

Technical Programs for 2013 Radio Wireless Week (RWW)

SUNDAY, 20 JANUARY 2013



Sunday Workshops 13:00-17:00

Machine-To-Machine (M2M) Communication: A Path Towards the Internet of Things (IOT)

Room: Sabine

Organizer and Speaker:

Debabani Choudhury, *Intel Corporation*
Nuno Borges Carvalho, *Universidade de Aveiro, Portugal*

Machine-To-Machine (M2M) communication is set to be a major growth area: It is a new and emerging technology for designing and implementing fully automated systems and networks. In the M2M approach, devices automatically recognize their circumstances and environments, such as the surrounding people and objects, and communicate accordingly through autonomous information sharing. There is a major consensus that new wireless services based on new ways of using wireless technologies, such as M2M will grow exponentially in next few years.

This workshop gives an insight to new wireless M2M devices and opens the discussions on different M2M scenarios and applications. Workshop speakers will interact with the attendees and emphasize on the RF opportunities for implementation of M2M technologies. The workshop starts with short overview followed by presentations on M2M evolution and its impact on smart-grid, healthcare, transportation and other day-to-day applications. Presentations will also include device, system and security challenges; IEEE standardization efforts as well as wireless positioning systems for real-time monitoring.

Speakers:

M2M Evolution: Applications, Technologies and Standards
Monisha Ghosh and Paul Russell, *Interdigital Inc., USA*

Why Physical Security May Be The Missing Link For Secure M2M Communications
Gerald DeJean, *Microsoft Research, USA*

MBAN and Wireless Systems Role in Healthcare
Delroy Smith, *Phillips Research, USA*

M2M for Vehicular Safety: Opportunities and Challenges
Meiyuan Zhang and Y-K Chen, *Intel Labs, USA*

Wireless Local-Positioning Systems for Online Monitoring
Martin Vossiek, *University Erlangen, Nuremberg, Germany*

Survey of RFID and Its Application to International Ocean/Air Container Tracking
Masashi Shimizu, *NTT Network Innovation Laboratories, Kanagawa, Japan*
Hitoshi Hayashi, *Sophia University, Japan*

Towards THz Communications Systems and Applications

Room: Trinity A

Organizers:

Peter Siegel, *Caltech, USA*
Karl Varian, *Raytheon, USA*

The niche field of Terahertz Electronics is rapidly approaching what promises to be a revolutionary change in circuit design, fabrication, cost and component availability. For over three decades it has only been possible to produce one or two function circuits using expensive III-V materials and custom two or three terminal devices. Over the last few years, new fully integrated photonic-to-RF devices and silicon and silicon germanium CMOS circuits have broken the submillimeter-wave barrier. Complex multi-function transceivers have been realized at frequencies above 300 GHz and are quickly heading towards demonstration at 1 THz. These circuits can be designed and fabricated through commercial foundries at 1% of the cost associated with GaAs or InP processing. The most widespread near term commercial application for these high speed circuits is in the area of wireless communications. This Workshop is intended to introduce some of these new THz device and circuit concepts as they apply to ultra-high speed communications and wireless transmission. Notable THz experts from Asia, Europe and the US will present their latest results and their thoughts on where the field is headed.

Speakers:

Is THz a Communication Wasteland or a Vibrant Frontier?
Frank Chang, *University of California at Los Angeles, USA*

Enabling Technologies for THz communications: Electronics vs. Photonics
Tadao Nagatsuma, *Osaka University, Japan*

Opportunities for THz Communication Links in the Atmosphere
Dan Grischkowsky, *Oklahoma State University, USA*

Multi-Gigabit Transmission Based on All-active 200-280 GHz MMIC Chip Set
Ingmar Kallfass, *Fraunhofer Institute for Applied Solid State Physics, Freiburg, Germany*

SiGe and CMOS Integration for >100 GHz Applications
Gabriel Rebeiz, *University of California at San Diego, USA*

Silicon RF front end components for THz/sub-THz communication systems
Ulrich Pfeiffer and Neelanjan Sarmah, *University of Wuppertal, Germany*

Software Defined Radio: Recent Advancements in Hardware and Software

Room: San Marcos

Organizers:

Jeffrey Pawlan, *Pawlan Communications, USA*

Software Defined Radio has moved from an obscure research and military system to become the primary receiver and transmitter system of choice for most radio communication systems. There are only SDR cellular base stations now and most public safety communications systems are adopting SDR architecture. From military to space exploration, SDR provides more flexibility and better signal recovery than conventional analog communications. It is also the basis of cognitive radio.

This workshop is a milestone as it is a true cooperative presentation by the MTT-S with a detailed look at the hardware, and the Communications Society (ComSoc) with a detailed look at the firmware and software that enables the signal processing. You will learn specific details in both areas that you will need for your system designs.

Speakers:

Introduction and overview of current SDR receivers
Jeffrey Pawlan, *Pawlan Communications, USA*

Correct Implementation of A/D converters for SDR
Derek Redmayne, *Linear Technology Corp., USA*

Advances in Signal Processing for Cognitive Radio
Behrouz Farhang-Boroujeny, *University of Utah, USA*

Ultra Low Noise NCOs implemented in FPGAs
Fredric Harris, *San Diego State University, USA*

Wide tuning range filters for SDR transmitters
Xiaoguang "Leo" Liu, *University of California Davis, USA*

Metamaterials in communications and sensing: reality or fiction?

Room: Trinity B

Organizers:

Christian Damm, *Darmstadt Technical University, Germany*
Martin Schüßler, *Darmstadt Technical University, Germany*

Metamaterials have recently gained popularity in many different research communities. Several interesting phenomena such as negative index of refraction, backward wave propagation, epsilon and mu near zero and nearfield amplification have been reported. A multitude of new types of antennas, couplers, filters, phase shifters, hybrids, diplexers and sensors have been introduced and studied based on these unusual properties of Metamaterials.

This workshop will give an overview of ideas and concepts in Metamaterials for microwave applications, along with discussions on drawbacks and opportunities. Commercially available products relying on Metamaterials will be presented. Furthermore, the role of fundamental research in building startups and how visionaries and entrepreneurs help commercialize breakthrough technologies by working closely with academia will be shown. Speakers affiliated with startups, universities and companies will cover this great variety of topics. The workshop will give participants the opportunity to interact with speakers and with other experienced professionals from the audience.

Speakers:

Metamaterial Inspired Microwave Sensors
Martin Schüßler, *Darmstadt Technical University, Germany*

Split ring resonator (SRR) and stepped impedance resonator (SIR) based metamaterial transmission lines: application to microwave components and novel sensing strategies
Ferran Martin, *Universitat Autònoma de Barcelona, Spain*

Metamaterial Surface Antenna Technology
Ryan Stevenson, *Kymeta Corp., USA*

Industrial Application of Advanced 1D Periodical Structures at SPINNER GmbH
Martin Lorenz, *Spinner GmbH, Germany*

From Fundamental Research to Successful Commercialization: Steps, Risk, and Challenges
Maha Achour, *Polyceed Inc., USA*

Panel Session - Tunable and Reconfigurable Radio Frontends 19:00-20:30

Panel Moderator:

Jan-Erik Mueller, *Intel Mobile Communications, Germany*

Room: Trinity A & B

Panelists:

Andre van Bezooijen, *Epcos, Netherlands*
Art Morris, *WiSpry, USA*
Dimitrios Peroulis, *Purdue University, USA*
Gabriel Rebeiz, *UCSD, USA*
And other distinguished panelists from industry

Abstract:

The complexity, cost and size of the RF frontend in cellular phones develops more and more to a bottle-neck which may impact future revenue of related industry as a whole unless disruptive solutions can be found. The vision to replace the many parallel fixed tuned receive and transmit RF signal paths of today by one tunable path for low-band and another one for high-band exists for long. Tunable device technologies based on BST, SOI or MEMS are maturing. Tunable and reconfigurable filters are subject of intense research. Despite of this currently available solutions do not yet meet requirements for cellular phones. The panel will discuss cellular requirements, available solutions, their limitations and measures to overcome current barriers.

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



General Chair
Jan-Erik Mueller

I have the great honour and pleasure to invite you to the 2013 IEEE Radio and Wireless Week (RWW). This will be the seventh RWW and the first one in Texas.

