2016 IEEE Radio & Wireless Week

FINAL PROGRAM

Austin, Texas, USA
JW Mariott Austin
24-27 January, 2016

RWW & RWS General Chair:
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IEEE Microwave Theory and Techniques Society (MTT-S)
IEEE Antennas and Propagation Society (APS)
IEEE Engineering in Medicine & Biology Society (EMBS)

http://www.radiowirelessweek.org

General Chair's Invitation to the IEEE Radio and Wireless Week

I have the great honor and pleasure to invite you to the 2016 IEEE Radio & Wireless Week (RWW2016). This will be the 10th anniversary of RWW and the second time in Austin, Texas since 2007.

RWW2016 will be held at the brand new JW Marriott in Austin on 24 - 27 January, 2016. The venue is located in downtown Austin, known as the "The Live Music Capital of the World". With many wireless semiconductor companies, a plethora of startups, as well as a world class university such as University of Texas at Austin nearby, Austin will be a great location for all the attendees. RWW2016 consists of five related conferences that focus on the intersection between wireless communication theory, systems, circuits, and device technologies, creating a unique forum for engineers to discuss various technologies for state-of-the-art wireless systems and their end-use applications. The conference bridges the gaps between digital, RF, hardware, and software, which all need to be seamlessly combined to keep the wireless industry and mobile applications growing.

RWW's multidisciplinary events bring together innovations that are happening across the broad wireless spectrum. It is our hope that RWW is a place where you will not only find discussions of present problems, but you will also be inspired by the diverse technical contents that might spark ideas for future research. The diversity of RWW is underlined by three different co-sponsoring IEEE societies: Microwave Theory and Techniques Society (MTT-S), Antennas and Propagation Society (AP-S), and Engineering in Medicine and Biology Society (EMBS).

In addition to traditional podium presentations and poster sessions, there will be a track for IEEE Distinguished Lectures, Sunday half day workshops, panels, industry exhibits, WirelessApps industry presentations, and a demo session. A highlight on Tuesday will be the plenary talk. Also on Tuesday afternoon, in its fourth year, there will be a demo session where presenters can bring in a demonstration of their latest wireless experiments for a hands-on interactive forum. Demo sessions are particularly in keeping with the spirit of RWW because we get to see and feel how people are tackling real-world problems to address the next wireless innovations.

To support and encourage students pursuing a career in a wireless area, each conference will have a student paper competition with awards that will be presented at the Tuesday banquet. On Monday afternoon, all student paper competition finalists will present their work in the poster session. I encourage you to check out what the next generation of wireless engineers are working on.

In conclusion, I invite you to join us for four days of great technical presentations, discussions, networking, and some fun in beautiful Austin, Texas, 24-27 January 2016.

RWW2016 General Chair
Sergio Pacheco

General Chair
Sergio Pacheco

Technical Program Chair
Rashaunda Henderson

RWS 2016 Technical Program Committee

Passive Antennas
Chair: Jiang Zhu
Arnaud Amadjikpe, Goutam Chattopadhyay
Glauco Fontgalland, James Schaffner
Songnan Yang

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Chair: Chenming Zhou
Michael O.L. Chuen, Changzhi Li
Donald Lie, William Moulder

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Emery Chen, Nathalie Deltimple
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John Poh, Xin Wang

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Rashaunda Henderson, Eiji Okamoto
Telesphor Kamgaing, Leena Ukkonen

High-speed and Broadband Wireless Technologies
Chair: Kevin Chuang
Rahul Amin, Upkar Dhaliwal
Jim Martin, Idelfonso Tafur Monroy
Vegas Olmos, Shilong Pan
James Streitman, Yik-Chung Wu

Software Defined Radios and Cognitive Radios
Chair: Abbas Omar
Yves Baeyens, Nuno Borges Carvalho
Alessandro Cidronali, Otillia Popescue
Rui Ma, Lin Song

Wireless Systems Architecture and Modeling
Chair: Markos Anastasopoulos
Bow-Nan Cheng, Hyun Kyu Chung
Ugo Dias

Emerging Wireless Technologies and Applications
Chair: Debabani Choudhury
Chia-Chan Chang, Terry Gibbons
Yoshihiro Kawahara, Zhen Ning Low

Digital Signal Processing as Applied to Wireless
Chair: Karl Molnar
Shin Hara, T.S. Jason Horng
Danda Rawat, Xinwei Wang

Passive Components and Packaging
Chair: Roberto Gomez-Garcia
Supreetha Aroor, Arigong Bayaner
Eric Chikando, Wasif Tanveer Khan
Dariush Mirshekar, Dimitra Psychogiou
Hualiang Zhang

3D and Novel Engineered Materials
Chair: Benjamin Cook
Kate Duncan, Luca Roselli

Invited Papers
Chair: Rashaunda Henderson
Kevin Chuang, Jeremy Muldavin
Sergio Pacheco

Late News Papers
Supreetha Aroor, Sergio Pacheco
Karl Varian, Jeremy Muldavin
Debabani Choudhury, Kevin Chuang
Telesphor Kamgaing, Imran Mehdi
Thomas Ellis, Roberto Gomez-Garcia
Rashaunda Henderson

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Karl Varian, IEEE MTT-S
Tom Brazil, University College Dublin
Takao Inoue, National Instruments

The 16TH Topical Meeting on Silicon Monolithic Integrated Circuits in RF Systems

Message from the SiRF General Chair:

Welcome to SiRF 2016!

SiRF celebrates its 16th year in Austin (Texas) in 2016. Austin's mild winter weather combined with its celebrated downtown music scene and restaurants offer a perfect setting for this dynamic conference. The establishment of SiRF was inspired by the fast-growing capability of full system integration in silicon (Si) technologies, combining high-speed digital and RF circuitry as a total solution. Today that is even more evident, as silicon foundries worldwide offer a myriad of high performance CMOS, SOI and SiGe technologies. RF Modeling of silicon technologies continues to improve to enable first-time design success; Electromagnetic Modeling (EM) coupled with Parasitic Extraction (PEX) are now standard design features on most RF Process Design Kits (PDK). The early days of SiRF were devoted to developments in basic silicon RF device and fundamental RF design building blocks. As the maturity of silicon-based technologies became established, SiRF's papers also showed tremendous evolution in their complexity and field of use.

SiRF2016 will contain an impressive number of illustrious invited speakers to address the different facets of silicon-based RF design and technologies. Prof. Haskin (Catholic University) will give us a historical perspective and future challenges of RFSOI technologies. Paul Hurwitz (TowerJazz) and Fred Gianesello (ST Micro) will showcase the RFSOI offerings from these two important foundries. Also on RFSOI, Prof. Mohammadi will discuss advancements in monolithic integration possibilities for full RF system implementation. Dr. Farshid Aryanfar (Samsung Research) will present a review of mm-wave radios as a key enabler for 5G high bandwidth data standards. Prof. Rebeiz (U. of California San Diego) will present the status of a key enabler for 5G networks: large scale phased arrays. Prof. Buckwalter (U. of California Santa Barbara) will discuss transmit architectures for 5G communication systems. Two distinguished speakers in RF modeling of silicon circuits were also invited: Colin McAndrew, a pioneer in the establishment of silicon technology modeling, will present a perspective on model formulation and development; Dr. Jim Carroll (AWR) will discuss the state of the art in Electromagnetic modeling for silicon circuits, a key tool used by nearly all silicon RF designers. Tanja Braun (Fraunhofer Institute) will present his latest results on Fan-Out wafer level packaging techniques. Prof. Perolious (Purdue University) will showcase the latest results of his tunable MEMS filters.

Dr. Groezing (U. of Stuttgard) will cover 100 Gbit/s data converters implemented in silicon technologies. Prof. Hashemi (U. of Southern California) will discuss silicon beamforming techniques. Dr. Dieter Knoll (IHP) will showcase silicon photonics integration with electronic technologies for high bandwidth applications. Also from IHP, Dr. Schmalz will discuss sensor systems for gas spectroscopy implemented in SiGe BiCMOS technologies which perform at 245 and 500 GHz frequencies.

Welcome to SiRF 2016!

Julio Costa
SiRF2016 Conference Chair

SiRF 2016 Technical Program Committee

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Hasan Sharifi, HRL Laboratories
Dietmar Kissinger, IHP GmbH/TU Berlin

Technology, Devices and Modeling
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Julio Costa
Katsuyoshi Washio
Paul Hurwitz
Mingta Yang
Guofu Niu

Passives and MEMS
Chair: Jean-Pierre Raskin
Xun Gong
Hjalti Sigmarsson
Vikas Shilimkar
Pierre Blondy
Xiaoguang Leo Liu
Florian Herrault

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Chair: Larry Larson
Hermann Schumacher
Lance Kuo
Hsieh-Hung Hsieh
Monte Miller
Rahul Kodkani
Austin Ying-Kuang Chen
Vince Fusco
Yunliang Zhu
Kenichi Okada
Laleh Rabierad
Ahmet Cagri Ulusoy

Applications and Wireless Architectures
Chair: Chien-Nan Kuo
Donald Y.C. Lie
Hasan Sharifi
Himanshu Khatr
Jürgen Hasch
Yan Li
Herman Jalli Ng

Late News Papers
Hasan Sharifi
Hermann Schumacher
Mehmet Kaynak
Julio Costa
Monte Miller
Chien-Nan Kuo
Austin Ying-Kuang Chen
Dietmar Kissinger

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Hermann Schumacher, Ulm University
Vaclav Valenta, Ulm University
Katsuyoshi Washio, Tohoku University
Robert Weigel, University of Erlangen-Nuremberg

REGISTRATION HOURS

Registration is open during the following times at the Lone Star Ballroom Foyer:

Sunday, 24 January: 12:00-17:00
Monday, 25 January: 07:00-18:00
Tuesday, 26 January: 07:00-17:00
Wednesday, 27 January: 07:00-12:00

EXHIBIT HOURS

The exhibition area in Griffin Hall is open during the following times:

Monday, 25 January 13:00 – 17:30
Tuesday, 26 January 09:30 – 17:00

For the latest information and details on how to become a sponsor and exhibit at RWW please visit: http://www.radiowirelessweek.org/exhibits.

SOCIAL EVENTS

Complimentary Daily Breakfast (Mon.-Wed.)
Place: Lone Star Ballroom Foyer
Time: 07:00-08:00

Complimentary Daily AM Coffee Breaks
Mon. 25 Jan., 9:40-10:10 Ballroom Foyer
Tues. 26 Jan., 9:40-10:10 Exhibit Hall
Wed. 27 Jan., 9:40-10:10 Ballroom Foyer

Complimentary Daily PM Coffee Breaks
Mon. 25 Jan., 15:10-15:40 Exhibit Hall
Tues. 26 Jan., 15:10-15:40 Exhibit Hall
Wed. 27 Jan., 15:10-15:40 Ballroom Foyer

RWW Reception
Place: Salon D
Monday 25 January 18:00-20:00

RWW/SiRF Awards Banquet
Place: Salon D&E
Tuesday 18:30-21:00

RWW Topical Conferences

Power Amplifiers for Radio and Wireless Applications (PAWR)

Interest in power amplifier technology remains at an all time high because of the emergence of new device materials as GaN that offer improved performance, and the need for ever greater linearity and efficiency by the world's expanding wireless communication infrastructure. Topical Conference on Power Amplifiers for Wireless and Radio Applications (PAWR) will feature power amplifier focused sessions, including the latest advances on power amplifier technology, efficiency enhancement techniques, system analysis, modeling, distortion reduction, an interactive workshop answering questions on power amplifier linearization and efficiency enhancement.

Technical Committee:

Distortion Reduction Techniques in RF Power Amplifiers

Chair: Slim Boumaiza
Jinsung Choi, Armando Cova, Kiki Ikossi, Allen Katz, Peter Kenington, Steve Kenney, Shabbir Moochalla, Timo Rahkonen, Joe Staudinger

High Efficiency RF Power Amplifiers

Chair: Dave Runton
Joe Bardin, Steve Cripps, Andrei Grebennikov, Wolfgang Heinrich, James Komiak, Song Lin, Chao Lu, Mohammad Madihian, Frederick Raab, Ali Tombak

RF Power Amplifier Technology

Chair: Marc Franco
Nick Cheng, Paolo Colantonio, Nathalie Deltimple, Murat Eron, Gary Hau, Bumman Kim, Chan-Ho Lee, Donald Lie, Zoya Popovic

Power Amplifier Modeling and System Analysis

Chair: Jose Carlos Pedro
Florinel Balteanu, Robert Caverly, Gayle Collins, Stephen Maas, Patrick Roblin, Francis Rotella, Almudena Suarez, Anding Zhu

Late News Papers

Marc Franco, Gayle Collins, Fred Schindler, Dave Runton, JC Pedro, Andre Grebennikov

Wireless Sensors and Sensor Networks (WiSNet)

WiSNet is dedicated to the advancement of wireless sensors for commercial and industrial applications and will be held to specifically focus on the latest developments in these areas of RF Sensors and Sensor Networks. Wireless sensors and sensor networks are critical system components for manufacturing, monitoring, safety, positioning and tracking applications; recently they enable Internet of Things evolution. This year, WiSNet2016 will be a full day topical conference focused on the latest developments in these areas including sensors and smart sensor networks ranging from UHF, RFID applications to millimeter-wave radar systems and cyber physical systems. A special session will focus on sensing technologies and applications specifically devoted to IoT.

