

8:45 – Tunable S-band Elliptic Bandpass Filter With Constant Absolute Bandwidth

Hailing Yue (University of Dayton, USA)

9:00 – A Low-Loss 1-4 GHz Optically-Controlled Silicon Plasma Switch

Alden Fisher and Zach Vander Missen (Purdue University, USA); Abbas Semnani (University of Toledo, USA); Dimitrios Peroulis (Purdue University, USA)

9:15 – High Selectivity Low-Loss Tunable Bandpass Filter with Transmission Zeros Control Using Staircase Resonators

Abdulrahman Widaa (Kiel University & Mr, Germany); Chang Jiang You and Mohammed Awad (University of Electronic Science and Technology of China, China)

W1B: Microwave Applications I

Chair: Mike Grady, Co-Chair: Craig Sapashe

8:00 – Channel Emulation for the Characterization of Wearable RFID Systems

Md Abu Saleh Tajin (Drexel University & Drexel Wireless Systems Lab, USA)



8:15 – Detection of Harmonic Micro-Doppler Signatures Using Passive RF Tags and Harmonic Radar
Neda Nourshamsi, Stavros Vakalis, Mohd Ifwat Mohd Ghazali, Saranraj Karuppuswami, Premjeet Chahal and Jeffrey Nanzer (Michigan State University, USA)

8:30 – Miniature K-Band Radar for Agricultural Remote Sensing
Garrett Peterson and Bill Kuhn (Kansas State University, USA)

8:45 – Estimation of Background Medium's Properties in Microwave Holographic Imaging
Hailun Wu and Reza K. Amineh (New York Institute of Technology, USA)

9:00 – Optimized and Miniaturized Conformal Strongly Coupled Magnetic Resonance Systems
Juan C Barreto, Jr. , Abdul sattar Kaddour and Stavros Georgakopoulos (Florida International University, USA)

9:15 – An Ultra-Wideband Origami Microwave Absorber
Akash Biswas, Constantinos L. Zekios and Stavros Georgakopoulos (Florida International University, USA)

9:30 AM

Dr. Rudy Henning Session I: Plenary Speakers Session

Morning Welcome: Dr. Lawrence Dunleavy, USF-WAMI Center, Tampa, FL

**Challenges in High Datarate Wireless Communication at Millimeter Waves;
Beyond 100 Gbps**

Dr. Herbert Zirath (Chalmers University)

GaN MMIC Design: Turning Problems into Opportunities

Dr. Charles Campbell (Qorvo, Dallas, TX)

10:45 AM

W2A: Active Components and Systems

Chair: Larry Dunleavy, Co-Chair: Kenle Chen



10:45 – Accurate Nonlinear GaN HEMT Simulations from X- to Ka-Band using a Single ASM-HEMT Model

Nicholas Miller; Neil Moser; Robert Fitch; James Gillespie; Kyle Liddy; Dennis Walker; Andrew Green; Kelson Chabak; Michael Elliott; Ryan Gilbert; Miles Lindquist; Patrick Roblin

11:00 – A Fully-Integrated Band-Switchable CMOS Power Amplifier for Wireless Applications

Seyyed Babak Hamidi Perchehkolaei (University of Washington, USA); Suman Saripalli (Kalscott Engineering, USA); Debasis Dawn (University of Washington)

11:15 – A 60 GHz High Gain Narrow-Band 150 nm InGaAs based Power Amplifier

Soumyasanta Laha (California State University, Fresno, USA); Savas Kaya (Ohio University, USA)

11:30 – Analog Predistortion of K-band GaN for 10W Linear Output Power and 30% Power Added Efficiency

Morgan J Chen, Loren Ralph and Eddie Rodgers (L3Harris Narda Microwave-West, USA)

11:45 – Effects of Electromagnetic Wave Propagations in Large-Signal Analysis of Millimeter-Wave Transistors

Amirreza Ghadimi Avval, Soheil Nouri and Samir El-Ghazaly (University of Arkansas, USA)

W2B: Antennas I

Chair: Hjalti Sigmarsson, Co-Chair: Michael Grady

10:45 – On the bending effects of a printed 4x4 antenna array

John E. Rogers (The Boeing Company, USA)

11:00 – An Origami-Inspired Foldable Reflectarray on a Straight-Major Square-Twist Pattern