RWW2013 will be held at the Renaissance Austin Hotel in Austin, TX, January 20-23, 2013. Austin is an appropriate site for RWW since it is a vivid center for high-tech and businesses contributing to the whole food chain of the continuously expanding wireless and radio industry. This is supplemented by University of Texas at Austin and other well known Universities nearby preparing for the future together with startups. This kind of environment fits well with the focus of RWW. RWW2013 will consist of five related conferences that focus on the intersection between radio systems and wireless technology, creating a unique forum for engineers to discuss hardware design and system performance of state-of-the-art wireless systems and their end-use applications. The conference targets to bridge the gap between digital and RF and hardware and software which need to be seamlessly combined to keep wireless industry and mobile applications growing. This multidisciplinary IEEE event will offer the latest information on wireless communications and networking, associated enabling technologies, and emerging new services and applications. Four diverse IEEE Societies are cosponsors of the RWW events: Microwave Theory and Techniques Society (MTT-S), Antennas and Propagation Society (AP-S), Communications Society (ComSoc), and Engineering in Medicine and Biology Society (EMBS).

In addition to the traditional podium technical talks and poster sessions, there will be an IEEE Distinguished Lecturer track, workshops, panels, and a relevant industry exhibition. A highlight on Tuesday will be the plenary talk on "System Approach to RF and Microwave Design" by Dr. James Truchard, co-founder and current president and CEO of National Instruments (NI).

On Sunday and Monday evenings there will be panel sessions free of charge for all wireless professionals (local and conference attendees), and on Tuesday afternoon there will be a demo track that will provide an interactive forum with hands-on demonstrations of the latest wireless experiments and innovations. For first time attractive local technical tours are planned (pls. watch at www.radiowirelessweek.org for more information).

To support the future of wireless activities, each conference will have a student paper competition with awards that will be presented at the Tuesday banquet. On Monday afternoon, all the student finalists will present their work in the poster session — a must-see event.

As you can see, at RWW there is something for everyone in the wireless community. The full technical program will be posted soon. It is our hope that you take this opportunity to catch up with old associates, make new friends, and develop new and exciting research collaborations by attending RWW2013.

I would like to invite everyone to join us for 3½ days of great technical presentations, career-building networking, informative commercial exhibition, and some fun at 20–23 January 2013 in Austin, TX.

RWW2013 General Chair

Jan-Erik Mueller

ADVANCE REGISTRATION

Advance registration for RWW 2013 is open now until January 5, 2013. Register now to take advantage of the early registration pricing!

Please visit <http://www.radiowireless-week.org> and follow the registration links.



Gibson Guitar Town
Photo courtesy of Austin CVB

Lunch Panel session -
Wireless Personal Area
Networks

Panel Moderator:
Mehdi Shadaram, *University of Texas at San Antonio, USA*

Time: 12:00-13:10
Room: Trinity A

Panelists:
Robert Heath, *University of Texas at Austin, USA*
Shuzo Kato, *Tohoku University, Japan*
Aria Nosratinia, *University of Texas at Dallas, USA*
Sriram Vishwanath, *University of Texas at Austin, USA*
Matt Maupin, *Freescall, USA*

Abstract:
With advances in wireless connectivity between such devices as PC's, PDA's, printers, etc., the realization of a wireless personal area network (WPAN) for interconnecting such devices in an individual's workspace has improved since 1994. The demand for high speed connectivity at home or office has pushed the WPAN technology to new milestones and created new challenges. In this panel, we have attempted to create a stage to foster new ideas and technical insights in the design, analysis and development WPAN. Panelists who are experts from academia and industry will discuss theoretical and practical aspects of WPAN. They will discuss the latest breakthroughs, antenna systems, power limitations, standardization, and specific WPAN routing requirements.

Lunch Panel session -
Should Design Engineers
Really Care About Soft-
ware Piracy?

Panel Moderator:
Charlie Jackson, *Northrop Grumman, USA*

Time: 12:00-13:10
Room: Trinity B

Panelists:
Charlie Arnold, *ANSYS, USA*
Ted Miracco, *AWR, USA*

Abstract:
According to the Business Software Alliance (BSA), 42% of the world's software is pirated with a commercial value of over \$63B per year. How do these figures scale down within the Wireless and microwave design communities and what is the cost impact to those that use legal software? Are there variations by geographic region or company size and how might these variations impact job growth and/or outsourcing of engineering jobs. What can be done to better protect software and intellectual property? Who uses pirated software, and what are the risks for employees and employers? Come hear interesting stories from the front lines in the battle to prevent software piracy.

MONDAY, 21 JANUARY 2013



RWW Session: MO1A

RWW Distinguished Lecturers I

Chair: Norman Chiang, Space Systems Loral
Co-Chair: Jim Sowers, Space Systems Loral

Room: Trinity A

SIRF Session: MO1B

Millimeterwave Circuits

Chair: Larry Larson, Brown University
Co-Chair: Hermann Schumacher, University of Ulm

Room: Trinity B

PAWR Session: MO1C

High-Efficiency Power Amplifiers and Techniques

Chair: Frederick H. Raab, Green Mountain Radio Research
Co-Chair: Arturo Mediano, University of Zaragoza

Room: Sabine

RWS Session: MO1D

Signal Classification and Spectrum Sensing in Software Defined Radios

Chair: Abbas Omar, University of Magdeburg

Room: San Marcos

08:00

MO1A-1 Wideband and Low-Loss Metamaterial Antennas and Arrays with Tunable Radiation Patterns and Directions for Wireless and Radio Applications

J. L.-W. Li,
University of Electronic Science & Technology of China, Chengdu, China

MO1B-1 Overview of Two Enabling Technologies Which Can Change Our World: Millimeter/THz Silicon RFICs, and RF MEMS (and SOI) Tunable Networks (Invited)

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

MO1C-1 Broadband Doherty Power Amplifiers (Invited)

M. Akbarpour, M. Helaoui, F. Ghannouchi,
University of Calgary, Calgary, Canada

MO1D-1 Experimental Analysis of Energy Detector for PSK and QAM Signals: Indoor Measurements

A. Ekti¹, E. Serpedin¹, K. A. Qaraqe²,
¹*Texas A&M University, College Station, United States,*
²*Texas A&M University at Qatar, Doha, Qatar*

08:20

MO1D-2 Systematic coexistence scheme for an additional radio system in the operating area of an existing radio communication system

K. Kashiki, T. Sada, A. Yamaguchi, K. Yamazaki, S. Watanabe,
KDDI R&D Laboratories, Inc, Fujimino, Japan

08:40

MO1A-2 What's New in Digital Pre-Distortion

J. Wood,
Maxim Labs, Maxim Integrated, San Jose, United States

MO1B-2 Small and Low-loss Quadrature Hybrid and T/R Local Signal Selection Switch for 60GHz Direct Conversion Transceivers

T. Nakatani, J. Sato, T. Shima
Panasonic Corporation, Yokohama City, Japan

MO1C-2 Inverse Active Load-Pull in an Inverse Doherty Amplifier

T. M. Hone¹, S. Bensmida¹, K. A. Morris¹, M. A. Beach¹, J. P. McGeehan¹, J. Lees², J. Benedikt², P. J. Tasker²,
¹*University of Bristol, Bristol, United Kingdom,*
²*Cardiff School of Engineering, Cardiff, United Kingdom*

MO1D-3 Feature Space of Modulation Classification Using Higher-Order Statistics

W. Su,
US Army, Aberdeen Proving Ground, United States

09:00

MO1B-3 60GHz Transmitter Front-End in 40nm LP-CMOS with Improved Back-Off Efficiency

K. Khalaf^{1,2}, V. Vidojkovic¹, K. Vaesen¹, B. Parvais¹, J. Long³, P. Wambacq^{1,2},
¹*Imec, Leuven, Belgium,*
²*Vrije Universiteit Brussel, Brussels, Belgium,*
³*Delft University of Technology, Delft, Netherlands*

MO1C-3 First Pass Design of A High Power 145W, High Efficiency Class-J GaN Power Amplifier Using Waveform Engineering

M. Iwata, K. Tomohide, T. Uno, K. Yahata, H. Ikeda,
Panasonic Corporation, Kadoma, Japan

MO1D-4 A Novel Algorithm for MIMO Signal Classification Using Higher-Order Cumulants

M. S. Mühlhaus¹, M. Oner², O. A. Dobre³, H. U. Jäkel¹, F. K. Jondral¹,
¹*Karlsruhe Institute of Technology, Karlsruhe, Germany,*
²*Isik University, Sile, Turkey,*
³*Memorial University, St. John's, Canada*