Technical Committee:

Wireless Sensors for Communication, Radar, Positioning and Imaging Applications

Chair: Martin Vossiek
Changzhi Li, Aly Fathy, Mario Pauli, Kamal Samanta

Wireless Sensors for Localization, Tracking, and RFID Technologies

Chair: Manos M. Tentzeris
Xianming Qing, Apostolos Georgiadis, Hao Xin, Reinhard Feger

Wireless Integrated Sensors, Front-Ends, and Building Blocks

Chair: Linus Maurer
Huei Wang, Thomas Ussmueller, Nils Pohl, Andreas Baenisch, Daniela Dragomirescu, Holger Maune

Wireless Sensors for Harsh Environments, Home, Health and Communication

Chair: Alexander Koelpin
Georg Fischer, Xun Gong, Arne Jacob, Maurizio Bozzi, Hendrik Rogier

Sensor Network Communication Architecture and Topologies

Chair: Luca Roselli
Rahul Khanna, Alexander Koelpin, Huaping Liu, Dharmesh Jani

Six Port and Multi-port Technology

Chair: Alexander Koelpin
Serioja Tatu, Iñigo Molina Fernández, Fadhel Ghannouchi, Tuami Lasri, Adriana Serban, Gabor Vinci

Wireless Sensors for Wearable Computing and Internet of Things

Chair: Nuno Borges Carvalho
Vesna Crnojevic-Bengin, Ana Collado, Alessandra Costanzo, Giulia Orecchini, Smail Tedjini

Invited Papers

Chair: Luca Roselli
Alexander Koelpin

Late News Papers

Alexander Koelpin, Holger Maune, Changzhi Li

Biomedical Wireless Technologies, Networks, and Sensing Systems (BioWireleSS)

The IEEE Topical Conference on Biomedical Wireless Technologies, Networks, and Sensing Systems (BioWireleSS) features the latest developments in wireless biomedical technologies, networks and sensing systems. The wireless revolution has begun to infiltrate the medical community with patient health monitoring, telesurgery, mobile wireless biosensor systems, and wireless tracking of patients and assets becoming a reality. The rapid evolution of wireless technologies coupled with powerful advances in adjacent fields such as biosensor design, low power battery operated systems, and diagnosing and reporting for intelligent information management has opened up a plethora of new applications for wireless systems in medicine.

Technical Committee:

Wireless Technologies for Biosignals and Modeling in Medical Environments

Chair: Jung-Chih Chiao
Alper Bozkurt, Natalia Nikolova, Hung Cao, Mohammad-Reza Tofighi, Aydin Farajidavar, Nicole McFarlane, Jeremy Holleman

Wireless Position and Localization in Medicine

Chair: Aly Fathy
Andreas Stelzer, David Ricketts, Michael Kuhn, Upkar Dhaliwal, Aydin Farajidavar, Mohamed Mahfouz, Changzhi Li, Marc Notten

PAN, BAN, Energy Scavenging and Remote Patient Monitoring

Chair: Changzhi Li
Dietmar Kissinger, Dominique Schreurs, David Ricketts, Yong Xin Guo, Syed Islam, Aydin Farajidavar

Micro-Sensors and In-vivo Microsystems

Chair: David Dubuc
Jung-Chih Chiao, Arnaud Pothier, Claire Dalmay, Katia Grenier, Alper Bozkurt, Syed Islam, Melika Roknsharifi, Joachim Oberhammer, Pingshan Wang, Hung-Wei Wu, Hung Cao

Microwaves in Biological Applications and Interaction with Biological Tissues

Chair: Mohammad-Reza Tofighi
Yong Xin Guo, Victor Lubecke, Dominique Schreurs, Indira Chatterjee, Usmah Kawoos, Andre Vander Vorst, Katia Grenier, Jung-Chih Chiao, Arye Rosen, David Dubuc, Joachim Oberhammer

Medical Imaging and Applications

Chair: Natalia Nikolova
Arye Rosen, Usmah Kawoos, Anand Gopinath, Victor Lubecke, Changzhi Li, Mohammad-Reza Tofighi, Bashir Morshed, Marc Notten

Invited Papers

Chair: Katia Grenier
Syed Islam

Focused Sessions & Others

Chair: Syed Islam
Katia Grenier

Late News Papers

Natalia Nikolova, Mohammad-Reza Tofighi, Anand Gopinath, Aly Fathy, Dominique Schreurs, J.-C. Chiao, Arye Rosen

Technical Program for 2016 Radio & Wireless Week (RWW)

SUNDAY, 24 JANUARY 2016 (13:30-17:30)

Workshop
Accelerating the Design of PA Systems for 5G and IOT Through Adequate Measurement Techniques

Room: 302

Organizers:
Marc Vanden Bossche,
National Instruments

Andrea Ferrero,Keysight

Abstract:
A power amplifier is no longer a collection of transistors with some matching circuitry. Driven by linearity and efficiency requirements in combination with the increasing information bandwidth or extreme power saving capability, power amplifiers are becoming a complete system where digital and analogue signals are being combined.
As such the efficient design of PAs cannot just rely on S-parameter measurements and loadpull measurements. More sophisticated measurement techniques are required for an efficient design.
This workshop explains how evolving measurement techniques, possibly assisted by simulation techniques, allow an efficient design of PA systems for 5G and Iot applications.

Talks and Speakers:

Preparing an engineering test organization for 5G
Neil Craig, Qorvo

The development of efficient power amplifiers is really a 3-port design
Earl MCcune, EMC2

Envelope Tracking Power Amplifier Measurement Techniques
Donald Kimball, Maxcentric

Measuring and Evaluating EVM
Kate Remley and Robert Horansky, NIST

PA design benefitting from wide-IF VNA measurements: characteristics and calibration topics
Jon Martens, Anritsu

Workshop
European Initiatives to Develop Wireless Power Supply for Sensor Node Evolution

Room: 303

Organizer:
Luca Roselli, University of Perugia

Abstract:
The evolution of ICT towards IoT is nowadays a matter of fact. It has been already stated that actually four features can be considered pillars to develop IoT systems and apparatuses:

-Data acquisition capability
-Wireless communication
-Energy autonomy
-Compatibility with objects

This Workshop mainly focuses on the second two features, providing a non-comprehensive overview of some activities in Europe about Wireless Power Transfer and Energy Harvesting applied to the power supply of sensor nodes. Sensor nodes, in fact, are the key element of WSN that in turn can be seen as the basis to create connectivity between objects and Internet and between objects and objects.
Recently several researches have been developed to implement energy harvesting systems in a way compatible with the IoT evolutuion (pursuing the maximum compatibility with objects and object manufacturing processes and materials). On the other hand, WPT is more and more often seen as a means to power supply disposable equipment and circuits. These two areas have some overlapping and are often treated together. This workshop gathers some significant contributions from institutions among the most active in Europe in this field; most of them already working together within the “COST Action IC-1301 Wireless Power Transmission for Sustainable Electronics.”

Talks and Speakers:

Multi-harvesting technologies for wireless autonomous nodes
Luca Roselli[1], Marco Virili[1], Apostolos Georgiadis[2], Ana Collado[2], [1]University of Perugia, [2]Centre Tecnològic Telecomunicacions Catalunya (CTTC)

Combining UWB- and UHF-RFID for localization and sensing
Alessandra Costanzo, Diego Masotti, Marco Fantuzzi, University of Bologna

Exploitation of Nonlinear Characteristics of RFID Chips for Energy Harvesting
Smail Tedjini[1], G.Andia-Vera[1], Y. Duroc[2], [1]Université Grenoble Alpes/LCIS, [2]Université Claude-Bernard

Developments in co-located wireless power and data transfer
Dominique Schreurs, ESAT KU Leuven

Design of Passive Wireless Networks
Nuno Borges Carvalho, University of Aveiro, Portugal

Workshop
PA Technologies for Future Broadband Wireless Communications

Room: 304

Organizer:
Jose Carlos Pedro,
Instituto de Telecomunicacoes, Universidade de Aveiro

Abstract:
Although digital signal processing techniques are getting an increasingly higher share on wireless communication circuits, the RF power amplifier, PA, resists this trend keeping its traditional analog character. However, this does not mean it has been an old, immutable, circuit. On the contrary, as system designers are asking for improved performance and more diverse wireless services, the PA has been able to reinvent itself turning eighty years old ideas into continuously new and more powerful circuit designs. With the advent of next generation mobile systems, new and more challenging requirements are expected from the PA, in terms of linearity and efficiency, but mostly in terms of bandwidth. Indeed, this seems to demand a change in the design paradigm as all traditional RF circuits tend to be conceived in the frequency domain and so to be narrowband in nature.
The workshop on PA Technologies for Future Broadband Wireless Communications presents some recent advances in PA design having its focus on the bandwidth requirement. Covering both the circuit (Doherty and the Outphasing PAs) and system level (digital predistortion) perspectives, it presents a blend of the industry and the academic views to overcome this challenge.

Talks and Speakers:

BTS Power Amplifiers Past and Future: Industry View
Francesc Purroy, Huawei Technologies Sweden AB

Wideband Power Amplifier Linearization: From Active Device Distortion to DPD Compensation
Telmo Cunha and Pedro Cabral, Instituto de Telecomunicações, Universidade de Aveiro

Design of Highly Efficient Power Amplifiers by Generalization of the Doherty Theory
Christian Fager, Chalmers University of Technology

RF Outphasing PA for Wireless Applications – a Mixed Mode Operation
Sergio Pires, NXP Semiconductors

Digital Predistortion for Wideband Power Amplifiers: System Challenges and Future Directions
Anding Zhu, University College Dublin

Workshop
Cross Section of 5G in Development

Room: 301

Organizer:
Takao Inoue, National Instruments

Abstract:
A major evolution in the wireless communication infrastructure is beginning to take shape toward the 5th generation of mobile networks, 5G, targeted for 2020 and beyond. In 2015, two major events took place, namely the draft of ITU vision towards 2020 and 5G workshop held at the 3GPP RAN plenary meeting where varying requirements such as massive broadband services, Internet-of-Things, low-latency mission critical communications, among others were discussed with candidate enabling technologies. In this workshop, we take a cross sectional view of the 5G in development from key industry/academic segments to get both macroscopic and microscopic view from the experts.

Talks and Speakers:

Evolution of Radio Access Networks for 5G Cellular Systems
Arun Ghosh, AT&T Labs

Overview of 5G: Timeline, Requirements, and Enabling Technologies
Thomas Novlan, Samsung Research

OFDM Inspired Waveforms for 5G
Behrouz Farhang-Boroujeny, University of Utah

Practical Aspects and Considerations for High Instanteneous Bandwidth, High Data Rate, Millimeter Wave Wireless Prototyping Systems
Justin R. Magers, National Instruments

MONDAY, 25 JANUARY 2016

Workshop

Biowireless Research in Texas towards m-Health

Time: 13:30 - 17:30
Room: Salon G

Organizers:
Hung Cao, University of Washington-Bothell

J.-C. Chiao, University of Texas - Arlington

Abstract:
Micro- and nano-technologies together with sensing and wireless innovations have emerged during the last decade as essential assets to enhance healthcare and life-science investigations. Wireless technology and innovations in electronics have helped in cutting healthcare cost, bringing convenience to patients and establishing distanced care which was recently defined as personalized- and tele-medicine of the mobile-health (m-Health) network.

The recent rise of the internet of things (IoT) and big data has paved the avenue for medical wearable devices to become popular and to be accepted by our society. Towards this end, the manufacture of reliable bio-sensors as well as the integration with existing wireless communication network play an important role in establishing the paradigm shift of healthcare. Thus, this workshop is designed to cover aspects of bio-sensor development, bio-signal monitoring, wireless sensing and integration of sensing and communication which are essential for the future m-Health infrastructure.

Talks and Speakers:

Present and future of optical sensors in wearable and point-of-care healthcare devices
Luca Pollonini, University of Houston

Smart Radar Sensors for Human Localization and Health Monitoring
Changzhi Li, Texas Tech University

Broadband CMOS RF/Microwave Complex Dielectric Spectroscopy Systems for Bio-sensing
Kamran Entesari, Texas A&M University

Low power analog and mixed-signal IC design for bio-signal detection
Nan Sun, University of Texas-Austin

Sensor Fusion and Resource Management for Physiological Monitoring
Roozbeh Jafari, Texas A&M University

Advanced Messaging Solutions for Mobile Health Promotion Research
David Akopian, University of Texas-San Antonio

Industry Forum

Tutorial Workshop on Internet of Space (IoS)

Time: 09:00 - 15:00
Room: Salon H

Organizer: Charlie Jackson, Northrup Grumman Corp.

Abstract:
A recent FDI proposal on the "Internet of Space" was accepted by IEEE. This workshop is part of an incubator effort that will focus on a series of workshops and meet-ups to jumpstart a global technical community focused on these next-generation space-based information net-works. Breakout groups will work on making plans to make the IoS a reality.

Today, approximately 60% (4.5B) of the world's population cannot access the internet. Consequently, there has been a renaissance in interest and investment in space- and suborbital-based high-data-rate communications networks. All of the technologies needed to make the IoS are core MTT technologies.

The IoS is a natural progression of the vision to extend Internet access to all members of the human race, no matter where they located on land, oceans, urban or rural areas. The IoS is ahead of the innovation curve; it is at a very early stage, so focused discussions can make great progress. The IoS is aligned with transformation of space technology/access from government funded to commercial ventures.

Technical presentation and breakout groups will be a part of this incubator activity

This workshop is free and open to the public. Please add it to your registration for RWW. Please contact c.jackson@ieee.org with questions.

Introduction and Welcome - Ke Wu
Introduction to IoS, The Internet of Space - Robert Weigel
The Internet of Space - Impact to Society - Tim Lee
CubeSats from mm-Wave to Terahertz: Enabling Frequent Observations of the Earth's Atmosphere - Steven C. Reising
Objectives of the IEEE Future Directions Committee (FDC) - Bichlien Hoan

Panel

What PA architectures will succeed for high efficiency millimeter-wave communications?

Time: 19:00-20:30
Room: Salon C

Organizer: Gayle Collins, Intel

The promise of virtually unlimited bandwidth and ubiquitous connectivity claimed for 5G communications by using mm-wave frequencies (28, 38, 60, 83 GHz…and beyond?) has not really considered the practical realization of the air interface, in particular for the PA architectures and device technologies that may be used at these frequencies. How will the required power, efficiency, and linearity be achieved? Will these PAs look very different from the RF PAs used for 4G-LTE? The panel is invited to present their views on what the PAs for these applications might look like.

Moderators:
Gayle Collins, Intel

Panelists:
Taylor Barton, Univ. of Texas at Dallas
Chuck Campbell, Qorvo
Earl McCune, Panasonic Technology Fellow (ret.)