Antonio Rubio, Abdul sattar Kaddour and Stavros Georgakopoulos (FIU); Nathan Brown, Collin Ynchausti, Larry Howell and Spencer Magleby (Brigham Young University, USA)

11:15 – Board-Integrated Tunable Bandpass Filter with Wide Stopband for Phased Array Antennas

Gokhan Ariturk, Nawaf Almuqati, Shahrokh Saeedi and Hjalti Sigmarsson (University of Oklahoma, USA)

11:30 – Parallely and Diagonally Placed Meander-Line Slot Resonators for Mutual Coupling Reduction in a 2x2 Patch Array Antenna

Hyunho Cho and Yong-Kyu Yoon (University of Florida, USA)

11:45 – A Physically Reconfigurable 1x8 Monolithic Thick Origami Array

Muhammad Hamza, Constantinos L. Zekios and Stavros Georgakopoulos (Florida International University, USA)



12:15 PM

Keynote Address

Introduction: Dr. Quenton Bonds (NASA Goddard SFC, Greenbelt, MD)

Microwaves in Space - Are We Alone? NASA Technologies to Find Life Beyond Earth and Answers to Other Science Questions

Dr. Goutam Chattopadhyay (NASA JPL, Pasadena, CA)

1:30 PM

W3A: THz Active Components and Systems

Chair: Joshua Kovitz, Co-Chair: Larry Dunleavy

1:30 – A Wide Scanning-Angle mmWave AiP Antenna Module for 5G Portable Terminals

Jiayou Xu and Yuanqing Chen (Shanghai University); Eugene Ren (Electric Connector Technology); Yong Luo (Shanghai University); Guangli Yang (Electric Connector Technology)

1:45 – Demonstration of RF Group Delay Impact on Automotive Radar Sensor Performance in Virtual Test Driving Scenarios

Arsalan Haider (Kempten University of Applied Sciences, Germany); Thomas Zeh (Hochschule Kempten, Germany)

2:00 – A G-Band Reconfigurable Waveguide-Based Bandstop Filter Enabled by High-Performance Optically Controlled RF Switches

Peizhao Li, Yu Shi, Yijing Deng, Patrick Fay and L. Liu (University of Notre Dame, USA)

2:15 – Reconfigurable and Deployable Miura-Ori RA Analysis for Satellite Applications

Carlos A Velez, Abdul-Sattar Kaddour and Stavros Georgakopoulos (FIU, USA); Diana Bolanos, Collin Ynchausti, Spencer Magleby and Larry Howell (Brigham Young University, USA)

2:30 – Design of a mm-Wave Double-Sided Substrate Blass Matrix Beamforming Network

Dimitrios I Lialios, Constantinos L. Zekios and Stavros Georgakopoulos (Florida International University, USA)



W3B: Interactive Forum Presentations

Chair: Mike Grady, Co-Chair: Kenle Chen

1:30 – **Student Poster 001**

1:45 – **Student Poster 002**

2:00 – **Student Poster 003**

2:15 – **Student Poster 004**

2:30 – **Student Poster 005**

2:45 PM: Exhibitor Spotlight Session

Chair: Jim Assurian, Co-Chair: David Zovac, Co-Chair: Laura Levesque

2:45 – **Copper Mountain Technologies**

2:45 – **Modelithics**

3:00 – **Wolfspeed**

3:00 – **NSI-MI Technologies**

3:15 – **Qorvo**

3:15 – **Maury Microwave**

3:30 – **Richardson RFPD**

3:30 – **Form Factor**

3:45 – **Mini-Circuits**

3:45 – **Sonnet Software**

4:00 – **TBD**

4:00 – **TBD**



Thursday April 29

8 AM

R1A: Internet of Things

Chair: David Matolak, Co-Chair: Huseyin Arslan

8:00 – **Additive Manufactured, On-Package 2.4 GHz Tripolar Antenna System for Cluttered Channels**
Ramiro Ramirez (USF); Jeff Frolik (University of Vermont, USA); Thomas Weller (Oregon State University, USA); Marcia Golmohamadi and James Jamison (University of Vermont, USA)

8:15 – **Phase Measurement and Correction for Software Defined Radio Systems**
Evan Fennelly and Jeff Frolik (University of Vermont, USA)

8:30 – **Multiband Active Antenna Tuner for Cellular IoT Applications**
David Vye (Cadence Design Systems, Inc., USA)