09:20

MO1B-4 Late News Paper To Be Announced (TBA)

MO1B-4 Wideband 110GHz frequency quadrupler for an FMCW imager in 0.13- μ m SiGe:C BiCMOS process

V. Valenta, C. Ulusoy, A. Trasser, H. Schumacher,
Ulm University, Ulm, Germany

MO1C-4 A MMIC/Hybrid High-Efficiency X-Band Power Amplifier

M. Litchfield¹, M. Roberg^{2,1}, Z. Popovic¹,
¹*University of Colorado, Boulder, United States,*
²*Triquint Semiconductor, Richardson, United States*

MO1D-5 Sliding Window Technique to Detect the Presence of LTE (Invited)

R. Hasan¹, M. Saquib¹, J. Boksiner²,
¹*University of Texas at Dallas, Richardson, United States,*
²*US Army RDECOM CERDEC S&TCD, Aberdeen Proving Ground, United States*

MONDAY, 21 JANUARY 2013

RWW Session: MO2A

RWW Distinguished Lecturers II

Chair: Jim Sowers, Space Systems Loral
Co-Chair: Norman Chiang, Space Systems Loral

Room: Trinity A

SIRF Session: MO2B

RF Passive Devices and MEMS on Silicon

Chair: Xun Gong, University of Central Florida
Co-Chair: Hasan Sharifi, Hughes Research Lab

Room: Trinity B

PAWR Session: MO2C

RF Power Amplifier Technology

Chair: Marc J. Franco, RFMD
Co-Chair: Murat Eron, Wireless Telecom Group

Room: Sabine

RWS Session: MO2D

Hardware and Software Implementations in SDR and Cognitive Radios

Chair: Abbas Omar, University of Magdeburg

Room: San Marcos

10:10

MO2A-1 Implantable Wireless Medical Devices and Systems

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

MO2B-1 Modeling, Fabrication and Measurement of TSVs for Advanced Integration of RF/High-Speed Components (Invited)

K. Lang^{1,2}, I. Ndir^{1,2},
¹Fraunhofer IZM, Berlin, Germany,
²Technical University Berlin, Berlin, Germany

MO2C-1 Efficient and Wideband Envelope Amplifiers for Envelope Tracking and Polar Transmitters (Invited)

D. Kimball^{1,4}, J. Yan^{2,1}, P. Theilmann¹, M. Hassan², P. Asbeck², L. Larson³,
¹MaXentric Technologies, La Jolla, United States,
²University of California San Diego, San Diego, United States,
³Brown University, Providence, United States,
⁴University of California San Diego, San Diego, United States

MO2D-1 Multi-Band Pre-Selectors for Software-Defined Radio Receivers

R. Gomez-Garcia, J. Munoz-Ferreras, M. Sanchez-Renedo,
University of Alcalá, Alcalá de Henares, Spain

10:30

MO2D-2 Real Time Front-end for Cognitive Radio Inspired by the Human Cochlea

D. F. Malafaia, J. P. Magalhães, J. M. Vieira,
Instituto de Engenharia Electrónica e Telemática de Aveiro, Aveiro, Portugal

10:50

RWW STUDENT PAPER CONTEST

RWW 2013 Student Paper Chairs will select finalists among the student paper submissions, from each conference (RWS, PAWR, BioWireless, and WiSNet). 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 8 winners. The awards will be announced and presented during the RWW Banquet. Please visit the student paper competition and support outstanding work by future researchers in industry and academia.

MO2B-2 RF and linear performance of commercial 200nm trap-rich HR-SOI wafers for SoC applications

C. Roda Neve¹, K. Ben Ali¹, C. Malaquin², F. Allibert², E. Desbionnets², I. Bertrand², W. Van Den Daele², J. Raskin¹,
¹Université catholique de Louvain, Louvain-la-Neuve, Belgium,
²Soitec, Bernin, France

MO2C-2 A Multi-Mode Multi-Band Reconfigurable Power Amplifier for GSM/UMTS Handset Applications

S. Kang¹, U. Kim², Y. Kwon², J. Kim¹,
¹Hanyang University, Ansan, Republic of Korea,
²Seoul National University, Seoul, Republic of Korea

MO2D-3 Dynamic Spectral Shaping in LTE-Advanced Cognitive Radio Systems

D. R. Joshi¹, D. C. Popescu¹, O. A. Dobre²,
¹Old Dominion University, Norfolk, United States,
²Memorial University, St. John's, Canada

11:10

MO2B-3 Electro-Thermo-Mechanical Analysis of a BiCMOS Embedded RF-MEMS Switch for Temperatures from -55°C to +125°C

M. Wietstruck¹, M. Kaynak¹, W. Zhang¹, B. Tillack^{1,2},
¹IHP, Frankfurt (Oder), Germany,
²TU Berlin, Berlin, Germany

MO2C-3 A Monolithic Watt-level SOI LDMOS Linear Power Amplifier with Through Silicon Via

A. Giry¹, G. Tant¹, Y. Lamy¹, C. Raynaud¹, P. Vincent¹, G. Bertrand², S. Joblot², V. Rémi², P. Coudrain², J. Carpentier², D. Petit², R. Bruno²,
¹CEA, Grenoble, France,
²STMicroelectronics, Crolles, France

MO2D-4 Characterizing Spurious Responses in Radio Receivers

W. B. Kuhn, C. A. Kovala,
Kansas State University, Manhattan, United States

11:30

MO2B-4 CMOS Based High-Voltage Generation Circuit for BiCMOS Embedded RF-MEMS Applications

M. Kaynak¹, M. Purdy^{2,1}, M. Wietstruck¹, W. Zhang¹, B. Tillack^{1,3},
¹IHP GmbH, Frankfurt Oder, Germany,
²University of Calgary, Calgary, Canada,
³Technische Universität Berlin, Berlin, Germany

MO2C-4 A SiGe Bipolar-MOSFET Cascade Power Amplifier with Improved Linearity for Low-Power Broadband Wireless Applications

R. Wu, J. Lopez, Y. Li, D. Lie,
Texas Tech University, Lubbock, United States

MO2D-5 Efficient Spectrum Utilization: Cognitive Radio Approach (Invited)

M. Kitsunezuka, K. Kunihiro,
NEC Corporation, Kawasaki, Japan

MONDAY, 21 JANUARY 2013



RWS Focused Session: MO3A

Wireless Power

Chair: Debabani Choudhury, Intel Labs
Co-Chair: Jenshan Lin, University of Florida

Room: Trinity A

Joint RWS/SiRF Session: MO3B

THz Communications: Circuits to Networks

Chair: Jane Gu, University of California, Davis
Co-Chair: Adrian Tang, Jet Propulsion Laboratory

Room: Trinity B

PAWR Session: MO3C

Distortion Reduction Techniques in RF Power Amplifiers

Chair: Allen Katz, TCNJ/LTI
Co-Chair: Kiki Ikossi, DTRA

Room: Sabine

RWS Session: MO3D

Advanced Antenna Systems Technologies

Chair: Silvio Ernesto Barbin, University Sao Paulo
Co-Chair: Goutam Chattopadhyay, California Institute of Technology

Room: San Marcos

13:30

MO3A-1 High Power and High Efficiency Microwave Green-Eco Circuits and Modules for Wireless Power Transfer (Invited)

S. Kawasaki, Y. Kobayashi, S. Yoshida, Japan Aerospace Exploration Agency, Sagami-hara, Japan

MO3B-1 Schottky Diodes in CMOS for Terahertz Circuits and Systems (Invited)

Y. Zhang^{1,2}, R. Han³, Y. Kim¹, D. Y. Kim¹, H. Shichijo¹, S. Sankaran⁴, C. Mao⁵, E. Seok⁴, D. Shim⁶, K. K. O¹,
¹University of Texas, Dallas, Dallas,
²Samsung Electronics, Richardson,
³Cornell University, Ithaca,
⁴Texas Instruments Inc., Dallas,
⁵Integrated Device Technology, Tyngsboro, United States,
⁶Seoul National University of Science & Technology, Seoul, Korea

MO3C-1 Concurrent Dual Band Digital Predistortion using Look Up Tables with Variable Depths (Invited)

A. Kwan, S. A. Bassam, M. Helaoui, F. Ghannouchi,
University of Calgary, Calgary, Canada

MO3D-1 Optical Nanoantennas and Their Applications (Invited)