Attractions in Austin, Texas

Years ago when people talked about Austin, they would quickly mention the music. But that's just the beginning of what they're saying these days. Austin is also home to a wonderful ballet, world-class museums, one-of-a-kind shopping, and beautiful outdoor spaces. You can just as easily spend your morning paddling the lake as you can strolling through a celebrated history museum. The JW Marriott is in a superior location near some of the best attractions and entertainment options Austin has to offer — including the Sixth Street Entertainment District, the South by Southwest Music Conference and Festival, the Austin City Limits Music Festival, the University of Texas, and the Texas State Capitol. The following are a list of attractions to see during your stay:

Downtown: As hoppin' during the week as it is on the weekends, this bustling area of commerce, cuisine, cocktails, and the capitol is a melting pot of finance and fun, as well as philanthropic conservation. In addition to opportunities for retail therapy, the arts scene is alive and well with galleries and museums at nearly every corner.
Second Street: Officially spanning the length of Second Street between Congress Avenue and San Antonio Street, this area is home to local and national brands, ranging from beauty, body, and abode to restaurants and overnight respites. Don your favorite reusable tote and wear shoes meant for strolling.
Warehouse District: As the name suggests, many of this neighborhood's bars and restaurants are housed in renovated antique warehouses. The gritty backdrop makes for a vibrant scene that draws a diverse crowd thanks to its range of live entertainment, restaurants, LGBT businesses, and unique shops.
East Austin: Arguably the fastest growing neighborhood in Austin, the eclectic east side is where old meets new, and fresh eateries and boutiques are popping up like wildflowers. Dig a little deeper and discover rich history and culture everywhere you look.
Rainey Street: Renovated houses turned into bungalow bars reign supreme on this increasingly popular tucked-away street. Day or night, you'll find relaxed bargoers strolling from bar to food trailer to bar again, often with their dogs in tow, looking for a kicked-back sip and a bite.

Red River: Do you hear that? That's the sound of live music coming from some of the hottest stages in Austin, all spanning a nightclub-heavy three-block radius. Droves of concert-seekers mill the streets, dipping into watering holes for Lone Star beers while waiting for the lights to dim and shows to begin.
Sixth Street: Sixth Street is distinctly Austin. With its colorful and bustling array of bars, restaurants, and entertainment venues, it's a sure bet for experiencing local characters and the vibrancy of the city.
South Congress: This vibrant neighborhood south of Lady Bird Lake is a must-stroll for visitors and a popular hangout for locals. South Congress oozes homespun character and boasts the story of Austin's yesteryear in its boutiques and eateries.

Austin Arts: Austin is known for its creativity, and with good reason. Not only is the city home to some world-class museums like the Blanton, with the nation's largest university-owned collection on exhibit, and the Harry Ransom Center, featuring the first photograph and a Gutenberg Bible, Austin is also home to plenty of artists themselves. There are galleries, like the Contemporary at the Jones Center, that feature new and established artists alike. Museums dedicated to Austin's diversity, such as the Mexic-Arte Museum and the Carver Museum, collect, preserve, and exhibit the city's cultural treasures. Ballet Austin at the Long Center elegantly showcases local dancers and choreographers. Austin honors its Texas history as well at the Bullock Museum. And celebrate eccentricity with the Cathedral of Junk, the Austin Art Car Parade, and many more unusual displays around town.

Courtesy: Austin Bergstrom International Airport

Hill Country
Gruene: Just look for the water tower to find this former German farming settlement, turned ghost town, turned artsy, revitalized community listed on the National Register of Historic Places.
Georgetown: Prepare to fall in love with the "Most Beautiful Town Square in Texas"—Georgetown. Its Victorian downtown square and majestically restored courthouse merely hint at the rich past of this county seat.
Fredericksburg: Known as Texas Hill Country, historic Fredericksburg is home to over 20 wineries offering tastings, barrel-room tours, and unbeatable views. And what pairs well with that? Hill Country and authentic German cuisine, of course.
New Braunfels: Founded in 1845 by German settlers, the small town of New Braunfels is full of historic districts and inviting bodies of water. Grab your swimsuit and an inner tube and float the Guadalupe River. Try something new and rent an inflatable kayak or book a rafting trip.
Wimberley: Much like its neighbors, Wimberley was a former mill town, featuring production in lumber, molasses, and cotton. What remains now is a lovely antiquated hub for Hill Country arts, boutiques, and outdoor adventures.

TUESDAY, 26 JANUARY 2016

Plenary Session

5G and IoT Drive a New Approach to Design and Test of Wireless Systems

Time: 10:10 - 11:50
Room: Salon D+E

Abstract: The requirements to make 5G and IoT a commercial success are very demanding while the potential and opportunities are huge. Increased information bandwidth and faster response times with minimal power consumption are challenging all engineers designing and testing semiconductor technology, infrastructure, and end devices. They are turning even electrical components into highly complex systems. The high frequency amplifier, for example, which is a key component for 5G and IoT, is no exception. In order to design and test these type of complex devices, the tools must evolve. This presentation explains how design, prototype, and test tools are evolving to address these applications. It will show examples of leading edge design work being done today to advance the state of the art of 5G and IoT.

Eric Starkloff,
Executive Vice President of Global Sales and Marketing
National Instruments

As Executive Vice President of Global Sales and Marketing, Eric Starkloff leads worldwide sales and marketing organizations responsible for driving focus, accountability, and growth. Since joining NI in 1997, Starkloff has held leadership positions across the marketing organization, including leading teams that pioneered industry adoption of systems platforms such asPXI and NI CompactRIO. Learn how National Instruments equips engineers and scientists with the tools to accelerate productivity, innovation, and discovery. Starkloff invests his time in science, technology, engineering, and math (STEM) education and in his community serving on the advisory board for the Bradley Department of Electrical and Computer Engineering at Virginia Tech and the board of directors for Urban Roots, an Austin-based sustainable agriculture program to transform the lives of young people. Starkloff holds a bachelor's degree in electrical engineering from the University of Virginia.

DemoTrack Presentations

Time: 15:00 - 17:00
Room: Exhibit Hall (Griffin Hall)

In its fifth year of RWW, there will be a demo session where presenters bring in demonstrations of their latest wireless experiments for a hands-on interactive forum. Come, see and feel how people are tackling real-world problems to address the next wireless innovation!

1. Resistive Wireless Analog Passive Sensors (rWAPS)
Babak Noroozi, Mohammad Abu-Saude, and Bashir Morshed
The University of Memphis

2. Android-based Real Time Heartbeat Detection Using a Microwave Radar
Christoph Will, Fabian Lurz, Kilin Shi, Robert Weigel, Alexander Koelpin
University of Erlangen-Nuremberg

3. Real-time Human Tracking Based on ISAR Imaging with Portable Radar Systems
Zhengyu Peng, José-María Muñoz-Ferreras, Roberto Gómez-García, Changzhi Li
Texas Tech University, University of Alcala

RWW Wireless MicroApps

Time: 14:00 - 16:20
Room: Griffin Hall

The Microwave/RF/Wireless Applications (Wireless MicroApps for short) Forum is a special session held within the exhibition area at RWW to enable vendors to conduct application-centric presentations that highlight their state-of-the-art products, technologies and services or solutions. Announcements regarding the Wireless MicroApps will be made available on the RWW website. Attendees are also encouraged to stop by the exhibition area for more information.

WEDNESDAY, 27 JANUARY 2016

Industry Forum

Tutorial Workshop on From Bits to Waves: Building a Modern Digital Radio in One-day

Time: 09:00 - 15:00
Room: 303 & 304

Organizer and Speaker: Dr. David Ricketts, Carnegie Mellon University

In this fun and interactive workshop, participants will learn the basic theory of modern digital radios as well as the RF circuits and system used to build them. After an introductory session on digital radios, participants will select an RF building block to design and build. There will be short mini-classes (run in parallel) on each component: double balanced mixer, microstrip filters, low noise amplifiers, power amplifiers, baluns, etc. The radios will operate in the ISM 920 Mhz band. After the mini-classes, each participant will design their RF component using NI AWR software. In the afternoon, the designs will be transferred to PCB via a simple "PCB in a bag" method and each component built and tested using a simple VNA. The workshop will conclude with a full radio test of at transmitter and receiver.

Participants need only a basic background in RF circuits, such as S-parameters and basic transmission line theory. Example designs will be available to ensure that everyone, form the most advanced RF designer, to the student can build a successful RF component. A prize will be given to the best performing system. The workshop will be taught by Prof. David S. Ricketts, who has taught this hands on Radio System Design course at Carnegie Mellon University and NCSU as part of a senior design course. Radio System Design is an open, online course that teaches students the basics of digital communication, RF system design, RF circuit design and finally fabrication and testing.

MONDAY, 25 JANUARY 2016

RWW Session: MO1A

RWW Distinguished Lectures I

Chair: Rashaunda Henderson, UT Dallas
Co-Chair: Hermann Schumacher, University of Ulm

Room: Salon A

SiRF Session: MO1B

5G Communication Technology

Chair: Larry Larson, Brown University
Co-Chair: Julio Costa, Qorvo

Room: Salon B

PAWR Session: MO1C

RF Power Amplifier Modeling and Design Approaches

Chair: Jose Pedro, Aveiro University
Co-Chair: Gayle Collins, Intel

Room: Salon C

RWS Session: MO1D

High-Speed & Broadband Wireless Technologies

Chair: Swaminathan Sankaran, Texas Instruments
Co-Chair: Sergio Pacheco, NXP

Room: Salon F

08:00

MO1A-1 New Frontiers in Terahertz Technology

Mona Jarrahi, University of California Los Angeles, Los Angeles, United States

Abstract: In this talk, I will introduce a game changing technology that enables high performance, low cost, and compact terahertz spectroscopy and imaging systems for various chemical identification, material characterization, security screening, biomedical sensing and diagnosis applications. More specifically, I will introduce a new generation of optically driven terahertz sources and detectors that offer orders of magnitude higher terahertz radiation power levels and detection sensitivity levels compared to existing technologies.

MO1B-1 mm-Wave Radio a Key Enabler of 5G Communication (Invited)

F. Aryanfar, Samsung Research America, Richardson, United States

MO1C-1 Behavioral Modeling for Digital Predistortion of RF Power Amplifiers: from Volterra Series to CPWL Functions (Invited)

A. Zhu, University College Dublin, Dublin, Ireland

MO1D-1 Fast Outer-loop Link Adaptation Scheme realizing Low-latency Transmission in LTE-Advanced and Future Wireless Networks (Invited)

T. Ohseki, Y. Suegara, KDDI R&D Laboratories, Inc., Fujimino-shi, Japan

08:40

MO1A-2 Switchable and Tunable Ferroelectric Devices for Adaptive and Reconfigurable RF Circuits

Amir Mortazawi, University of Michigan, Ann Arbor, United States

Abstract: The exponential increase in the number of wireless devices as well as the limited wireless spectrum, pose significant challenges in the design of future wireless communication systems. Adaptive and reconfigurable radios that can change their frequency and mode of operation based on the unused/available wireless spectrum as well as their surrounding environmental conditions have been proposed to address such challenges. This presentation is on the applications of ferroelectric thin film barium strontium titanate (BST), a low loss, high dielectric constant field dependent multifunctional material. Properties and performance of several BST based adaptive and reconfigurable RF circuits will be presented.

MO1B-2 Large-Scale Millimeter-Wave Phased Arrays for 5G Systems (Invited)

G. Rebeiz, University of California - San Diego, La Jolla, United States

MO1C-2 Wideband Linear Distributed GaN HEMT MMIC Power Amplifier with a record OIP3/Pdc

J-S. Moon, J. Kang, D. Brown, R. Grabar, D. Wong, H. Fung, P. Chan, D. Le, C. McGuire, HRL Laboratories, Malibu, United States

MO1D-2 A Scalable Architecture for Terabit/s Wireless

F. Khan, Samsung Electronics, Richardson, USA

09:00

MO1C-3 Experimental Characterization and Control of a Four-Way Non-Isolating Power Combiner

P. Pednekar, L. Deng, T. Barton, University of Texas at Dallas, Richardson, United States

MO1D-3 Implementation of Millimeter Wave Band DDD Radio System

K. Akahori, T. Taniguchi, M. Nagayasu, Y. Toriyama, K. Kojima, Japan Radio Co., Ltd., Tokyo, Japan

09:20

MO1C-4 An RF-Input Chireix Outphasing Power Amplifier

N. Faraji, T. W. Barton, University of Texas at Dallas, Richardson, United States

MO1D-4 A 24mW 5.5Gbps Dual Frequency Conversion Demodulator for Impulse-Radio with First Sidelobe

K. Kohira, N. Kitazawa, H. Ishikuro, Keio University, Yokohama, Japan

Exhibits/Wireless MicroApps/Demo

Industry Exhibits:
Monday 25 January 13:00 - 17:30
and Tuesday 26 January 09:30 - 17:00

Wireless MicroApps:
Tuesday 26 January 14:00 - 16:20

Demo Session:
Tuesday 26 January 15:00 - 17:00

MONDAY, 25 JANUARY 2016

RWW Session: MO2A

RWW Distinguished Lecturers II

Chair: Rashaunda Henderson, UT Dallas
Co-Chair: Hermann Schumacher, University of Ulm

Room: Salon A

SiRF Session: MO2B

RFSOI Technology and Applications

Chair: Paul Hurwitz, Tower Jazz
Co-Chair: Mehmet Kaynak, IHP Microelectronics

Room: Salon B

PAWR Session: MO2C

High-Efficiency RF Power Amplifiers

Chair: Marc Franco, Qorvo
Co-Chair: Murat Eron, Wireless Telecom Group

Room: Salon C

RWS Session: MO2D

Emerging Wireless Technologies and Applications

Chair: Kevin Chuang, NanoSemi Inc.
Co-Chair: Roberto Gómez García, University of Alcala
Room: Salon F

10:10

MO2A-1 Embrace Circuit Nonlinearity to get Transmitter Linearity and Energy Efficiency

Earl McCune, Panasonic Technology Fellow (ret.)

Abstract: Ohm's Law requires that linear transistor operation minimizes amplifier energy efficiency. Improving amplifier efficiency therefore is an exercise of increasing transistor operating nonlinearity to tolerable limits. A discussion of modern signals and the physical limitations they place on amplifiers through Ohm's Law, Shannon's Capacity Limit, and the Fourier Transform begins the presentation. A 'backwards' design approach then starts from maximally nonlinear transistor operation (a switch); the highest energy efficient circuit. The true design goal is output signal accuracy, which this 'backwards' technique is shown to achieve through both principles and measurements.