8:45 – **Entropy Based Exploration in Cognitive Radio Networks using Deep Reinforcement Learning for Dynamic Spectrum Access**
Michael Liston (Lockheed Martin Advanced Technology Laboratories, USA); Kapil Dandekar (Drexel University, USA)

9:00 – **Dynamically Reconfigurable Direction-Finding Antenna Array for Unmanned Aerial Systems**
Josiah Park and Nolan Pearce (United States Military Academy, USA); Abon Ackie and Frank Vassallo (Tecomsys, USA); Kate Duncan (US Army & US Military Academy, USA)

9:15 – **Supportive Image Analysis Solution based into Cloud and Edge Computing**
Anderson Carvalho (IT Tralee, Ireland)

R1B: Microwave Applications II

Chair: Xun Gong, Co-Chair: Craig Sapshe

8:00 – **A Compact Digital Low-IF Dual-PLL Doppler Radar for Remote Vital Sign Detection**
Xiaonan Jiang (University of California, Davis); Xiaomeng Gao (Cardiac Motion LLC); Heng Zhao (University of California, Davis); Hong Hong (Nanjing University of Science and Technology); Xiaoguang Liu (UC Davis, USA)



8:15 – Highly Efficient Wireless Power Transfer Systems for Wearable and Implantable Devices

Juan C Barreto, Jr., Abdul sattar Kaddour and Stavros Georgakopoulos (Florida International University, USA)

8:30 – A Software Defined Radio Interrogator for Passive Harmonic Transponders

Timothy F Laracy and Jeff Frolik (University of Vermont, USA)

8:45 – Microwave Imaging System for Soft Tissue Imaging of Cancer Patients

Nesreen Alsbou, Kyle Espinosa, Nathaniel Ashley and Nathan Wickware (University of Central Oklahoma, USA); Imad Ali (University of Oklahoma Health Sciences Center, USA)

9:00 – Using Standing Waves to Boost RF-DC Sensitivity in PCB Voltage Multiplier Circuit to -15dBm (1.9V DC)

Rushi Vyas (University of Calgary, Canada)

9:15 – Feasibility of Full Duplex Communication for Wireless Network on Chips with OOK Modulation

Soumyasanta Laha and Simran Kaur Sidhu (California State University, Fresno, USA)

9:45 AM

R2A: Passives II

Chair: Eduardo Rojas, Co-Chair: Steve Lardizabal

9:45 – Toward the Design of a Reconfigurable Liquid-Metal Pixel Array

Kareem Elassy, Kent Sarabia, Wayne A. Shiroma and Aaron T. Ohta (University of Hawaii, USA)

10:00 – Novel Synthesis Methodology of Lowpass Networks Comprising Generalized Cascaded Box Configurations

Wael M Fathelbab (Northrop Grumman Corporation, USA)

10:15 – Novel Acoustic Wave Networks Comprising Resonators Achieving Prescribed Coupling

Wael M Fathelbab (Northrop Grumman Corporation, USA)

10:30 – Photonic Curing of mm-Wave Coplanar Waveguides for Conductor Loss Enhancement

Wael M Samuel LeBlanc and Eduardo Rojas (Embry-Riddle Aeronautical University, USA)



R2B: Microwave Applications III

Chair: Kenle Chen, Co-Chair: Jing Wang

9:45 – Micro-machined 3D Cube Antenna for X-Band Communication ICs

*Yuxin Wang, Han-yu Tsao, Noah Sauber, Robert Weikle, Arthur Lichtenberger and N. Scott Barker
(University of Virginia, USA)*

10:00 – A Novel Biosensor for Non-invasive Blood Glucose Measurement Based on Double Square Complimentary Split Ring Resonator

Esraa Elsayed Mansour, Ahmed Sayed Ahmed Abdelhamid Allam and Adel Bedair (Egypt-Japan University of Science and Technology, Egypt)

10:15 – An S-band Automatically Tunable Bandpass Filter Based on a Machine Learning Approach

Pintu Adhikari, Kevin Xia, Garrett Shaffer, Bruno Ribeiro and Dimitrios Peroulis (Purdue University, USA)