Y. Zhao, A. Alu,
The University of Texas at Austin, Austin, United States

13:50

MO3A-2 Low-Power Density Wireless Powering for Battery-less Sensors (Invited)

Z. Popovic, E. Falkenstein, R. Zane, University of Colorado, Boulder, United States

MO3B-2 A 294GHz 0.47mW Caterpillar Amplifier Based Transmitter in 65nm CMOS For THz Data-Links

A. Tang¹, M. Chang²,
¹Jet Propulsion Lab, Pasadena, United States,
²University of California, Los Angeles, Los Angeles, United States

MO3D-2 Antenna Design Strategies to Reduce Coupling and Interference in Wireless Communications Systems (Invited)

K. Naishadham,
Georgia Institute of Technology, Atlanta, United States

14:10

MO3A-3 Far-Field RF Energy Transport

H. J. Visser,
IMEC / Holst Centre, Eindhoven, Netherlands

MO3B-3 Broadband InP MMICs for 120GHz Wireless Data Communications (Invited)

T. Kosugi¹, H. Takahashi², A. Hirata², K. Murata¹,
¹NTT Photonics Lab., Atsugi, Japan,
²NTT Microsystem Integration Lab., Atsugi, Japan

MO3C-2 A Novel, Fast and Precise Method to Perform Time Alignment Estimation and Compensation

A. Farabegoli^{1,2}, B. Sogl¹, J.-E. Mueller¹, R. Weigel²,
¹Intel Mobile Communications GmbH, Neubiberg, Germany,
²Universität Erlangen-Nürnberg, Erlangen, Germany

MO3D-3 Real-Time and Near-Real-Time Acquisition Systems for Measuring Aliasing in Small Arrays based on Crystal Microstructures

Z. Xia, N. Brennan, G. H. Huff, J. Chamberland,
Texas A&M University, College Station, United States

14:30

MO3A-4 Virtualizing Power Cords by Wireless Power Transmission and Energy Harvesting

Y. Kawahara^{1,2}, W. Wei¹, Y. Narusue¹, R. Shigeta¹, T. Asami¹, M. Tentzeris²,
¹The University of Tokyo, Bunkyo-ku, Japan,
²Georgia Institute of Technology, Atlanta, United States

MO3B-4 Integrated Schottky Diodes for Sub-Millimeter and THz Passive Imaging: Influence of Detector Arrays Topology

O. Doussin¹, D. Bajon¹, S. Wane², T. Parra³, P. Magnan¹,
¹ISAE-University de Toulouse, Toulouse, France,
²STMicroelectronics, Colom-belles Caen, France,
³LAAS, Toulouse, France

MO3C-3 Linearization of Efficient Harmonically-Injected PAs

A. R. Dani, Z. Popovic,
University of Colorado Boulder, Boulder, United States

MO3D-4 Staggered Pattern Charge Collector Design and Optimization

B. R. Marshall, G. D. Durgin,
Georgia Tech, Atlanta, United States

14:50

MO3A-5 Flexible, Efficient Solar Powered Class-E Active Antenna for Wireless Power Transmission

A. Georgiadis, A. Collado,
CTTC, Castelldefels, Spain

MO3B-5 THz Beamforming Using Graphene-Based Devices

P. Chen, A. Alu,
The University of Texas at Austin, Austin, United States

MO3C-4 Predistortion Linearization to 100 GHz

A. Katz^{1,2}, M. Chiappetta², R. Dorval²,
¹The college of New Jersey, Ewing, United States,
²Linearizer Technology, Inc., Hamilton, United States

MO3D-5 Late News Paper

TBA

Joint RWW Interactive Poster Session 1: 14:20-16:10

SiRF Session: MO3P

Chair: Gabriel Montoro, Technical University of Catalonia

Room: Rio Grande

MO3P-1 30dBm P1dB and 4dB Insertion Losses Optimized 4G Antenna Tuner Fully Integrated in a 130nm CMOS SOI Technology

F. Sonnerat^{1,2}, R. Pilard¹, F. Giancesello¹, S. Jan¹, F. Le Pennec², C. Person², C. Durand¹, D. Gloria¹,
¹STMicroelectronics, Crolles, France,
²Telecom Bretagne - Lab Sticc, Brest, France

MO3P-2 A GaN MOSFET Supply Modulator Compatible with Feed Forward Loop for Wideband Envelope Tracking Power Amplifier

Z. Wang, L. Wang, R. Ma, X. Yang, S. Lanfranco,
Nokia Siemens Networks, Beijing, China

MO3P-3 A pHEMT Power Amplifier with an On-off Modulator

H. Yang, L. Lin, Y. E. Chen,
National Taiwan University, Taipei, Taiwan

MO3P-4 Low-Power CMOS Inductorless Bandwidth-Enhanced Transimpedance Amplifier for Short-Haul Applications

M. H. Taghavi, P. Ahmadi, L. Belostotski, J. Haslett,
University of Calgary, Calgary, Canada

MO3P-5 Pulse-Width Modulation for Switching Mode Power Amplifiers

B. Shi, M. Chia,
Institute For Infocomm Research, Singapore, Singapore

MO3P-6 NARMA-Based Linearization of RF Power Amplifiers with Non-Monotonic Response under Dynamic Hardware Reconfiguration

A. Thibodeau, N. G. Constantin,
Ecole De Technologie Superieure, Montreal, Canada

MO3P-8 Low Frequency Dithering Technique for Linearization of Voltage Mode Class-D Amplifiers

F. Arfaei Malekzadeh, A. van Roermund, R. Mahmoudi,
Technical University of Eindhoven, Eindhoven, Netherlands

MO3P-7 Performance Analysis for Scalar Digital Predistortion

Z. Shi¹, H. Li¹, M. J. Zhou¹, M. J. Wu¹, T. Iwamatsu², K. Kakinuma³,
¹Fujitsu R&D Center Ltd., Beijing, China,
²Fujitsu Laboratories Ltd., Yokohama, Japan,
³Fujitsu Wireless Systems Ltd., Kumagaya, Japan

MO3P-9 IF signal Filtering Techniques in Low IF Receiver for Narrowband Communications

S. Narieda,
Akashi National College of Technology, Akashi, Japan

SiRF STUDENT PAPER CONTEST

Continuing the tremendous success from previous years, the SiRF 2013 is proud to present its Student Paper Competition. The papers in the competition represent the accomplishments of individual students and undergo an arduous review process to identify and acknowledge the best and brightest students in our research community. The high standards of reviewers and judges ensure that the best papers of the Student Paper Competition also rank among the best papers of the SiRF 2013.

The student finalists will present their papers at their appropriate regular sessions, and also make special presentations at the Poster Session on Monday, January 21, from 2:20 PM to 4:10 PM. All SiRF 2013 participants are welcome and encouraged to visit the student papers during the Poster Session, at which time they will also be evaluated by a group of judges. The awards will be announced and presented during the RWW Banquet.

Panel Session - Base Station Design Breakthrough Opportunities 19:00-20:30

Panel Moderators:

Michael Marcus, Marcus Spectrum Solutions LLC,
Nuno Borges Carvalho, Universidade de Aveiro, Portugal
Jeffrey Pawlan, Pawlan Communications, USA

Room: San Marcos

Panelists:

Nuno Borges Carvalho, Universidade de Aveiro
Don Kimball, UCSD, USA
Ali Khyrollah, Ericsson, USA
Michael Marcus, Marcus Spectrum Solutions LLC
Steve Wilkus, Alcatel-Lucent, USA
Jin Yang, Verizon Communications, USA

Abstract:

While many take base station designs for granted, there are some aspects of the current technology that give opportunities for dramatic change and impact on the wireless industries. These are in the areas of compatibility with suburban infrastructure and in evening out power flux density/field strength in the service areas. Zoning, permitting, and neighbor opposition have been a key factor in preventing the rollout of wireless infrastructure and hence limiting spectrum efficiency. Too often suburban infrastructure is bulky and looks like it was "designed by engineers". Custom designed installations reduce this problem but are very expensive. Some speakers will address technical and visual design options for lowering the visual impact of suburban base stations.

While regulators have classically limited ERP of base stations to control interference, there is a real impact from high pfd/dfs near base stations that either limits spectrum efficiency or causes interference to adjacent band systems. When mobile radio used VHF and low UHF the wavelengths involved limited viable antenna design options. However, the growing use of 1-5 GHz for mobile wireless gives new design options to decrease "power on the ground" variation throughout the intended service area.