MO2B-1 Advances in RF Foundry Technology for Wireless and Wireline Communications (Invited)

P. Hurwitz, R. Kanawati, K. Moen, E. Preisler, S. Chaudhry, M. Racanelli TowerJazz, Newport Beach, United States

MO2C-1 Recent Progress on High-Efficiency CMOS and SiGe RF Power Amplifier Design (Invited)

D. Lie[1], J. Lopez[1,2], Y. Li[3], [1]Texas Tech University, Lubbock, United States, [2]NoiseFigure Research Inc., Lubbock, United States,[3]Qorvo Inc., Phoenix, United States

MO2D-1 Study on Equalization System Using Transponder Characteristics to Compensate for Non-linear Distortion (Invited)

M. Kojima,Y. Suzuki, M. Kamei, K. Saito, S. Tanaka, NHK/Science & Technology Research Laboratories, Kinuta, Tokyo

10:50

MO2B-2 Highly linear and sub 120 fs R on x C off 130 nm RF SOI Technology Targeting 5G Carrier Aggregation RF Switches and FEM SOC (Invited)

F. Gianesello[1], A. Monroy[1], V. Vialla[1], E. Canderle[1], G. Bertrand[1], M. Buczko[1], M. Coly[1], N. Revil[1], L. Rolland[1], D. Gloria[1], A. Juge[1], S. Gachon[2], J.P. Aubert[2], E. Granger[1], [1]STMicroelectronics-TR&D, Crolles, France, [2]STMicroelectronics-DMA, Grenoble, France

MO2C-2 High-Power, High-Efficiency Digital Polar Doherty Power Amplifier for Cellular Applications in SOI CMOS

V. Diddi[1], H. Gheidi[1], J. Buckwalter[1,2], Peter Asbeck[1], [1]University of California San Diego, La Jolla, United States [2]University of California Santa Barbara, Santa Barbara, United States

MO2D-2 Single Crystal Aluminum Nitride Film Bulk Acoustic Resonators

J. B. Shealy[1,2], J. B. Shealy[1], P. Patel[1], D. Hodge[1], J. R. Shealy[1,2], [1]Akoustis Technologies, Huntersville, United States, [2]Cornell University, Ithaca, United States

11:10

MO2C-3 2.6 GHz 4 Watt GaN-HEMT Two-Stage Power Amplifier MMIC for LTE Small-Cell Applications

W. Lim[1], H. Lee[1], H. Kang[1], W. Lee[1], D. Lee[2], Y. Yang[1], [1]Sungkyunkwan University, Suwon, Republic of Korea, [2]Wave Electronics, Suwon, Republic of Korea

MO2D-3 Application of Capacitive-Loading Size-Reduction Techniques to Multi-Band and Reconfigurable-Bandwidth Signal-Interference Planar Bandpass Filters

R. Loeches-Sánchez[1], D. Psychogiou[2], R. Gomez-Garcia[1], D. Peroulis[2] ,[1]University of Alcala, Madrid, Spain, [2]Purdue University, West Lafayette, United States

11:30

MO2B-3 An Efficient Fully Integrated Miniature Rectenna in a Standard CMOS SOI Technology

A. Y-S. Jou, R. Azadegan, S. Mohammadi, Purdue University, West Lafayette, United States

MO2C-4 3.6 W/mm High Power Density W-band InAlGaN/GaN HEMT MMIC Power Amplifier

Y. Niida[1,2], Y. Kamada[2], T. Ohki[1,2], S. Ozaki[1,2], K. Makiyama[1,2], Y. Minoura[2], N. Okamoto[1,2], M. Sato[1,2], K. Joshin[1,2], K. Watanabe[1,2], [1]Fujitsu Ltd., Atsugi, Japan [2]Fujitsu Laboratories Ltd., Atsugi, Japan

MO2D-4 A Step Forward Towards Radar Sensor Networks for Structural Health Monitoring of Wind Turbines

J.-M. Munoz-Ferreras[1], Z. Peng[2], Y. Tang[2], R. Gomez-Garcia[1], D. Liang[3], C. Li[2], [1]University of Alcala, Madrid, Spain, [2]Texas Tech University-ECE, Lubbock, United States, [3]Texas Tech University-CECE, Lubbock, United States

Time: 13:30 – 15:40

Room: Griffin Hall

RWW STUDENT PAPER CONTEST

Chairs: Holger Maune, TU Darmstadt and Talal Al-Attar, Santa Clara University

RWW2016 Student Paper Chairs, have selected the following finalists among the student paper submissions from each conference (RWS, PAWR, BioWireleSS, and WiSNet, SiRF). During the poster presentation, judges will visit the student posters and grade the papers in the following five areas: novelty of the research, quality of the poster, quantity of information presented, preparedness of the presenter, and interest to the RWW community. The committee of judges will then select the first- and the second-place winners from each conference for a total of 10 winners. The awards will be announced and presented during the RWW Banquet held Tuesday night from 18:30-21:00. Please visit the student paper competition and support outstanding work by future researchers in industry and academia.

[MO1C-3] Experimental Characterization and Control of a Four-Way Non-Isolating Power Combiner
P. Pednekar, L. Deng, T. Barton, University of Texas at Dallas, Richardson, United States

[MO2C-2] High-Power, High-Efficiency Digital Polar Doherty Power Amplifier for Cellular Applications in SOI CMOS
V. Diddi[1], H. Gheidi[1], J. Buckwalter[1,2], Peter Asbeck[1], [1]University of California San Diego, La Jolla, United States [2]University of California Santa Barbara, Santa Barbara, United States

[MO2C-3] 2.6 GHz 4 Watt GaN-HEMT Two-Stage Power Amplifier MMIC for LTE Small-Cell Applications
W. Lim[1], H. Lee[1], H. Kang[1], W. Lee[1], D. Lee[2], Y. Yang[1], [1]Sungkyunkwan University, Suwon, Republic of Korea, [2]Wave Electronics, Suwon, Republic of Korea

[MO4C-3] Design of a Dual-Band Sequential Power Amplifier
H. Ren, J. Shao, M. Zhou, B. Arigong, J. Ding, H. S. Kim, H. Zhang, University of North Texas, Denton, United States

[WE1A-1] Characterization of RSS Variability for Biobot Localization Using 802.15.4 Radios
H. Xinong, T. Latif, E. Lobaton, A. Bozkurt, M. Sischitiu, North Carolina University, Raleigh, United States

[WE2A-1] Area-constrained Wirelessly-Powered UWB SoC Design for Small Insect Localization
J. Kang, S. Rao, P. Chiang, A. Natarajan, Oregon State University, Corvallis, United States

[WE3D-3] SIW Cavity-backed Slot (Multi-)Antenna Systems for the Next Generation IoT Applications
S. Lemey[1], O. Caytan[1], D. Vande Ginste[1], P. Demeester[1], H. Rogier[1], M. Bozzi[2], [1]Ghent University/iMinds, Ghent, Belgium, [2]University of Pavia, Pavia, Italy

[WE4A-2] Maximum Likelihood Decoding for Non-Synchronized UHF RFID Tags
H. Salah, H. A. Ahmed, J. Robert, A. Heuberger, Friedrich-Alexander-Universitat Erlangen-Nuremberg, Erlangen, Germany

[TU1D-1] Wireless Stethoscope for Recording Heart and Lung Sounds
J-C. Chiao, W. Shi, J. Mays, University of Texas at Arlington, Arlington, United States

[TU1D-4] A Miniaturized Ultrasonically Powered, Programmable Optogenetic Stimulator System
M. J. Weber, A. Bhat, T. C. Chang, J. Charthad, A. Arbabian, Stanford University, Stanford, United States

[TU1D-5] Power Transfer for a Flexible Gastric Stimulator
S. Dubey, J.-C. Chiao, University of Texas at Arlington, Arlington, United States

[TU3D-1] Analysis of Micro-Doppler Signatures for Vital Sign Detection using UWB Impulse Doppler Radar
L. Ren[1], N. Tran[2], H. Wang[1], A. E. Fathy[1], O. Kilic[2], [1]University of Tennessee, Knoxville, United States, [2]The Catholic University of America, Washington, United States

[TU4D-1] Portable Coherent Frequency-Modulated Continuous-Wave Radar for Indoor Human Tracking
Z. Peng[1], J-M. Munoz-Ferreras[2], Y. Tang[1], R. Gomez-Garcia[2], C. Li[1], [1]Texas Tech University, Lubbock, United States, [2]University of Alcala, Madrid, Spain

[TU4D-2] Intermodulation Effect of Detecting Two Subjects Within Antenna Beamwidth of a CW Doppler Radar
T-Y. Huang, J. Lin, University of Florida, Gainesville, United States

[TU4D-3] Phase Based Motion Characteristics Measurement for Fall Detection by Using Stepped-Frequency Continuous Wave Radar
H. Wang[1,2], L. Ren[2], E. Mao[1], A. E. Fathy[2], [1]Beijing Institute of Technology, Beijing, China, [2]University of Tennessee, Knoxville, United States

[TU4D-4] Noncontact Doppler Radar Unique Identification System Using Neural Network Classifier on Life Signs
A. Rahman, E. Yavari, V. M. Lubecke, O-B. Lubecke, University of Hawaii at Manoa, Honolulu, United States

[MO2B-3] An Efficient Fully Integrated Miniature Rectenna in a Standard CMOS SOI Technology
A. Y-S. Jou, R. Azadegan, S. Mohammadi, Purdue University, West Lafayette, United States

[WE3C-2] An Ultra-Low-Voltage Class-C PMOS VCO IC with PVT Compensation in 180-nm CMOS
X. Yang, X. Xu, T. Yoshimasu, Waseda University, Kitakyushu-shi, Japan

[TU1B-3] An X-Band Reconfigurable Bandpass Filter Using Phase Change RF Switches
M. Wang, F. Lin, M. Rais-Zadeh, University of Michigan, Ann Arbor, United States

[MO1D-4] A 24mW 5.5Gbps Dual Frequency Conversion Demodulator for Impulse-Radio with First Sidelobe
K. Kohira, N. Kitazawa, H. Ishikuro, Keio University, Yokohama, Japan

[MO4D-2] An Ultra-Wideband Impulse Receiver for sub-100 fsec Time-Transfer and sub-30 µm Localization
H. Aggrawal, A. Babakhani, Rice University, Houston, United States

[TU3B-5] Accurate Package Model Extraction up to 110 GHz using One-Port Measurements - Applications to a 77 GHz Radar Transceiver
C-E. Souria[1,2], T. Parra[1], G. Montoriol[2], C. Landez[2], [1]University of Toulouse, Toulouse, France, [2]NXP Semiconductor France, Toulouse, France

[TU3B-4] Active Tunable Substrate Integrated Evanescent-Mode Cavity Resonator using Negative Resistance
S. Saeedi, S. Atash-bahar, H. Sigmarsson, University of Oklahoma, Norman, United States

[WE2C-4] Picosecond Digital-to-Impulse Generator in Silicon
M. Assefzadeh, A. Babakhani, Rice University, Houston, United States

[TU3A-3] RF Propagation Through Vegetation with Time-Varying Moisture
A. Cheu[1], M. Morys[1], C. Anderson[2], G. Durgin[1], [1]Georgia Institute of Technology, Atlanta, United States, [2]United States Naval Academy, Annapolis, United States

Entrance to the JW Marriott Hotel in Austin
(Courtesy of JW Marriott Austin)

Austin is home to the capitol of the state of Texas
(Courtesy of JW Marriott Austin)

Music plays a big role in Austin's cultural scene
(Courtesy of JW Marriott Austin)

MONDAY, 25 JANUARY 2016

RWS Session: MO4A

Antennas, Arrays & MIMO

Chair: Glauco Fontgalland, Federal Univ. of Campina Grande
Co-Chair: Dimitria Psychogiou, Purdue University

Room: Salon A

SiRF Session: MO4B

Passives

Chair: Hjalti Sigmarsson, Oklahama University
Co-Chair: Xiaoguang Liu, UC-Davis

Room: Salon B

PAWR Session: MO4C

RF Power Amplifier Technology

Chair: Fred Schindler, Qorvo
Co-Chair: Slim Boumaiza, University of Waterloo

Room: Salon C

RWS Session: MO4D

Transceivers and Front-End Technologies

Chair:
Co-Chair:

Room: Salon F

15:40

MO4A-1 Spatial Filtering of Grating Lobes in Mobile Sparse Arrays (Invited)

J. Nanzer, Johns Hopkins University Applied Physics Laboratory, Laurel, United States

MO4B-1 SOI technology pushes the limits of CMOS for RF applications (Invited)

J-P. Raskin, Université catholique de Louvain, Louvain-la-Neuve, Belgium

MO4C-1 Envelope Tracking Power Amplifier Design Considerations for Handset Applications (Invited)

M. Ji[1], D. Teeter[1], S. Richard[1], E. Shull[2], D. Mahoney[2], [1]Qorvo, Inc. Boston Design Center, Billerica, United States, [2]Qorvo, Inc., Greensboro, United States

MO4D-1 An Observer-Controlled Digital PLL - A Time-Domain Approach (Invited)

W. Namgoong, University of Texas at Dallas, Dallas, United States

16:20

MO4A-2 Optimization of Dielectric Loaded Antenna for 5.8 GHz Wireless Applications with Interference Cancellation Capability

A. Al-Azza, F. Harackiewicz, Southern Illinois University, Carbondale, United States

MO4B-3 Electrical Properties of Creep-Resistant Nanocrystalline Gold-Vanadium Thin Films at Millimeter-Wave Frequencies

J. Li[1, 2], Z. Yang[2], M. D. Hickle[2], D. Psychogiou[2], D. Peroulis[2], [1]University of Electronic Science and Technology of China, Chengdu, P.R.China, [2]Purdue University, West Lafayette, United States

MO4C-2 A 53% PAE Envelope Tracking GaN Power Amplifier for 20MHz Bandwidth LTE Signals at 880MHz