10:45 AM

Exhibitor Spotlight Session

Chair: Jim Assurian, Co-Chair: David Zvac, Co-Chair: Laura Levesque

10:45 – **Mini-Circuits**

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11:00 – **Richardson RFPD**

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Keynote Address

Introduction: Dr. Quenton Bonds (NASA Goddard SFC, Greenbelt, MD) and Dr. Tom Weller (Oregon State University)

The Third Wireless Revolution

Dr. Harish Krishnaswamy (Columbia University, USA), Associate Professor and the Director of the Columbia High-Speed and Millimeter-Wave IC Laboratory (CoSMIC)

1:30 PM

R4A: 5G Session

Chair: Huseyin Arslan, Co-Chair: David Matolak

1:30 – Building Material Attenuations at 5 GHz and at mmWave Frequencies 30 GHz and 90 GHz

David W Matolak, Jinwen Liu and Mohanad Mohsen (University of South Carolina, USA)

1:45 – Domain Decomposition Based Artificial Neural Networks (ANNs) Modeling of Acoustic Wave Resonators and Filters

Mohammad Almalkawi (Qorvo, Inc., USA); Josh Caron (Skyworks Solutions, Inc., USA)

2:00 – A Synthesis View to Dual-Band Responses With Parallel-Connected Acoustic Wave Filters

Eloi Guerrero, Jordi Verdu and Pedro de Paco (Universitat Autònoma de Barcelona, Spain)

2:15 – Collaborative Edge Processing by mmWave Access Providing UAVs

Pham Van Tien (HUST, Vietnam); Nam Nguyen Trung (School Electronics and Telecommunications, Hanoi University of Science and Technology, Vietnam)

2:30 – 5G enabled Mobile Operating Hospital and Emergency Care Service

Umm-E-Haya Ansari, Sunday Cookey Ekpo, Mfonobong Uko, Arslan Altaf, Muazzam Zafar, Sunday Enahoro, Osmond Okpalugo, Olugbenga Akinkunmi Sowande

R4B: PA/Actives/Systems

Chair: Larry Dunleavy, Co-Chair: Jim Culver



1:30 – Plasma Switch-Based Technology for High-Speed and High-Power Impedance Tuning

Zach Vander Missen and Sergey Macheret (Purdue University, USA); Abbas Semnani (The University of Toledo, USA); Dimitrios Peroulis (Purdue University, USA)

1:45 – 6-to-13 GHz Voltage Controlled Oscillator with 7 dBm Output Power in 22 nm FD-SOI

Laszlo Szilagyi and Zoltán Tibenszky (Technische Universität Dresden, Germany); Corrado Carta (Dresden University of Technology, Germany); Ronny Henker and Frank Ellinger (Technische Universität Dresden)

2:00 – A Broadband, High Dynamic Range SPDT Switch and IF Amplifier IC

Mantas Sakalas (Technische Universität Dresden, Germany & Baltic Institute of Advanced Technology, Lithuania); Niko Joram, Florian Protze and Frank Ellinger (Technische Universität Dresden, Germany)

2:15 – Dual-Band 2:1 LC-tank Injection-Locked Frequency Divider Using Distributed Transformer

Wen Cheng Lai (National Taiwan University of Science and Technology, Taiwan)

2:30 – Modeling and Simulation of Small Satellite Optical Communication System based on PathWave System Design

Bangda Zhou and Eduardo Rojas (Embry-Riddle Aeronautical University, USA)

3:00 PM

Dr. Rudy Henning Session II: Plenary Speakers Session

Session Chairs: Dr. Lawrence Dunleavy and Dr. Jing Wang, USF-WAMI Center, Tampa, FL

A Neuromorphic Intelligent Front End for 5G Communication Systems

Dr. Linda Katehi (Texas A&M University, TEES Chair Professor, Electrical and Computer Engineering Department)

Small Satellites...Big Impacts

Dr. Wayne Shiroma (University of Hawaii at Manoa, Professor and Chair for the Department of Electrical Engineering)



4:00 PM

Closing Remarks & WAMICON 2022 Invitation

Dr. Eduardo Rojas (Embry-Riddle Aeronautical University, USA)

5:30 PM

Young Professional Forum and Paper Awards Presentation

Co-Chair: Kenle Chen (University of Central Florida), Co-Chair: Mike Grady (Georgia Tech Research Institute), Co-Chair: Eduardo Rojas (Embry-Riddle Aeronautical University, USA)

WAMICON Exhibitors



Microwaves & RF