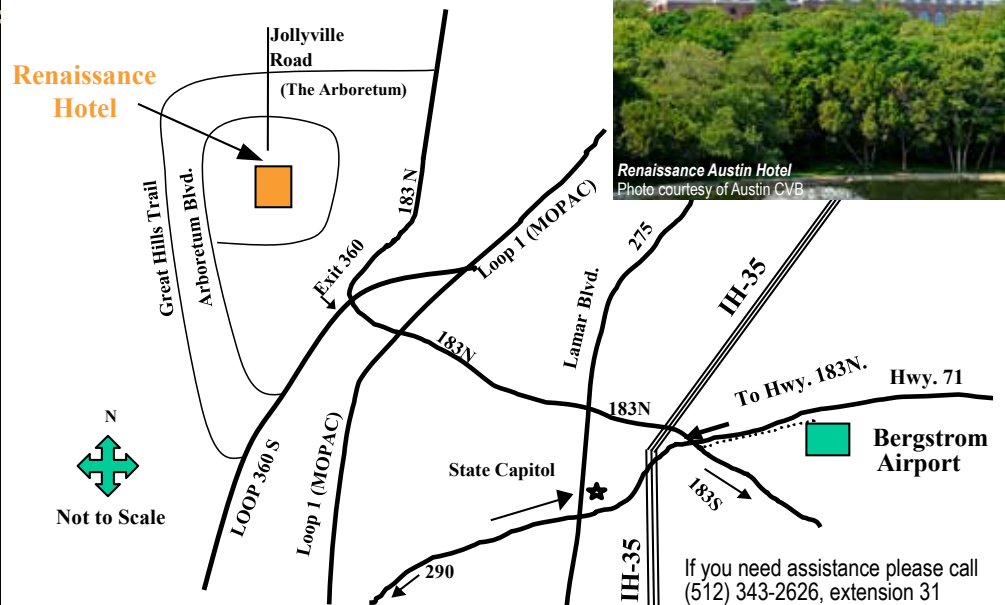
Moreover new challenges start to appear with new proposals of Radio over Fiber, and Femtocells, that will create an even more crowded spectrum occupancy and will penetrate the indoor scenarios with improved energy efficiency for the communication operator, but not necessarily for the final user.

Renaissance Austin – Official RWW Meeting Venue

The RWW2013 Planning Committee has secured a favorable rate for all RWW attendees at the official meeting venue. In order to receive the special rate, please book your accommodations by Monday, 24 December 2012 at 5:00pm Central Time. Please note the discounted rates are only available over official Symposium dates. For reservations outside the official dates or for government rates please contact the hotel directly.

Mention "IEEE RWW 2013" to receive the negotiated room rate. Reservation requests received by the hotel after 24 December 2012 will be accepted on a space and rate available basis, and the group rate may not apply. All attendees booking within the official RWW room block will receive complimentary self-parking, internet access in their guest room and health club access free of charge.

Renaissance Austin Hotel,
9721 Arboretum Boulevard, Austin, Texas 78759
USA
1-512-343-2625 / 1-800-468-3571



MONDAY, 21 JANUARY 2013



RWS Focused Session: MO4A

Wireless Enabled Automotive and Vehicular Applications

Chair: Martin Vossiek, Univ. Erlangen-Nürnberg
Co-Chair: Debabani Choudhury, Intel

Room: Trinity A

SiRF Session: MO4B

Power Amplifiers and Transmitter Circuits

Chair: Vince Fusco, The Institute of Electronics, Communications and Information Technology
Co-Chair: Lance Kuo.

Room: Trinity B

PAWR Session: MO4C

RF Power Amplifier Modeling and System Analysis

Chair: Robert Caverly, Villanova University
Co-Chair: Mark P. van der Heijden, NXP Semiconductors

Room: Sabine

RWS Session: MO4D

New Radiating Structures and Modern Antenna Arrays

Chair: Rashaunda Henderson, University of Texas at Dallas
Co-Chair: Glauco Fontgalland, Federal University of Caampina Grande

Room: San Marcos

15:40

MO4A-1 77 GHz Automotive Radar Sensors: Antenna Concept for Angular Measurements in Azimuth and Elevation

K. Baur, M. Mayer, S. Lutz, T. Walter, *University of Applied Sciences Ulm, Ulm, Germany*

MO4B-1 A CMOS Class-E Power Amplifier of 40-% PAE at 5 GHz for Constant Envelope Modulation System

Y. Yamashita, D. Kanemoto, H. Kanaya, R. K. Pokharel, K. Yoshida, *Kyushu University, Fukuoka-shi, Japan*

MO4C-1 Behavioural Modeling of RF Power Amplifiers (Invited)

J. Wood, *Maxim Integrated, San Diego, United States*

MO4D-1 Dual-Polarized Low-Profile 16x4 SIW Cavity-Backed Patch Array for Direct Broadcast Satellite Applications

M. H. Awida¹, S. F. Sulieman², A. E. Fathy¹,
¹*University of Tennessee, Knoxville, United States*,
²*Winegard company, Burlington, United States*

16:00

MO4A-2 Antenna Concept for an Automotive Radar Sensor at 150 GHz

M. Koehler, J. Schuer, L. Schmidt, *University of Erlangen-Nuremberg, Erlangen, Germany*

MO4B-2 A An Impulse Radio UWB Transmitter for Communication and Precise Localization

D. Martynenko, G. Fischer, O. Klymenko, *IHP, Frankfurt (Oder), Germany*

MO4D-2 Dependency of Ka-band Reflectarray Unit Cell Reflection Properties on the Spacing between Antenna Elements

K. K. Karnati, S. Ebadi, X. Gong, *University of Central Florida, Orlando, United States*

16:20

MO4A-3 A Planar, Scalable Active Transceiver Array for Mobile Satcom Applications

T. Chaloun¹, E. Meniconi², T. Purtova¹, V. Ziegler²,
¹*University of Ulm, Ulm, Germany*,
²*EADS Innovation Works, Munich, Germany*

MO4B-3 Holistic Design of 8-Way Combining Transformers in SiGe Technology for Use in Millimetre-Wave Power Amplifiers

M. Thian^{1,2}, M. Tiebout¹, V. Fusco²,
¹*Infineon Technologies AG, Villach, Austria*,
²*Queen's University Belfast, Belfast, United Kingdom*

MO4C-3 An Extension of Power Amplifier Behavioral Models for Optimizing Battery Current at System Level

S. Glock¹, B. Sog², P. P. Vizarreta³, T. Ussmueller¹, J.-E. Mueller², G. Fischer¹, R. Weigel¹,
¹*Friedrich-Alexander-University of Erlangen-Nuremberg, Erlangen, Germany*,
²*Intel Mobile Communications, Neubiberg, Germany*,
³*Universitat Politècnica de Catalunya, Castelldefels, Barcelona, Spain*

MO4D-3 A Novel Microstrip Rotating Cell for Circularly Polarized Reflectarray Applications

S. A. Ibrahim, H. F. Hammad, *German University in Cairo, Cairo, Egypt*

16:40

MO4A-4 Wireless Power Transmission Progress for Electric Vehicle in Japan

N. Shinohara, *Kyoto University, Kyoto, Japan*

MO4B-4 A Ka Band Stacked Power Amplifier in 45nm CMOS SOI Technology

J. Chen, S. R. Helmi, S. Mohammadi, *Purdue University, West Lafayette, United States*

MO4C-4 A Simple Output Impedance Model for Doherty Peaking Sub-Amplifiers Biased in Class C

D. G. Holmes, *Freescale Semiconductor Inc., Tempe, United States*

MO4D-4 A Novel UWB Hybrid Dipole Antenna with Quasi-Isotropic Radiation Pattern

J. Singh, A. Modiri, K. Kiasaleh, *University of Texas at Dallas, Richardson, United States*

17:00

MO4A-5 Design of a Robust and Low-Cost Monocone Antenna Element for Use in Vehicle Roof-Mounted Antenna Arrays

M. Gardill, F. Georg, R. Weigel, A. Koelpin, *University of Erlangen-Nuremberg, Erlangen, Germany*

MO4B-4 A 10-67-GHz CMOS Step Attenuator with Improved Flatness and Large Attenuation Range

J. Bae, J. Lee, C. Nguyen, *Texas A&M University, College Station, United States*

MO4C-5 Behavioral Modeling Approach for Array of Amplifiers in Active Antenna Array System

S. Farsi¹, J. Dooley², K. Finnerty², D. Schreurs¹, B. Nauwelaers¹, R. Farrell²,
¹*KU Leuven, Heverlee, Belgium*,
²*National University of Ireland Maynooth, Co. Kildare, Ireland*

MO4D-5 Liquid Crystal Based Patch Antenna Array for 60 GHz Applications

P. Deo¹, D. Mirshekar-Syahkal¹, L. Seddon², S. Day², A. Fernández²,
¹*University of Essex, Colchester, United Kingdom*,
²*University College London, London, United Kingdom*

Plenary Session

Dr. James Truchard

Co-founder and CEO of National Instruments (NI)

Time: 10:10-11:50
Room: Trinity

Title:
System Approach to RF and Microwave Design

Abstract:
As we enter the era of "internet of things" the number of wireless devices sky rocket. To support this growth, the paradigm for designing, prototyping, and manufacturing a wireless communication device must also evolve. I will discuss our perspectives on the history of design, prototyping, test, and measurement, onto future of system level design for RF and microwave systems with a tightly integrated software and hardware tools.