Y. Liu[1], C-S. Yoo[2], J. Fairbanks[1], J. Yan[1,3], D. Kimball[1,3], P. Asbeck[1], [1]University of California at San Diego, La Jolla, United States, [2]Korea Electronics Technology Institute, Gyeonggi-do, Republic of Korea, [3]MaXentric Technologies, LLC, La Jolla, USA

MO4D-2 An Ultra-Wideband Impulse Receiver for sub-100fsec Time-Transfer and sub-30μm Localization

H. Aggrawal, A. Babakhani, Rice University, Houston, United States

16:40

MO4A-3 Performance of Flexible Antennas with Protective Superhydrophobic Coating Layers at RF Frequencies

A. Ghahremani[1], F. Qin[2], D. Baiya[1], J. Simpson[3], A. Fathy[1], [1]University of Tennessee, Knoxville,United States, [2]Wuhan University of Technology, Hubei, China

MO4B-4 Nonlinear characteristics and RF losses of CPW and TFMS lines over a wide temperature range

K. B. Ali, J-P. Raskin, Université catholique de Louvain, Louvain-la-Neuve, Belgium

MO4C-3 Design of a Dual-Band Sequential Power Amplifier

H. Ren, J. Shao, M. Zhou, B. Arigong, J. Ding, H. S. Kim, H. Zhang, University of North Texas, Denton, United States

MO4D-3 A 0.2-2.6GHz Instantaneous Frequency-to-Voltage Converter in 90nm CMOS

B. Jamali, A. Babakhani, Rice University, Houston, United States

17:00

MO4A-4 A Novel Beam Control Method and Configuration for Phased Array Antenna System Employing Frequency-Upconverted Local Signals with Phase Difference

A. Fukuda, H. Okazaki, S. Narahashi, NTT DOCOMO, INC., Yokosuka, Japan

MO4B-5 Equivalent Circuit Modeling of On-Chip Inductors using Feature-based Optimization

V. S. Shilimkar, H. Kabir, L. Zhang, A. Mahan, K. Kim, NXP Semiconductor, Tempe, United States

MO4C-4 Improvement of LDMOS MMICs Compactness

S. Plet[1], G. Bouisse[2], M. Campovecchio[1], [1]University of Limoges, Limoges, France, [2]NXP Semiconductors, Colomiers, France

MO4D-4 A 1mW Direct Conversion Receiver for the 2.4 GHz ISM Band

H. Cruz, Y-J. E. Chen, National Taiwan University, Taipei, Taiwan

TUESDAY, 26 JANUARY 2016

RWS Session: TU1A

Software Defined Radios and Cognitive Radios

Chair: Charles Baylis, Baylor University
Co-Chair: Sergio Pacheco, NXP

Room: Salon A

SiRF Session: TU1B

Tunable & Reconfigurable Technologies and Integrations

Chair: Jean-Pierre Raskin, UCL
Co-Chair: Florian Herrault, HRL Laboratories

Room: Salon B

RWS Session: TU1C

Linear Photonics

Chair: Rashaunda Henderson, UT Dallas
Co-Chair: Charlie Jackson, Northrup Grumman

Room: Salon C

BioWireleSS Session: TU1D

Wireless Remote Sensing of Biosignals and Energy Transfer

Chair: Syed Kamrul Islam, U. of Tennessee
Co-Chair: Mohammad-Reza Tofighi, Penn State University-Harrisburg
Room: Salon F

08:00

TU1A-1 Collaborative Beamfocusing Radios (COBRA): a Reciprocity Based Distributed Beamforming System (Invited)

J. Rode, J. Ward, A.Husain, Ziva Corporation, San Diego, USA

TU1B-1 MEMS-Tunable Silicon-Integrated Cavity Filters (Invited)

Dimitrios Peroulis, Dimitra Psychogiou, Purdue University, West Lafayette, United States

TU1C-1 Introduction to Linear Photonics (Sending RF/Microwave Over Fiber) (Invited)

A. Katz[1,2], [1]Linear Photonics LLC, Hamilton, United States, [2]College of New Jersey, Ewing Township, United States

TU1D-1 Wireless Stethoscope for Recording Heart and Lung Sounds

J-C. Chiao, W. Shi, J. Mays, University of Texas at Arlington, Arlington, United States

08:20

TU1D-2 A Wireless System Improves Reliability of Intraoperative Monitoring Recordings

J. Mays[1], P. Rampy[2], D. Sucato[2], S. Sparagana[2], J.-C. Chiao[1], [1]University of Texas at Arlington, Arlington, United States, [2]Texas Scottish Rite Hospital for Children, Dallas, United States

08:40

TU1A-2 Fast, Momentum-Aided Optimization of Transmitter Amplifier Load Impedance and Input Power for Cognitive Radio Using the Power Smith Tube

J. Barkate[1],A. Tsatsoulas[1], M. Fellows[1], M. Flachsbart[1], C. Baylis[1], L. Cohen[2] ,R. J. Marks II[1], [1]Baylor University, Waco, United States, [2]Naval Research Laboratory, Washington, DC, USA

TU1B-2 Opportunities of Fan-out Wafer Level Packaging (FOWLP) for RF Applications (Invited)

T. Braun[1], M. Töpper[1], K-F. Becker[1], M. Wilke[1], U. Maass[2], I. Ndip[1], R. Aschenbrenner[1], K-D. Lang[2], [1]Fraunhofer Institute for Reliability and Microintegration, Berlin, Germany, [2]Technical University Berlin, Berlin, Germany

TU1C-2 High Dynamic Range Fiber Optic Links and Channelized Receiver Systems Enabled by Advanced Photonic Integrated Circuit (PIC) Technology

S. Yegnanarayanan, MIT Lincoln Laboratory, Lexington, United States

TU1D-3 Formal Method for PSC Design Optimization of 13.56 MHz Resistive Wireless Analog Passive Sensors (rWAPS)

B. Noroozi, B. Morshed, University of Memphis, Memphis, United States

09:00

TU1A-3 A Novel Modulation Classification Method in Cognitive Radios based on Features Clustering of Time-frequency

X. Zhu , T. Fujii, The University of Electro-Communications, Tokyo, Japan

09:00

TU1D-4 A Miniaturized Ultrasonically Powered, Programmable Optogenetic Stimulator System

M. J. Weber, A. Bhat, T. C. Chang, J. Charthad, A. Arbabian, Stanford University, Stanford, United States

09:20

TU1B-3 An X-Band Reconfigurable Bandpass Filter Using Phase Change RF Switches

M. Wang, F. Lin, M. Rais-Zadeh, University of Michigan, Ann Arbor, United States

TU1C-3 50 GHz Microwave Fiber Optic Links

M. Binger, Linear Photonics LLC, Hamilton, United States

TU1D-5 Power Transfer for a Flexible Gastric Stimulator

S. Dubey, J.-C. Chiao, University of Texas at Arlington, Arlington, United States

TUESDAY, 26 JANUARY 2016

RWS Session: TU3A

Propagation Channel Modeling and Utilization

Chair: Chenming Zhou, CDC
Co-Chair: Donald Lie, Texas Tech University

Room: Salon A

RWS Session: TU3B

Passive Components and Packaging

Chair: Roberto Gómez García, University of Alcala
Co-Chair: Dimitria Psychogiou, Purdue University

Room: Salon B

SiRF Session: TU3C

Silicon Photonics

Chair: Mehmet Kaynak, IHP Microelectronics
Co-Chair: Paul Hurwitz, Tower Jazz

Room: Salon C

BioWireleSS Session: TU3D

Monitoring of Vital Signs

Chair: Aly Fathy, University of Tennessee
Co-Chair: Victor Lubecke, University of Hawaii-Manoa

Room: Salon F

13:30

TU3A-1 Simultaneous Transmit and Receive (STAR) Mobile Testbed (Invited)

K. E. Kolodziej, B. T. Perry, MIT Lincoln Laboratory, Lexington, United States

TU3B-1 Ground Design for Crosstalk Mitigation in a WL-CSP Transceiver for Mobile Communications

E. Chikando, C.-T. Tsai, C. Muir, S. Rector, J. Xiang, D. Keyvani, Intel Corporation, Chandler, Unites States

TU3C-1 RF-Inspired Silicon Photonics: Beamforming at Optical Frequencies (Invited)

H. Abediasl, H. Hashemi, University of Southern California, Los Angeles, United States

TU3D-1 Analysis of Micro-Doppler Signatures for Vital Sign Detection using UWB Impulse Doppler Radar

L. Ren[1], N. Tran[2], H. Wang[1], A. E. Fathy[1], O. Kilic[2], [1]University of Tennessee, Knoxville, United States, [2]The Catholic University of America, Washington, United States

13:50

TU3B-2 Signal-Interference Bandpass Filters with Dynamic In-Band Interference Suppression

D. Psychogiou[1], R. Gomez-Garcia[2], D. Peroulis[1], [1]Purdue University, West Lafayette, United States, [2]University of Alcala, Madrid, Spain

13:50

TU3D-2 Random Body Movement Mitigation for FMCW-Radar-Based Vital-Sign Monitoring

J-M. Munoz-Ferreras[1], Z. Peng[2], R. Gomez-Garcia[1], C. Li[2], [1]University of Alcala, Madrid, Spain, [2]Texas Tech University, Lubbock, United States

14:10

TU3A-2 Measurement and Modeling of the Radio Propagation from a Primary Tunnel to Cross Junctions

C. Zhou, R. Jacksha, M. Reyes, National Institute for Occupational Safety and Health, Pittsburgh, United States

TU3B-3 A Tunable VHF Gas Discharge Tube Resonator

A. Semnani, S. Macheret, D. Peroulis, Purdue University, West Lafayette, United States

TU3C-2 BiCMOS Silicon Photonics Platform for Fabrication of High-Bandwidth Electronic-Photonic Integrated Circuits (Invited)

D. Knoll[1], S. Lischke[1], A. Awny[1], M. Kroh[1], E. Krune[2], C. Mai[1], A. Peczek[1], D. Petousi[1], S. Simon[1], K. Voigt[2], G. Winzer[1], L. Zimmermann[1], IHP, Frankfurt (Oder), Germany, [2]Technical University Berlin, Berlin, Germany

TU3D-3 Comparison of UWB Doppler radar and Camera based Phototplethysmography in Non-contact Multiple Heartbeats Detection

R. A. Fathy[1], H. Wang[2,3], L. Ren[2], [1]Farragut High School, Knoxville, United States, [2]University of Tennessee, Knoxville, United States, [3]Beijing Institute of Technology, Beijing, China

14:30

TU3A-3 RF Propagation Through Vegetation with Time-Varying Moisture

A. Cheu[1], M. Morys[1], C. Anderson[2], G. Durgin[1], [1]Georgia Institute of Technology, Atlanta, United States, [2]United States Naval Academy, Annapolis, United States

TU3B-4 Active Tunable Substrate Integrated Evanescent-Mode Cavity Resonator using Negative Resistance

S. Saeedi, S. Atash-bahar, H. Sigmarsson, University of Oklahoma, Norman, United States

14:30

TU3D-4 Contact-based Radar Measurement of Cardiac Motion — A Position and Polarization Study

S. Bi[1], J. Zeng[1], M. Bekbalanova[1], D. Matthews[2], X. Liu[1], [1]University of California Davis, Davis, United States, [2]Cardiac Motion LLC, Sacramento, United States

14:50

TU3B-5 Accurate Package Model Extraction up to 110 GHz using One-Port Measurements - Applications to a 77 GHz Radar Transceiver

C-E. Souria[1,2], T. Parra[1], G. Montoriol[2], C. Landez[2], [1]University of Toulouse, Toulouse, France, [2]NXP Semiconductor France, Toulouse, France

TU3C-3 Light-emitting Devices in Si CMOS and RF Bipolar Integrated Circuits

K. Xu[1], L. W. Snyman[2], J-L. Polleux[3], K. Ogudo[2,3], C. Viana[3], Q. Yu[1], G. Li[4], [1]University of Electronic Science and Technology of China, Chengdu, China, [2]University of South Africa, Pretoria, South Africa, [3]University Paris-Est, Noisy-Le-Grand, France, [4]California Institute for Telecommunications and Information Technology, Irvine, United States

TU3D-5 Biomedical Wireless Radar Sensor Network for Indoor Emergency Situations Detection and Vital Signs Monitoring

M. Mercuri[1], P. Karsmakers[2], B. Vanrumste[2], P. Leroux[2], Dominique Schreurs[2], [1]Holst Centre/imec-NL, Eindhoven, The Netherlands, [2]KU Leuven, Leuven, Belgium

TU3P: Joint RWW Interactive Poster Session
12:55-14:30

Chair: Sergio Pacheco, NXP
Co-Chair: Rashaunda Henderson, UT Dallas
Room: Griffin Hall

[TU3P-1] A Wideband Power Amplifier with 12.5 dBm PSAT and 18.1% PAE for 60~94 GHz Wireless Communication Systems in 90 nm CMOS
Y-S. Lin, J-W. Gao, C-C. Wang, C-C. Chen, Y-W. Lin, National Chi Nan University, Puli, Taiwan

[TU3P-2] A Hybrid Method for Physical and Power Line Loop Topology Estimation using a Broadband Modem
R. Sankaranarayanan, A. Ravishankar, R V College of Engineering, Bangalore, India

[TU3P-3] Equalizer Based Broadband True Time Delay System Design for 5G Millimeter-Wave Applications
A. Parthasarathy, T. Chang, Stanford University, Paolo Alto, United States

[TU3P-4] A Low Noise Figure and High Conversion Gain Down-Conversion Mixer for 94 GHz Image Radar Sensors in 90 nm CMOS
Y-S. Lin, C-C. Chen, J-M. Liu, Y-W. Lin, National Chi Nan University, Puli, Taiwan

[TU3P-5] A 7.2 mW 74-82 GHz CMOS Low-Noise Amplifier with 17.3±1.5 dB Gain and 7.7±0.3 dB NF for Automotive Radar Systems
Y-S. Lin, H-C. Lin, C-Y. Lee, C-C. Wang, C-C. Chen, Y-W. Lin, National Chi Nan University, Puli, Taiwan