Plenary Speaker:
Dr. James Truchard is the co-founder and current president and CEO of National Instruments (NI). NI provides an integrated hardware and software platform to simplify systems for measurement and control. It is a pioneer in the concept of "virtual instrumentation". James Truchard earned a B.S. and an M.S. in physics, and a Ph.D. in Electrical Engineering from the University of Texas at Austin. He is a member of the National Academy of Engineering and the Royal Swedish Academy of Engineering Sciences. After two years of working as a managing director of a research lab, Dr. Truchard realized that there was little room for promotion unless one of his coworkers retired. As he often remarks, he "didn't see a job I wanted [in Austin] – so I created one!". In 1976, working in the garage at Dr. Truchard's home, he co-founded National Instruments along with Jeff Kodosky and Bill Nowlin and began designing an interface board. In 1986, in conjunction with Kodosky, Dr. Truchard played a pivotal role in the development of the LabVIEW graphical development software, which allows scientists to quickly build solutions for their measurement and automation needs. The graphical programming interface that LabVIEW provides have revolutionized the way engineers and scientists work. Today, National Instruments is a global company with over a billion dollars in sales.

RWS Session: TU1B

High-speed and Broadband Wireless Technologies

Chair: Shilong Pan, Nanjing University of Aeronautics and Astronautics

Room: Trinity B

TU1B-1 Performance of TR-PIAM System with Time-Reversal

A. Matsumoto, H. Ishikawa, R. Nakamura, A. Kajiwara, *The University of Kitakyushu, Kitakyushu, Japan*

TU1B-2 A UWB over Fiber System Based on Frequency-dependent Gain Saturation in a RSOA

G. Chen, S. Pan, *Nanjing University of Aeronautics and Astronautics, Nanjing, China*

TU1B-3 Modified Kurtosis Detection for UWB Impulse Radios

A. Yang¹, H. J. Nie², Z. Xu³, Z. D. Chen¹, *¹Dalhousie University, Halifax, Canada, ²University of Northern Iowa, Cedar Falls, United States, ³Fuzhou University, Fuzhou, China*

TU1B-4 Blind Narrowband Interference Mitigation Using Filter Bank for Energy Detection Based UWB Receivers

Z. Xu¹, H. Nie², Z. Chen³, H. Khani², A. Yang³, *¹Fuzhou University, Fuzhou, China, ²University of Northern Iowa, Cedar Falls, United States, ³Dalhousie University, Halifax, Canada*

TU1B-5 From Broadband Ray Tracing Propagation Modeling to Physical Layer Simulations of THz Indoor Communication Systems (Invited)

S. Priebe, S. Rey, T. Kürner, *TU Braunschweig, Braunschweig, Germany*

SiRF Session: TU1C

Silicon Technology

Chair: Julio Costa, RFMD
Co-Chair: Bernd Tillack, IHP

Room: Sabine

TU1C-1 A Retrospective on the SiGe HBT: What We Do Know, What We Don't Know, and What We Would Like to Know Better (Invited)

J. D. Cressler, *Georgia Tech, Atlanta, United States*

TU1C-2 Graphene RF Transistors with Buried Bottom Gate

D. Park, T. Chang, S. Mikael, J. Seo, P. F. Nealey, Z. Ma, *University of Wisconsin-Madison, Madison, United States*

TU1C-3 SOI FinFET Compact Model for RF Circuits Simulation

J. J. Alvarado¹, J. C. Tinoco², S. Salas³, A. Martinez-Lopez³, B. S. Soto-Cruz¹, A. Cerdeira⁴, J. P. Raskin⁵, *¹Benemérita Universidad Autónoma de Puebla, Puebla, Mexico, ²Universidad Nacional Autónoma de México, México, Mexico, ³Universidad Veracruzana, Boca del Rio, Mexico, ⁴Centro de Investigación y de Estudios Avanzados, México, Mexico, ⁵Université catholique de Louvain, Louvain-la-Neuve, Belgium*

TU1C-4 Fringing Gate Capacitance Model for Triple-Gate FinFET

S. Salas¹, J. C. Tinoco², A. G. Martinez-Lopez¹, J. Alvarado³, J. Raskin⁴, *¹Universidad Veracruzana, Boca del Rio, Mexico, ²Facultad de Ingeniería - UNAM, Mexico D.F., Mexico, ³Benemérita Universidad Autónoma de Puebla, Puebla, Mexico, ⁴Université catholique de Louvain, Louvain-la-Neuve, Belgium*

BioWireless Session: TU1D

Remote Sensing and Monitoring Techniques for Physiological Parameters

Chair: J.-C. Chiao, University of Texas at Arlington
Co-Chair: Hung Cao, University of South California

Room: San Marcos

TU1D-1 Precise Indoor Localization Systems: Alternative Methods for Sub-sampling UWB Pulses and Associated Error Sources

E. Elkhoul¹, A. Fathy¹, N. Rowe¹, M. Kuhn², M. Mahfouz², *¹University of Tennessee (EECS Dept), Knoxville, United States, ²University of Tennessee (MABE Dept), Knoxville, United States*

TU1D-2 Optimized SFCW Radar Sensor Aiming at Fall Detection in a Real Room Environment

M. Mercuri¹, P. Soh^{1,2}, L. Boccia³, D. Schreurs¹, G. A. Vandenbosch¹, P. Leroux^{1,4}, G. Amendola³, *¹KU Leuven, Heverlee (Leuven), Belgium, ²Universiti Malaysia Perlis, Perlis, Malaysia, ³UNICAL, Arcavacata di Rende (CS), Italy, ⁴K.H.Kempen, Geel, Belgium*

TU1D-3 Distortion Analysis of Continuous-Wave Radar Sensor for Complete Respiration Pattern Monitoring

C. Gu, C. Li, *Texas Tech University, Lubbock, United States*

TU1D-4 Machine Learning Based Posture Estimation for a Wireless Canine Machine Interface

R. Brugarolas¹, D. Roberts², B. Sherman³, A. Bozkurt¹, *¹North Carolina State University (ECE Dept), Raleigh, United States, ²North Carolina State University (CS Dept), Raleigh, United States, ³North Carolina State University (Veterinary Medicine), Raleigh, United States*

TU1D-5 Towards a Smart Bandage with Functional Near Infrared Spectroscopy Capability

Dieffenderfer, M. C. Bair, A. Bozkurt, *North Carolina State University, Raleigh, United States*

08:00

08:20

08:40

09:00

09:20

RWS Session: TU3A

Wireless Systems Architecture and Modeling 1

Chair: Huaping Liu, Oregon State University, United States

Room: Trinity A

RWS Session: TU3B

Propagation Channel Modeling and Utilization

Chair: Hiroshi Shirai, Chuo University

Room: Trinity B

SiRF Session: TU3C

Applications and Wireless Architectures

Chair: Donald Lie, Texas Tech University
Co-Chair: Chiennan Kuo, National Chiao Tung University

Room: Sabine

BioWireleSS Session: TU3D

Remote Patient Monitoring and Wireless Devices

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

Room: San Marcos

13:30

TU3A-1 A Enabling Gigabit Services for IEEE 802.11ad-Capable High-Speed Train Networks (Invited)

J. Kim¹, A. F. Molisch²,
¹University of Southern California(CS Dept.), Los Angeles, United States,
²University of Southern California(EE Dept.), Los Angeles, United States

TU3B-1 Predicting Indoor Performance of a 60 GHz WPAN

C. A. DeVries,
Research in Motion Inc., Waterloo, Canada

TU3C-1 Integrator and Digitizer for a non-coherent IR-UWB Receiver

J. Digel¹, M. Masini¹, M. Grözing¹, M. Berroth¹, G. Fischer², S. Olonbayar², H. Gustat², J. Scheytt³,
¹University of Stuttgart, Stuttgart, Germany,
²IHP, Frankfurt (Oder), Germany,
³University of Paderborn, Paderborn, Germany

TU3D-1 Wireless Medical Devices: A Review of Current Research and Commercial Systems

M. R. Mahfouz, M. J. Kuhn, G. To,
The University of Tennessee, Knoxville, United States

13:50

TU3A-2 Demonstration of a Single-aperture, Full-duplex Communication System

C. Cox, E. Ackerman,
Photonic Systems, Inc., Billerica, United States

TU3B-2 Performance Measures for Dynamic Delay Emulation

K. A. Falcone,
Bedford Signals Corporation, Bedford, United States

TU3C-2 Multi-Gigabit 60 GHz OOK Front-End in 90 nm CMOS

A. Hamidian¹, A. Malignaggi¹, R. Shu¹, A. Kamal¹, G. Boeck^{1,2},
¹Berlin Institute of Technology, Berlin, Germany,
²Ferdinand-Braun-Institut, Berlin, Germany

TU3D-2 On-Body Characterization of Textile Antennas for Biomedical Health Monitoring Systems

P. Soh^{1,2}, G. A. Vandenbosch¹, D. M. Schreurs¹,
¹Katholieke Universiteit Leuven, Leuven, Belgium,
²Universiti Malaysia Perlis, Kuala Perlis, Malaysia

14:10

TU3A-3 Gating Factor Analysis of Maximum Power Reduction in Multicenter LTE-A Uplink Transmission

V. Lehtinen¹, T. Lähteensuu¹, P. Vasenkari², A. Piipponen³, M. Valkama¹,
¹Tampere University of Technology, Tampere, Finland,
²Nokia, Salo, Finland,
³Nokia, Helsinki, Finland

TU3B-3 End-to-End Network Simulation Using a Site-Specific Radio Wave Propagation Model

T. Kuruganti¹, J. Nutaro¹, S. Djouadi²,
¹Oak Ridge National Laboratory, Oak Ridge, United States,
²University of Tennessee, Knoxville, United States

TU3C-3 A 60 GHz Multi-Gb/s System Demonstrator Utilizing Analog Synchronization and 1-bit Data Conversion

C. A. Ulusoy¹, S. Krone², G. Liu¹, A. Trasser¹, F. Guderian², B. Almeroth², A. Barghouthi³, M. Hellfeld³, S. Schumann³, C. Carta³, C. Estant⁴, K. Dobrowski⁴, V. Brankovic⁴, D. Radovic⁴, F. Ellinger³, G. Fettweis², H. Schumacher¹,
¹Ulm University, Ulm, Germany,
²TU Dresden, Dresden, Germany,
³TU Dresden, Dresden, Germany,
⁴TES Electronic Solutions GmbH, Stuttgart, Germany

TU3D-3 A Dual-Mode UWB Wireless Platform with Random Pulse Length Detection for Remote Patient Monitoring

C. Reyes¹, S. Bisbe¹, M. Shen², H. Jiang³, J. H. Mikkelsen²,
¹Polytechnic University of Catalunya, Barcelona, Spain,
²Aalborg University, Aalborg, Denmark,
³San Francisco State University, San Francisco, United States

14:30

TU3A-4 Signal Classification by Probabilistic Reasoning (Invited)

C. I. Phelps, R. M. Buehrer,
Wireless@VT, Virginia Tech, Blacksburg, United States

TU3B-4 Measurement and Analysis of Intra-Vehicle UWB Channels

H. Khani¹, Q. Liang¹, A. Audu¹, H. Nie¹, W. Xiang², Z. Chen³,
¹University of Northern Iowa, Cedar Falls, United States,
²University of Michigan, Dearborn, United States,
³Dalhousie University, Halifax, Canada

TU3C-4 Direct Downconversion Architecture Performance in Compact Pulse-Doppler Phased Array Radar Receivers

G. J. Vallant¹, M. Allen^{2,1}, M. Epp¹, W. Schlecker¹, S. Chartier¹, M. Valkama²,
¹Cassidian, Ulm, Germany,
²Tampere University of Technology, Tampere, Finland

TU3D-3 135-Hour Battery Life Skin Temperature Monitoring System Using Bluetooth Cellular Phone

A. S. Demenytsev^{2,1}, A. Behnaz¹, A. Gorbach¹,
¹National Institutes of Health, Bethesda, United States,
²University of Washington, Seattle, United States



Austin Skyline
Photo courtesy of Austin CVB

TUESDAY, 22 JANUARY 2013



RWS Session: TU5A

Passive Components

Chair: Roberto Gomez-Garcia, University of Alcalá
Co-Chair: Xun Gong, University of Central Florida

Room: Trinity A

RWS Session: TU5B

Applications of Signal Processing in Wireless Communications

Chair: Takao Inoue, National Instruments

Room: Trinity B

RWS Session: TU5C

Wireless Energy Transport and Harvesting

Chair: Zhizhang David Chen, Dalhousie University
Co-Chair: Shigeo Kawasaki, Japan Aerospace Exploration Agency (JAXA)

Room: Sabine

BioWireleSS Session: TU5D

Micro-Sensors and In-vivo Microsystems

Chair: Rizwan Bashirullah, University of Florida
Co-Chair: Mohamed Mahfouz, University of Tennessee

Room: San Marcos

16:00

TU5A-1 Two-Octave All-Pass Phase Shifters for Phased Array Applications

H. Fang, X. Tang, K. Mouthaan, National University of Singapore, Singapore, Singapore

TU5B-1 1.2 GS/s Hadamard Transform Front-End in 65nm CMOS for Compressive Sensing ADC

O. U. Khan, D. D. Wentzloff, University of Michigan, Ann Arbor, United States

TU5C-1 Impedance Matching Method for Any-hop Straight Wireless Power Transmission Using Magnetic Resonance

Y. Narusue, Y. Kawahara, T. Asami, The University of Tokyo, Bunkyo-ku, Japan

TU5D-1 Measuring the Microwave Permittivity of Single Particles

Y. Yang^{1,2}, Y. He¹, H. Zhang¹, K. Huang², G. Yu³, P. Wang¹,
¹Clemson University, Clemson, United States,
²Sichuan University, Chengdu, China,
³The University of Findlay, Findlay, United States

16:20

TU5A-2 Design of Cross-Coupled Phasers for Analog Signal Processing

Q. Zhang, C. Caloz, Ecole Polytechnique de Montreal, Montreal, Canada

TU5B-2 10 Gbps Millimeter-Wave OFDM Experimental System with Iterative Phase Noise Compensation

D. Shin, S. Suyama, H. Suzuki, K. Fukawa, Tokyo Institute of Technology, Tokyo, Japan

TU5C-2 Thermal Energy Harvesting for Power Amplifiers

K. Niotaki, A. Georgiadis, A. Collado, Centre Tecnologic de Telecomunicacions de Catalunya, Castelldefels, Spain

TU5D-2 Wireless Strain Sensor based on Amorphous Carbon for Human-Motion Detection

U. Tata, H. Cao, V. Landge, C. M. Nguyen, J. C. Chiao, University of Texas at Arlington, Arlington, United States

16:40

TU5A-3 Signal-Interference Microstrip Duplexers

R. Gomez-Garcia, M. Sanchez-Renedo, R. Loeches-Sanchez, University of Alcalá, Alcalá de Henares, Spain

TU5B-3 RF Imperfections in Antenna Arrays: Response Analysis and Widely-Linear Digital Beamforming

A. Hakkarainen, J. Werner, M. E. Valkama, Tampere University of Technology, Tampere, Finland

TU5C-3 Development of MMIC Rectenna at 24GHz

K. Hatano¹, N. Shinohara¹, T. Seki², M. Kawashima²,
¹Kyoto University, Kyoto, Japan,
²NTT Corporation, Tokohama, Japan

TU5D-3 A Wireless Bladder Volume Monitoring System Using a Flexible Capacitive-based Sensor

H. Cao¹, U. Tata¹, V. Landge¹, A. Li², Y. Peng², J. Chiao¹,
¹University of Texas at Arlington (EE Dept.), Arlington, United States,
²University of Texas at Arlington (Psychology Dept.), Arlington, United States