[TU3P-6] Low Phase Noise K-Band VCO Design using Convex Optimization Techniques in 45nm CMOS
A. Parthasarathy, Stanford University, Paolo Alto, United States

[TU3P-7] A Bivariate α-κ-μ Distribution
G. C. de Souza, R. A. A. de Souza, National Institute of Telecommunications, Santa Rita do Sapucaí, Brazil

[TU3P-8] Design and Implementation of a High-Performance CMOS Dual Balun for Millimeter-Wave Star Mixer and Four-Way Power Amplifier
Y-S. Lin, Y-W. Lin, C-C. Wang, C-C. Chen, National Chi Nan University, Puli, Taiwan

[TU3P-9] 3D Printed Transmission Line Circuits
C. Jackson, Northrop Grumman Aerosapce Systems, Redondo Beach, United States

[TU3P-10] Impact of Modulation Order and DAC Resolution on Wireless Transmitter of High Data Rate
Y. Wang, J. Guan, M-D. Wei, R. Negra, RWTH Aachen University, Aachen, Germany

[TU3P-11] 60 GHz Aperture Coupled Patch Antenna Array using Reflection-Type Liquid Crystal Phase Shifter
P. Deo[1], D. Mirshekar-Syahkal[2], L. Seddon[3], S. E. Day[3], F. Aníbal Fernández[3], [1]The University of Manchester, Manchester, UK, [2]University of Essex, Colchester, UK, [3]University College London, London, UK

[TU3P-12] Channel and Power Adaptation for Cognitive Radios in Multiuser OFDM Systems
D. B. Rawat, Georgia Southern University Statesboro, United States

[TU3P-13] Maximum Likelihood Estimator for the α-η-μ Fading Environment
F. Palma Batista[1], R. A. A. de Souza[1], A. M. Oliveira Ribeiro[2], [1]National Institute of Telecommunications, Santa Rita do Sapucaí, Brazil, [2]University of Campinas, Campinas, Brazil

[TU3P-14] Approximated Capacity Region of Gaussian Multiple-Access Relay Channel with Correlated Noises
M. Osmani-Bojd[1], S. Beheshti[2], A. Sahebalam[2], G. A. Hodtani[3], [1]Islamic Azad University, Tehran, Iran, [2]Ryerson University, Toronto, Canada, [3]Ferdowsi University, Mashhad, Iran

[TU3P-15] Broadband Backscattered Based Technique to Identify the Presence of Skimming Electronics on Payment Terminals
M. B. Akbar[1], F. Amato[1], A. Claessen[2], G. D. Durgin[1], [1]Georgia Institute of Technology, Atlanta, United States, [2]NCR Corporation, Duluth, United States

[TU3P-16] Circular Polarization on Depolarizing Chipless RFID Tags
M. Martinez, D. van der Weide, University of Wisconsin, Madison, United States

[TU3P-17] Design Methodology of High Efficiency Contiguous Mode Harmonically Tuned Power Amplifiers
T. Sharma, R. Darraji, F. Ghannouchi, University of Calgary, Alberta, Canada

[TU3P-18] Experimental Study of Dynamic Spectrum Access for Opportunistic Mobile Communications using USRP Devices
I. Cushman, A. Younis, D. B. Rawat, Georgia Southern University Statesboro, United States

[TU3P-19] Experimental validation of a wake-up radio architecture
F. Hutu, D. Kibloff, G. Villemaud, J-M. Gorce, University of Lyon, Villeurbanne, France

[TU3P-20] Non-Linear Characterization of A MEMS Bulk Acoustic Wave Filter
M. A. Boujemaa, M. Mabrouk, F. Choubani, University of Carthage, Ariana, Tunisia

[TU3P-21] 60-GHz SiGe BiCMOS Dual-Conversion Down-Converter: Schottky Diode RF Mixer and Analog Gilbert IF Mixer With Microwave Quadrature Generator
J-C. Kao[1], C. Meng[1], H-J. Wei[1], G-W. Huang[2], [1]National Chiao Tung University, Hsinchu, Taiwan, [2]National Nano Device Laboratories, Hsinchu, Taiwan

[TU3P-22] Evaluation of LDMOS transistors for 10 Gbps switched mode applications and X–band power amplifier
C. Wipf, R. Sorge, J. Schmidt, IHP Microelectronics, Frankfurt/Oder, Germany

[TU3P-23] 10.5–14.5 GHz Four-Channel Phased Array Receiver in 0.13-μm CMOS Technology
M. M. R. Esmael, M. Ayman, K. Gooda, M. A.Y. Abdalla, M. Mobarak, Cairo University, Giza, Egypt

[TU3P-24] A 110-132 GHz VCO with 1.5dBm Peak Output Power and 18.2% Tuning Range in 130 nm SiGe BiCMOS for D-Band Transmitters
S. Muralidharan, K. Wu, M. Hella, Rensselaer Polytechnic Institute, Troy, United States

[TU3P-25] A Wideband High Isolation CMOS T/R Switch for X-Band Phased Array Radar Systems
E. Ozeren[1], A. Can Ulku[1], I. Kalyoncu[1], C. Caliskan[1], M. Davulcu[1], M. Kaynak[2], Y. Gurbuz[1], [1]Sabanci University, Istanbul, Turkey, [2]IHP Microelectronics GmbH, Frankfurt/Oder, Germany

Above: RWW 2015 Poster Session in San Diego, CA, United States

TUESDAY, 26 JANUARY 2016

SiRF Session: TU4A

mmWave and Higher Frequency Applications

Chair: Chien-Nan Kuo, NCTU
Co-Chair: Dietmar Kissinger, IHP GmbH/TU Berlin

Room: Salon A

RWS Session: TU4B

Late News I

Chair: Rashaunda Henderson, UT Dallas
Co-Chair: Glauco Fontgalland, Federal Univ. of Campina Grande

Room: Salon B

RWS Session: TU4C

Late News II

Chair: Kevin Chuang, NanoSemi Inc.
Co-Chair: Eric Chikando, Intel

Room: Salon C

BioWireleSS Session: TU4D

Remote Patient Monitoring with Radars

Chair: Changzhi Li, Texas Tech University
Co-Chair: Dominique Schreurs, KU Leuven

Room: Salon F

16:00

TU4A-1 Sensor System in SiGe BiCMOS at 245 and 500 GHz for Gas Spectroscopy (Invited)

K. Schmalz[1], J. Borngräber[1], P. Neumaier[2], H-W. Hübers[2,3], D. Kissinger[1], [1]IHP, Frankfurt (Oder), Germany, [2]Deutsches Zentrum für Luft- und Raumfahrt (DLR), Berlin, Germany, [3]Humboldt-Universität zu Berlin, Berlin, Germany

TU4B-1 Additive Manufacturing Technologies for Near- and Far-Field Energy Harvesting Applications (Invited)

S. A. Nauroze, J. Kimionis, J. Bito, W. Su, J. G. Hester, K. Nate, B. Tehrani, M. M. Tentzeris, Georgia Institute of Technology, Atlanta, United States

TU4C-1 Method to Improve the Conversion Gain Flatness of Transformer-Coupled Mixers

H. Li, C. E. Saavedra, Queen's University, Kingston, Canada

TU4D-1 Portable Coherent Frequency-Modulated Continuous-Wave Radar for Indoor Human Tracking

Z. Peng[1], J-M. Munoz-Ferreras[2], Y. Tang[1], R. Gomez-Garcia[2], C. Li[1], [1]Texas Tech University, Lubbock, United States, [2]University of Alcala, Madrid, Spain

16:20

TU4C-2 A 74.6 GHz-83.6 GHz Digitally-Controlled Oscillator with 370 kHz Frequency Resolution in 65 nm CMOS

Y. Wang, Y. Liu, A. Agrawal, A. Natarajan, Oregon State University, Corvallis, United States

TU4D-2 Intermodulation Effect of Detecting Two Subjects Within Antenna Beamwidth of a CW Doppler Radar

T-Y. Huang, J. Lin, University of Florida, Gainesville, United States

16:40

TU4A-2 Microwave Communication Links for Neural Interface Applications (Invited)

A. Nurmiko, L. E. Larson, Brown University, Providence, United States

TU4B-2 Fast Flexible Thin-Film Transistors with Deep Submicron Channel Enabled by Nanoimprint Lithography

J-H. Seo[1], T. Ling[2], L. J. Guo[2], Z. Ma[1], [1]University of Wisconsin, Madison, United States, [2]University of Michigan, Ann Arbor, United States

TU4C-3 A Multiband Low Noise Amplifier with a Switchable Gm Active Shunt Feedback for SDRs

G. Adom-Bamfi, K. Entesari, Texas A&M University, College Station, United States

TU4D-3 Phase Based Motion Characteristics Measurement for Fall Detection by Using Stepped-Frequency Continuous Wave Radar

H. Wang[1,2], L. Ren[2], E. Mao[1], A. E. Fathy[2], [1]Beijing Institute of Technology, Beijing, China, [2]University of Tennessee, Knoxville, United States

17:00

TU4B-3 Effective Permittivity Measurement with the Use of Coupled-Line Section Sensor

I. Piekarz, J. Sorocki, K. Wincza, S. Gruszczynski, AGH University of Science and Technology, Cracow, Poland

TU4C-4 A Low Power and High Conversion Gain 94 GHz Up-Conversion Mixer with Excellent I/O Matching and LO-RF Isolation in 90 nm CMOS

Y-S. Lin, C-C. Chen, C-C. Wang, Y-W. Lin, R-C. Liu, C-C. Ji, National Chi Nan University, Puli, Taiwan

TU4D-4 Noncontact Doppler Radar Unique Identification System Using Neural Network Classifier on Life Signs

A. Rahman, E. Yavari, V. M. Lubecke, O-B. Lubecke, University of Hawaii at Manoa, Honolulu, United States

17:20

TU4A-3 A 200-GHz Triple-Push Oscillator in 65-nm CMOS with Design Techniques for Enhancing DC-to-RF Efficiency

H. Rashtian, L. P. B. Katehi, Q. J. Gu, X. Liu, University of California-Davis, Davis, United States

TU4B-4 Low-Cost Impedance Tuner Utilizing Quadrature Coupled-Line Coupler for Load and Source Pull Transistor Measurement Applications

J. Sorocki, I. Piekarz, S. Gruszczynski, K. Wincza, AGH University of Science and Technology, Cracow, Poland

TU4D-5 A Wireless System for Gastric Slow Wave Acquisition and Gastric Electrical Stimulation

A. Lee[1,2], R. Wang[1], A. Farajidavar[1], [1]New York Institute of Technology, School of Engineering and Computing Sciences, Old Westbury, United States, [2]Stuyvesant High School, New York, United States

WEDNESDAY, 27 JANUARY 2016

WiSNet Session: WE1A

Insights in Sensor Networks and System Design

Chair: Rahul Kanna, Intel
Co-Chair: Holger Maune, TU Darmstadt

Room: Salon A

RWW Session: WE1B

Digital Signal Processing as Applied to Wireless

Chair: Charles Baylis, Baylor University
Co-Chair: Rashaunda Henderson, UT Dallas

Room: Salon B

SiRF Session: WE1C

Topics in RF Modeling and Characterization Techniques

Chair: Monte Miller, NXP
Co-Chair: Vikas Shilimkar, NXP

Room: Salon C

BioWireleSS Session: WE1D

Micro Biosensing

Chair: Pinshan Wang, Clemson University
Co-Chair: JC Chiao, University of Texas-Arlington

Room: 301/302

08:00

WE1A-1 Characterization of RSS Variability for Biobot Localization Using 802.15.4 Radios

H. Xinong, T. Latif, E. Lobaton, A. Bozkurt, M. Sischitiu, North Carolina University, Raleigh, United States

WE1B-1 An Improved Algorithm for Waveform Generation for Digitally-Driven Switching-Mode Power Amplifiers (Invited)

H. Gheidi, P. Asbeck, University of California San Diego, La Jolla, USA

WE1C-1 Electromagnetic Simulation Challenges in RFIC Design (Invited)

J. M. Carroll, J. Dunn, National Instruments, El Segundo, United States

WE1D-1 Concept and Design of a 40 GHz Differential Sensor for the Analysis of Biomedical Substances

S. Schmidt, M. Schussler, C. Damm, C. Schuster, R. Jakoby, Technische Universitat Darmstadt, Darmstadt, Germany

08:20

WE1A-2 Performance of a Partner Selection Algorithm in IEEE 802.15.4 Based Wireless Sensor Networks

S. M. H. Aejaz[1], T. Zemen[2], A. Springer[1], [1]Johannes Kepler University, Linz, Austria, [2]Austrian Institute of Technology, Vienna, Austria

08:20

WE1D-2 Silver Nanowire Based Wearable Sensors for Multimodal Sensing

F. Lin[1], S. Yao[2], M. McKnight[1], Y. Zhu[2], Alper Bozkurt[1],[1]North Carolina State University-Electrical and Computer Engineering, Raleigh, United States, [2]North Carolina State University-Mechanical and Aerospace Engineering, Raleigh, United States

08:40

WE1A-3 Low Latency Evaluation of an Adaptive Industrial Wireless Communications System for ISM Bands

M. Kloc[1], N. Franchi[1], M. Gardill[2], Robert Weigel[1], [1]University of Erlangen-Nuremberg, Erlangen, Germany, [2]Dresden University of Technology, Dresden, Germany

WE1B-2 Waveform Synthesis via Alternating Projections with Ambiguity Function, Peak-to-Average Power Ratio, and Spectrum Requirement

D. Eustice[1],L. Cohen[2], R. J. Marks II[1], [1]Baylor University, Waco, Unites States, [2]Naval Research Laboratory, Washington, DC, United States

WE1C-2 A Perspective on RF Modeling (Invited)

C. C. McAndrew, NXP Semiconductor, Inc., Tempe, United States

WE1D-3 Comparison of Microstrip Stub Resonators for Dielectric Sensing in Low-Power K-band VCO

F. I. Jamal[1], S. Guha[1], M. H. Eissa[1], J. Borngraeber[1], C. Meliani[1], D. Kissinger[1,2], J. Wessel[1], [1]IHP, Frankfurt (Oder), Germany, [2]Technische Universitaet Berlin, Berlin, Germany

09:00

WE1A-4 A Closed Form Solution for Frame Slotted ALOHA Utilizing Time and Multiple Collision Recovery Coefficients

H. A. Ahmed, H. Salah, J. Robert, A. Heuberger, Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany

09:00

WE1D-4 Ultrasensitive flexible graphene-based resonator sensor for strain sensing

A. Alipour[1], S. Fardindoost[2], S. Mohammadi[3], S. Gokyar[1], R. Sarvari[2], A. Irajizad[2], H. V. Demir[1], [1]Bilkent University, Ankara, Turkey, [2]Sharif University of Technology, Tehran, Iran, [3]Stanford University, Stanford, United States

09:20

WE1A-5 Livestock Low Power Monitoring System

H. F. Lopes, N. B. Carvalho, Universidade de Aveiro, Aveiro, Portugal

WE1C-3 Enablement of Advanced Silicon Photonics Optical Passive Library leveraging Silicon Based RF Passive Development Methodology

F. E. Ayi-Yovo[1], C. Durand[1], H. Petiton[1], S. Jan[1], F. Gianesello[1], D. Bucci[2], J.-E. Broquin[2], D. Gloria[1], [1]STMicroelectronics, Crolles, France, [2]University Grenoble Alpes,Grenoble, France

WE1D-5 Calibration Scheme for Microwave Biosensors using exclusively Liquid Calibration Standards

F. Michler, F. Lenze, M. Schussler, R. Jakoby, Technische Universitat Darmstadt, Darmstadt, Germany

WEDNESDAY, 27 JANUARY 2016

WisNet Session: WE2A

Advanced Localization and Sensing Technologies

Chair: Nils Pohl, Fraunhofer Institute FHR
Co-Chair: Changzhi Li, Texas Tech University
Room: Salon A

RWW Session: WE2B

Wireless System Modeling & Late News

Chair: Abhay Samant, National Instruments
Co-Chair: Jeremy Muldavin,MIT Lincoln Labs

Room: Salon B

RWS-SiRF Joint Session: WE2C

SiRF Circuits and Applications - 1

Chair: Julio Costa, Qorvo
Co-Chair: Laleh Rabierad, Raytheon

Room: Salon C

BioWireleSS Session: WE2D

Microwaves Interaction with Biological Materials

Chair: Katia Grenier, LAAS-CNRS
Co-Chair: Dietmar Kissinger, IHP GmbH/TU Berlin

Room: 301/302

10:10

WE2A-1 Area-constrained Wirelessly-Powered UWB SoC Design for Small Insect Localization

J. Kang, S. Rao, P. Chiang, A. Natarajan, Oregon State University, Corvallis, United States

WE2B-1 Wireless D-band Communication up to 60 Gbit/s with 64QAM using GaAs HEMT Technology (Invited)

I. Ando, M. Ito,T. Kuwabara,T. Marumoto, K. Kunihiro, NEC Corporation, Kawasaki, Japan

WE2C-1 Bring the System Down – to a Chip (Invited)

S. Mohammadi, Purdue University, West Lafayette, United States

WE2D-1 Two-Frequency Dielectrophoresis Analysis of Viable/Non-Viable Single CHO Cells Employing a Microwave Cytometer (Invited)

S. Afshar, E. Salimi, K. Braasch, M. Butler, D. Thomson, G. Bridges, University of Manitoba, Winnipeg, Canada

10:30

WE2A-2 Low-weight Wireless Sensor Node for Animal Encounter Detection and Dual-band Localization

M. Hierold[1], M. Hartmann[2], S. Ripperger[3], F. Mayer[3], A. Heuberger[2], R. Weigel[1], A. Koelpin[1], [1]Inst. of Electronics Eng., Friedrich-Alexander University of Erlangen-Nuremberg, Erlangen, Germany, [2]Inst. of Information Tech., Friedrich-Alexander University of Erlangen-Nuremberg, Erlangen, Germany, [3]Museum fuer Naturkunde, Berlin, Germany

10:50

WE2A-3 Maximum Likelihood Position Estimation of Passive UHF RFID Tags Based on Evaluation of Backscattered Transponder Signals

M. Scherhaufl[1], M. Pichler[1], A. Stelzer[2], [1]Linz Center of Mechatronics GmbH, Linz, Austria, [2]Johannes Kepler University, Linz, Austria

WE2B-2 Optimal Dispersion Compensation within Atmospheric THz Communication Channels

M. Mandehgar, D. Grischkowsky, Oklahoma State University, Stillwater, United States

WE2C-2 0.25µm SiGe BiCMOS 30GHz Balanced Vector Modulator

F. Tabarani, H. Schumacher, Ulm University, Ulm, Germany

WE2D-2 Phantom Setup for Precise Perfusion Measurement by Microwave

M-R. Tofighi, J. Pardeshi, E. Wasatonic, Pennsylvania State University-Harrisburg, Middletown, United States

11:10

WE2A-4 System Simulation for FMCW Radar in Industrial Applications

S. Ayhan, S. Scherr, M. Pauli, A. Bhutani, Thomas Zwick, Karlsruhe Institute of Technology, Karlsruhe, Germany

WE2B-3 Comb Generator Design for SWaP-Constrained Applications

K. E. Kolodziej, MIT Lincoln Laboratory, Lexington, United States

WE2C-3 CNTFET-based RF electronics - State-of-the-art and future prospects

M. Schröter[1,2], M. Claus[1], S. Hermann[3], J. Tittman-Otto[3], S. Schultz[4], [1]TU Dresden, Dresden, Germany, [2]University of California-San Diego, La Jolla, United States, [3]TU Chemnitz, Chemnitz, Germany, [4]Fraunhofer Institute for Electronic Nano Systems, Chemnitz, Germany

WE2D-3 Time Domain Detection and Differentiation of Single Particles and Cells with a Radio Frequency Interferometer

Z. Wang[1], Y. Raval[2], T. R. Tzeng[2], B. Booth[3], B. Flaherty[4], D. Peterson[4], J. Moore[4], D. Rosenmann[5], R. Divan[5], G. Yu[6], P. Wang[1],[1]Clemson University-Electrical and Computer Engineering, Clemson, United States, [2]Clemson University-Biological Sciences, Clemson, United States, [3]Clemson University-Inst. Bio Interfaces of Engineering, Clemson, United States, [4]University of Georgia, Athens, United States, [5]Argonne National Laboratory, Lemont, United States, [6]University of Findlay, Findlay, United States

11:30

WE2A-5 Instantaneous Heartbeat Detection using a Cross-Correlation based Template Matching for Continuous Wave Radar Systems

C. Will, K. Shi, F. Lurz, R. Weigel, A. Koelpin, University of Erlangen-Nuremberg, Erlangen, Germany

WE2B-4 On the Feasibility of Non-contact Cardiac Motion Sensing for Emerging Heart-based Biometrics

Y. Zhuang[1], C. Song[1], F. Lin[1], Y. Li[2], C. Li[2], W. Xu[1], [1]SUNY at Buffalo, Buffalo, United States, [2]Texas Tech University, Lubbock, United States

WE2C-4 Picosecond Digital-to-Impulse Generator in Silicon

M. Assefzadeh, A. Babakhani, Rice University, Houston, United States

WE2D-4 Impact of sensor metal thickness on microwave spectroscopy sensitivity for individual particles and biological cells analysis

W. Chen, D. Dubuc, K. Grenier, LAAS-CNRS, Toulouse, France

WE3P: Joint RWW Interactive Poster Session
12:55-14:30

Chair: Kevin Chuang NanoSemi Inc.
Co-Chair: Sergio Pacheco, NXP
Room: Salon D/E

[WE3P-1] High Gain Tunable Stacked Antenna using Soft FeCo Nanoparticles
K. Alhassoon[1], Y. Malallah[1], C. Chinnasamy[2], M. Marinescu[2], A. Daryoush[1], [1]Drexel University, Philadelphia, United States, [2]Electron Energy Corporation (EEC), Landisville, United States

[WE3P-2] Secure and Robust Symmetric Key Generation using Physical Layer Techniques under Various Wireless Environments
C. Sahin, B. Katz, K. R. Dandekar, Drexel University, Philadelphia, United States

[WE3P-3] The Bias Smith Tube: Simultaneous Optimization of Bias Voltage and Load Impedance in Power Amplifier Design
M. Fellows[1], S. Rezayat[1], J. Barlow[1], J. Barkate[1], A. Tsatsoulas[1], C. Baylis[1], L. Cohen[2], R. J. Marks II[1], [1]Baylor University, Waco, United States, [2]Naval Research Laboratory, Washington, DC, United States

[WE3P-4] Electronic Shelf Label System Employing a Visible Light Identification Link
J-S. Park, B-J. Jang, Kookmin University, Seoul, Republic of Korea

[WE3P-5] Design of Non-linearity Preprocessor in Cooperative Diversity Systems over Rayleigh Fading Channel and Impulsive Noise
H. Oh, H. Nam, Hanyang University, Ansan, Republic of Korea

[WE3P-6] Millimeter-wave System for the Detection of Cracks using Weiner Filter-based Layered Synthetic Aperture Radar (WL-SAR) Technique
V. Natarajan[1,2], M. F. Karim[2], L.C. Ong[2], [1]National University of Singapore, Singapore, [2]Institute for Infocomm Research, Singapore

[WE3P-7] Multi-Target Tracking based on Features of Sensing Results and Wireless Parameters for Physical Wireless Parameter Conversion Sensor Networks
M. Oriuchi[1], O. Takyu[1], K. Shirai[1], F. Sasamori[1], Shiro Handa[1], Takeo Fujii[2], M. Ohta[3], [1]Shinshu University, Matsumoto, Japan, [2]The University of Electro-Communications, Chofu, Japan, [3]Fukuoka University, Fukuoka, Japan

[WE3P-8] Physical Phaseplate for the Generation of a Millimeter-Wave Hermite-Gaussian Beam
H. Kumar[1], H. Yao[1], T. Ei[1], N. Ashrafi[3], T. LaFave Jr[2], S. Ashrafi[3], D. L. MacFarlane[2], R. Henderson[1], [1]University of Texas at Dallas, Richardson, United States, [2]Southern Methodist University, Dallas, United States, [3]NxGen Partners LLC, Dallas, United States

[WE3P-9] Spider Monkey Optimization (SMO): A Novel Optimization Technique in Electromagnetics
A. A. Al-Azza[1,2], A. A. Al-Jodah[3], F. J. Harackiewicz[1], [1]Southern Illinois University, Carbondale, United States, [2]University of Basrah, Basrah, Iraq, [3]University of Technology, Baghdad, Iraq

[WE3P-10] Using 3D field sensor for measuring the spectrum of glass insulators
H. Pedro[1], G. Fontgalland[1], L. X. Travassos[2], [1]Federal University of Campina Grande, Campina Grande, Brazil, [2]Federal University of Santa Catarina, Joinville, Brazil

[WE3P-11] A Study of Current-Reuse 800 MHz/1.9 GHz Concurrent Dual-Band Amplifier
T. Ogawa[1], T. Morishita[1], K. Komoku[1], Y. Itano[1,2], S. Yoshitomi[2], N. Itoh[1], [1]Okayama Prefectural University, Kuboki, Japan, [2]Toshiba Corporation, Horikawa-cho, Japan

[WE3P-12] Efficient Coupling for Non-Galvanic HF RFID Cards
S. Rizkalla[1], R. Prestros[2], C. F. Mecklenbraeuker[1], [1]Vienna University of Technology, Vienna, Austria, [2]NXP Semiconductors Austria GmbH, Gratkorn, Austria

[WE3P-13] An Efficient Platform for Low-Power, High-Definition Multimedia Wireless Sensor Nodes
M. Demaria, A. Rodriguez de la Concepcion, R. Stefanelli, D. Trinchero, Politecnico di Torino, Torino, Italy

[WE3P-14] Wearable Driver Drowsiness Detection Using Electrooculography Signal
Z. Ma[1], B. C. Li[2], Z. Yan[1], [1]University of Texas at Austin, Austin, United States, [2]Westlake High School, Austin, United States

[WE3P-15] Wireless Sensors for Intelligent Ball Screws Monitoring
Y-C. Chang[1], C-C. Wang[2], W-D. Jian[1], C-C. Chang[1,3], G-H. Feng[2,3], H-C. Lee[1,3], [1]National Chung-Cheng University-Dept. EE, Chiayi, Taiwan, [2]National Chung-Cheng University-Dept. ME, Chiayi, Taiwan, [3]National Chung-Cheng University-Adv. Inst. of Manufacturing with High-Tech Innovations, Chiayi, Taiwan

[WE3P-16] Polypyrrole (PPy) Conductive Polymer Coating of Dry Patterned Vertical CNT (pvCNT) Electrode to Improve Mechanical Stability
M. Abu-Saude, B.I. Morshed, The University of Memphis, Memphis, United States

[WE3P-17] Impulse Radio Ultra-wideband (IR-UWB) Transmitter for Low Power Low Data Rate Biomedical Sensor Applications
I. Mahbub, S. K. Islam, A. Fathy, University of Tennessee, Knoxville, United States

[WE3P-18] Low-power Digital-IF Noncontact Instantaneous Vital Sign Detection Based on Synchrosqueezing Transform
H. Zhao, H. Hong, Y. Li, L. Sun, X. Zhu, Nanjing University of Sceince and Technology, Nanjing, China

[WE3P-19] Through-the-Wall Human Respiration Detection Using Impulse Ultra-wide-band Radar
J. Yan, H. Zhao, Y. Li, L. Sun, H. Hong, X. Zhu, Nanjing University of Science and Technology, Nanjing, China

[WE3P-20] Flexible & Planar Implantable Resonant Coils for Wireless Power Transfer using Inkjet Masking Technique
A. Usman, J. Bito, M. M. Tentzeris, Georgia Institute of Technology, Atlanta, United States

[WE3P-21] PIN Diode-based Transmit-Receive Switch for 7 T MRI
R. H. Caverly, Villanova University, Villanova, United States

[WE3P-22] A High Power High Efficiency Class AB Pulse Power Amplifier
S. A. Mohadeskasaeia[1], X. Zhoub[1], S. Abnavic[3], [1]University of Science and Technology, Beijing, China, [2]Queen's University, Kingston, Canada

[WE3P-23] A High-Order Model Looking Beyond the First-Order Harmonic Superposition Assumption
D.T. Bespalko, A. Amini, S. Boumaiza, University of Waterloo, Waterloo, Canada

[WE3P-24] Investigation of the Practical Output Load Impedance Sensitivity of a 10 W GaN Device Subject to Gate Bias Variation
D. Gecan[1], M. Olavsbråten[1], K. M. Gjertsen[2], [1]Norwegian University of Science and Technology, Trondheim, Norway, [2]Disruptive Technologies Research, Blomsterdalen, Norway

[WE3P-25] Using Waveform Engineering to Understand the Impact of Harmonic Terminations during 5:1 VSWR Stress Tests
D. Loescher, P. Tasker, S. Cripps, Cardiff University, Cardiff, Wales

[WE3P-26] Broadband Reactively Matched GaAs MMIC PA
A. Pereira, T. Parker, M. Heimlich, N. Weste, Macquarie University, Sydney, Australia

RWW 2015 Student Paper Competition Winners and Conference Organizers

WEDNESDAY, 27 JANUARY 2016

RWW

WiSNET Session: WE3A

Six-Port and Multi-Port Technology

Chair: Alexander Koelpin, University of Erlangen-Nuremberg
Co-Chair: Kamel Haddadi, IEMN

Room: Salon A

RWS Session: WE3B

Late News III

Chair: Jeremy Muldavin, MIT Lincoln Labs
Co-Chair: Rashaunda Henderson, UT Dallas

Room: Salon B

SiRF Session: WE3C

SiRF Circuits and Applications - 2

Chair: Hermann Schumacher, University of Ulm
Co-Chair: Austin Chen, California State University

Room: Salon C

WiSNET Session: WE3D

Wireless Sensors for Internet of Things

Chair: Luca Roselli, University of Perugia
Co-Chair: Alesandra Costanzo, University of Bologna

Room: 301/302

13:30

WE3A-1 Progress of Six-Port Technology for Industrial Radar Applications

G. Vinci[1], A. Koelpin[2], [1] InnoSenT GmbH, Donnersdorf, Germany, [2]University of Erlangen-Nuremberg, Erlangen, Germany

WE3B-1 A Transmitter Beamforming System for the Localization of Passive RFID Tags (Invited)

R. Kronberger[1], U. Dettmar[1], C. Hudasch[1], R. Lerche[1], M. Cremer[2], A. Pervez[2], [1]TH Koeln, Koeln, Germany, [2]London South Bank University, London, United Kingdom

WE3C-1 Data Converters for 100 Gbit/s Communication Links and beyond (Invited)

M. Grözing, H. Huang, X-Q. Du, M. Berroth, University of Stuttgart, Stuttgart, Germany

WE3D-1 Augmented RFID Tags

S. Tedjini[1], G. Andia-Vera[1], M. Zurita[2], R.C.S. Freire[2], Y. Duroc[3], [1]Université Grenoble Alpes, Valence Cedex, France, [2]Universidade Federal de Campina Grande, Campina Grande, Brazil, [3]Université Claude-Bernard Lyon 1, Villeurbanne, France

13:50

WE3A-2 65 nm SOI CMOS 60 GHz Passive Mixer for Six-Port Technology

K. Haddadi, C. Loyez, IEMN-University Lille 1, Villeneuve d'Ascq Cedex, France

13:50

WE3D-2 EH Performance of a Hybrid Energy Harvester for Autonomous Nodes

M. Virili[1], A. Georgiadis[2], F. Mira[2], A. Collado[2], F. Alimenti[1], P. Mezzanotte[1], L. Roselli[1], [1]University of Perugia, Perugia, Italy, [2]Centre Tecnologic de Telecomunicacions de Catalunya, Castelldefels, Spain

14:10

WE3A-3 Digital Phase Correction for Multiplexed ADCs in Low-Cost Six-Port Interferometers

F. Lurz, C. Dorn, S. Lindner, S. Linz, S. Mann, R. Weigel, A. Koelpin, University of Erlangen-Nuremberg, Erlangen, Germany

WE3B-3 Informed MIMO Implementation of Distributed Transmit Beamforming for Range Extension (Invited)

C. Hayes, A. R. Margetts, C. Martin, H. Nguyen, W. Song, MIT Lincoln Laboraty, Lexington, United States

WE3C-2 An Ultra-Low-Voltage Class-C PMOS VCO IC with PVT Compensation in 180-nm CMOS

X. Yang, X. Xu, T. Yoshimasu, Waseda University, Kitakyushu-shi, Japan

WE3D-3 SIW Cavity-backed Slot (Multi-)Antenna Systems for the Next Generation IoT Applications

S. Lemey[1], O. Caytan[1], D. Vande Ginste[1], P. Demeester[1], H. Rogier[1], M. Bozzi[2], [1]Ghent University/iMinds, Ghent, Belgium, [2]University of Pavia, Pavia, Italy

14:30

WE3A-4 Improved Calibration Procedure for Six-Port Based Precise Displacement Measurements

K. Staszek[1], S. Linz[2], F. Lurz[2], S. Mann[2], R. Weigel[2], A. Koelpin[2], [1]AGH University of Science and Technology, Krakow, Poland, [2]University of Erlangen-Nuremberg, Erlangen, Germany

14:30

WE3C-3 A 10 bit 90 MS/s SAR ADC in a 65 nm CMOS Technology

J. Digel, M. Grözing, M. Berroth, University of Stuttgart, Stuttgart, Germany

WE3D-4 SIW Components for the Internet of Things: Novel Topologies, Materials, and Manufacturing Techniques

S. Moscato, L. Silvestri, N. Delmonte, M. Pasian, M. Bozzi, L. Perregrini, University of Pavia, Pavia, Italy

14:50

WE3A-5 Substrate Integrated Waveguide Fed Antenna for 61GHz Ultra-Short-Range Interferometric Radar Systems

S. Mann, F. Lurz, S. Linz, S. Lindner, C. Will, S. Wibbing, R. Weigel, A. Koelpin, University of Erlangen-Nuremberg, Erlangen, Germany

WE3C-4 A 130-GHz OOK Transmitter in 65-nm CMOS Technology

N. Kim, H. Son, D-H. Kim, J-S. Rieh, Korea University, Seoul, Republic of Korea

WE3D-5 A 2.4 GHz/868 MHz Dual-Band Wake-Up Radio for Wireless Sensor Network and IoT

M. Del Prete[1], D. Masotti[1], A. Costanzo[1], M. Magno[1,2], L. Benini[1,2], [1]Università di Bologna, Bologna, Italy, [2]ETH Zurich, Zurich, Switzerland

WiSNet Session: WE4A

System Elements for Cyber Physical Systems

Chair: Alexander Koelpin, University of Erlangen-Nuremberg
Co-Chair: Joerg Robert, University of Erlangen-Nuremberg

Room: Salon A

SiRF Session: WE4C

Power Amplifer Applications

Chair: Dietmar Kissinger, IHP GmbH/TU Berlin
Co-Chair: Monte Miller, NXP

Room: Salon C

15:40

WE4A-1 A Novel 1 µW Super-Regenerative Receiver with Reduced Spurious Emissions and Improved Co-Channel Interferer Tolerance

M. Eppel, H. Milosiu, F. Oehler, Fraunhofer Institute for Integrated Circuits IIS, Erlangen, Germany

WE4C-1 Series Power Combining: Enabling Techniques for Si/SiGe Millimeter-wave Power Amplifiers (Invited)

J. F. Buckwalter[1], S. Daneshgar[2], J. Jayamon[2], P. Asbeck[2], [1]University of California-Santa Barbara, Santa Barbara, United States, [2]University of California-San Diego, La Jolla, United States

16:00

WE4A-2 Maximum Likelihood Decoding for Non-Synchronized UHF RFID Tags

H. Salah, H. A. Ahmed, J. Robert, A. Heuberger, Friedrich-Alexander-Universitat Erlangen-Nuremberg, Erlangen, Germany

16:20

WE4A-3 Temporal wireless synchronization with compressed opportunistic signals

M. Ibrahim[1,2], F. Roemer[1,2], N. Hadaschik[2], H-M. Troger[3], B. Sackenreuter[2], N. Franke[2], J. Robert[3], Giovanni Del Galdo[1,2], [1]Technische Universitat Ilmenau, Ilmenau, Germany, [2]Fraunhofer Institute for Integrated Circuits IIS, Erlangen, Germany, [3]Friedrich-Alexander-Universit¨at Erlangen-Nuremberg, Erlangen, Germany

WE4C-2 A 14 dBm 110-130 GHz Power Amplifier and Doubler Chain in 90 nm SiGe BiCMOS Technology

R. B. Yishay, D. Elad, IBM Haifa Research Lab, Haifa, Israel

16:40

WE4A-4 Inductive high data rate transmission for bearings systems

J. Ziller[1], T. Drager[1], T. Heckel[2],[1]Fraunhofer Institute for Integrated Circuits IIS, Erlangen, Germany, [2]Fraunhofer Institute for Integrated Systems and Device Technology IISB, Erlangen, Germany

WE4C-3 A Fully-Integrated Ultra-Wideband Power Amplifier in CMOS Silicon on Sapphire Technology

S. Helmi[1], J. Cui[1,2], S. Mohammadi[1],[1]Purdue University, West Lafayette, United States, [2]Chinese Academy of Sciences, Shanghai, China

17:00

WE4A-5 Implementation of Simultaneous Energy and Data Transfer in a Contactless Connector

M. Trautmann[1], C. Joffe[2], F. Pflaum[1], B. Sanftl[1], R. Weigel[1],T. Heckel[2], A. Koelpin[1], [1]University of Erlangen-Nuremberg, Erlangen, Germany, [2]Fraunhofer IISB, Erlangen, Germany

WE4C-4 A Power Amplifier Efficiency Improvement with a novel Quasi-LINC Signal Component Separator

P. L. Carro, P. Garcia-Ducar, J. de Mingo, A. Valdovinos, University of Zaragoza, Zaragoza, Spain

Industry Exhibits

Room:
Griffin Hall

Monday, 25 January
13:00 – 17:30

Tuesday, 26 January
09:30 – 17:00

Exhibitor	Booth
Sonnet Software, Inc (Diamond Sponsor)	201
BEECube	300
Keysight Technologies	209
Maury Microwave	304
MOSIS	310
National Instruments (formerly AWR)	308
REMCOM Inc.	105
Virginia Diodes Inc.	205
West Bond Inc.	109

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Austin Skyline in the evening
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Hotel Maps

Level 2

Level 3

Directions to the JW Marriott Austin

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110 E 2nd Street
Austin, TX 78701
USA

Telephone:
1-888-236-2427 or +1 (512) 474-4777

Airport Phone:
+1 (512) 530-2242

Driving Directions from Austin-Bergstrom International Airport:
- Take Presidential Blvd to exit the airport.
- Turn left onto E State Hwy 71 Service Rd.
- Travel 0.2 miles and take the ramp on the LEFT onto TX-71 W.
- Travel 5.1 miles and exit onto I-35 N/US-290 E toward Waco.
- Travel 3.5 miles and take exit 234B toward Cesar Chavez/2nd-4th St.
- Merge onto I-35 Frontage Rd.
- Travel 0.1 miles and turn left onto E 1st St/E Cesar Chavez St.
- Travel 0.5 miles and turn right onto N Congress St.
- Take the 1st right onto E 2nd St/W Willie Nelson Blvd.
- The hotel will be on the left.

Parking:
- On-site parking, fee: $30 USD daily
- Valet parking, fee: $37 USD daily

Valet fee includes in/out privileges; Parking rates do not include tax

Public Transportation
Route 100, descend at: '101 Congress/2nd' or 'Downtown' Stations

RWW 2016 at a Glance

Activity	Location	Sunday (Jan. 25, 2015)		Monday (Jan. 26, 2015)			Tuesday (Jan. 27, 2015)			Wednesday (Jan. 28, 2015)		
		Afternoon	Evening	Morning	Afternoon	Evening	Morning	Afternoon	Evening	Morning	Afternoon	Evening
RWW Workshops	Gaslamp 1	13:30-17:30			13:30-17:30							
	Gaslamp 2											
	Gaslamp 3											
	Gallery 1											
Panel	Grand Salon B					19:00-20:30						
Industry Forum	Gallery 3A			9:00-12:00								
RWW Plenary	Grand Salon AB						10:10-12:10					
RWS Sessions	Grand Salon A, Grand Salon B, Gallery 1, Gallery 2			8:00-9:20, 10:10-11:30	13:30-15:10, 15:40-17:20		8:00-9:00	13:30-14:50, 16:00-17:20		8:00-9:40, 10:10-11:50	13:30-14:50, 15:40-17:00	
PAWR Sessions	Gallery 1			8:00-9:40, 10:10-11:50	13:30-15:10, 15:40-17:20							
WiSNet Sessions	Gallery 1, Gallery 2									8:00-9:40, 10:10-11:50	13:30-15:10, 15:40-17:20	
BioWireleSS Sessions	Gallery 2						8:00-9:40	13:30-14:50, 16:00-17:20		8:00-9:40, 10:10-11:50		
SiRF Sessions	Grand Salon A, Grand Salon B, Gallery 2			8:00-9:40, 10:10-11:50	13:30-15:10, 15:40-17:20		8:00-9:40	13:30-14:50		8:00-9:40, 10:10-11:30		
Distinguished Lectures I & II	Gallery 2			8:00-9:20, 10:10-10:50								
Student Paper Contest	Grand Salon CDE				14:20-16:10							
Interactive Poster Sessions								14:55-16:55			12:55-14:30	
Exhibits	Grand Salon CDE				13:00- 17:30			10:00-17:00				
RWW MicroApps								14:00-16:20				
Breakfast	Palm Terrace			7:00-8:00			7:00-8:00			7:00-8:00		
AM Coffee Break	Salon CDE			9:40-10:10			9:40-10:10			9:40-10:10		
PM Coffee Break	Salon CDE				15:10-15:40			15:10-15:40			15:10-15:40	
RWW Reception	Palm Terrace					18:00-20:00						
RWW Awards Banquet	Gallery 3B								18:30-21:00			