17:00

TU5A-4 Design of Stripline Beam-Former Reduced-Size GaN-based 10-GHz 90° Hybrid for X-band Wireless Communications Systems

I. Haroun, Carleton University, Ottawa, Canada

TU5B-4 Late News Paper

TBA

TU5C-4 Chip-to-package Wireless Power Transfer and its Application to mm-Wave Antennas and Monolithic Radiometric Receivers

L. Aluigi^{1,2}, T. T. Thai², M. M. Tentzeris², L. Roselli¹, F. Alimenti¹,
¹University of Perugia, Perugia, Italy,
²Georgia Institute of Technology, Atlanta, United States

TU5D-4 A 13pJ/bit 105Mbps IR-UWB transmitter using Pulse Position Modulation and with On-chip LDO Regulator in 0.13µm CMOS for Bio-medical Implants

M. N. Elzefawi, L. Theogarajan, University of California Santa Barbara, Santa Barbara, United States

JOINT RWW BANQUET

Tuesday Evening, 22 January 2013 from 18:00-21:00
Room: Ballroom A

Join your friends, co-workers and fellow researchers in an informal setting of lively discussion, dinner and wine. In addition, see the student paper award winners from the RWS, PAWR, WiSNet, BioWireless and SiRF receive their awards.



Photo by Andy Schrader

WEDNESDAY, 23 JANUARY 2013



WISNet Session: WE1A

Wireless Sensors for Localization, Tracking and RFID-Enabled Applications

Chair: Luca Roselli, University of Perugia
Co-Chair: Apostolos Georgiadis, CTC
Room: Trinity A

RWW Session: WE1B

MIMO Signal Processing and Smart Antennas

Chair: Huaping Liu, Oregon State University
Room: Trinity B

SiRF Session: WE1C

Oscillators and Frequency Control Circuits

Chair: Linus Maurer, DICE ATV-SC
Co-Chair: Kenichi Okada, To kyo Institute of Technology
Room: Sabine

BioWireleSS Session: WE1D

Microwave Biological Applications and Interaction with Biological Tissues

Chair: Mohammad-Reza Tofighi, Penn State University, Harrisburg
Co-Chair: Dietmar Kissinger, University of Erlangen Nuremberg
Room: San Marcos

08:00

WE1A-1 Hybrid Analog-Digital Backscatter Platform for High Data Rate, Battery-Free Sensing

V. Talla, M. Buettner, D. Wetherall, J. R. Smith, University of Washington, Seattle, United States

WE1B-1 Interference Alignment – Recent Results and Future Directions (Invited)

O. El Ayach, R. W. Heath, The University of Texas at Austin, Austin, United States

WE1C-1 Industrialization of mmWave SiGe Technologies: Status, future requirements and challenges (Invited)

R. Lachner, H. Knapp, T. Meister, J. Bock, K. Aufinger, W. Liebl, Infineon Technologies AG, Munchen, Germany

Invited Talk for SiRF, S1: Technology Devices and Modeling

WE1D-1 Microwave Dielectric Spectroscopy: An Emerging Analyzing Technique for Biological Investigations at the Cellular Level (Invited)

T. Chen¹, F. Artis¹, D. Dubuc¹, M. Poupot², J. Fournié², K. Grenier¹, ¹Laas-CNRS, Toulouse, France, ²INSERM, Toulouse, France

08:20

WE1A-2 Coherence Multiplexed Passive Wireless SAW RFID Tag System

N. V. Saldanha¹, D. C. Malocha¹, R. C. Youngquist², ¹University of Central Florida, Orlando, United States, ²National Aeronautics and Space Administration, Kennedy Space Center, United States

WE1B-2 Simulation of Time Jitter Effects on the Detection Performance of M-sequence Based MIMO Radar Systems

I. Pasya, T. Kobayashi, Tokyo Denki University, Tokyo, Japan

WE1C-2 A K-band SiGe Bipolar VCO with Transformer-Coupled Varactor for Backhaul Links

F. Padovan^{1,2}, M. Tiebout², K. Mertens², A. Bevilacqua¹, A. Neviani¹, ¹University of Padova, Padova, Italy, ²Infineon Technologies, Villach, Austria

WE1D-2 Dielectric Characterization of Biological Liquids and Tissues up to 110 GHz using an LTCC CPW sensor

I. Ocket^{2,1}, S. Liu¹, D. Grillet¹, B. Embrechts¹, D. Schreurs¹, W. De Raedt², B. Nauwelaers¹, ¹KU Leuven, Leuven (Heverlee), Belgium, ²IMEC, Leuven (Heverlee), Belgium

08:40

WE1A-3 A UWB Transmit-Only Based Scheme for Multi-tag Support in a Millimeter Accuracy Localization System

N. C. Rowe¹, A. E. Fathy¹, M. J. Kuhn², M. R. Mahfouz², ¹University of Tennessee (EECS Dept), Knoxville, United States, ²University of Tennessee (MABE Dept), Knoxville, United States

WE1B-3 A Fast Direction of Arrival Estimation procedure for Adaptive Array Antennas covered by a Shaped Dielectric Lens

R. Sankaranarayanan, D. S. B, R V College of Engineering, Bangalore - 560059, India

WE1C-3 A 76 GHz Oscillator by High-Q Differential Transmission Line Loaded with Split Ring Resonator in 65-nm CMOS

D. Cai¹, Y. Shang², H. Yu², J. Ren¹, K. Yeo², ¹Fudan University, Shanghai, China, ²Nanyang Technological University, Singapore, Singapore

WE1D-3 A Microwave VNA for Biomedical In-line Concentration Measurements

M. Hofmann, A. Oborovski, G. Fischer, R. Weigel, D. Kissinger, University of Erlangen Nuremberg, Erlangen, Germany

09:00

WE1A-4 Late News Paper

TBA

WE1B-4 A Compact Phased Array Antenna System Based on Dual-Band Butler Matrices

H. Ren¹, J. Shao¹, R. Zhou¹, B. Arigong¹, H. Kim¹, C. Li², H. Zhang¹, ¹University of North Texas, Denton, United States, ²Texas Tech University, Lubbock, United States

WE1C-4 A 36-49 GHz Injection-Locked Frequency Divider with Transformer-based Dual-path Injection

R. Shu¹, V. Subramanian¹, A. Hamidian¹, A. Malignaggi¹, K. Ali¹, G. Boeck^{1,2}, ¹Berlin Institute of Technology, Berlin, Germany, ²Leibniz-Institut fuer Hoechstfrequenz-technik, Berlin, Germany

WE1D-4 A Microwave System for Blood Perfusion Measurements of Tissue; a Preliminary Study

M. Tofighi, C. Huynh, Penn State University, Harrisburg, Middletown, United States

09:20

WE1A-5 Late News Paper

TBA

WE1B-5 An Iterative Approach for Robust Beamforming with Channel Uncertainty (Invited)

A. Aziz¹, M. Gul¹, C. Thron², S. Cui¹, C. Georgiades¹, X. Ma³, ¹National Instruments, Austin, United States, ²Texas A&M University, College Station, United States, ³Georgia Institute of Technology, Atlanta, United States

WE1C-4 A 36-49 GHz Injection-Locked Frequency Divider with Transformer-based Dual-path Injection

R. Shu¹, V. Subramanian¹, A. Hamidian¹, A. Malignaggi¹, K. Ali¹, G. Boeck^{1,2}, ¹Berlin Institute of Technology, Berlin, Germany, ²Leibniz-Institut fuer Hoechstfrequenz-technik, Berlin, Germany

WE1D-5 Conformal Multilayer Hyperthermia Applicators for Superficial Cancer Treatment in Veterinary Patients

Y. Koo, R. Kazemi, A. E. Fathy, University of Tennessee, Knoxville, United States

WEDNESDAY, 23 JANUARY 2013



WisNet Session: WE2A

Wireless Sensors for Communication, Radar, Positioning and Imaging Applications

Chair: Martin Vossiek, Technical University of Clausthal
Co-Chair: Nils Pohl, Ruhr University Bochum
Room: Trinity A

RWW Session: WE2B

Advances in Low Noise Low Power Receivers

Chair: Hiroshi Okazaki, NTT DoCoMo Inc.
Co-Chair: Telesphor Kamgaing, Intel Corporation

Room: Trinity B

SiRF Session: WE2C

RF and Millimeter-Wave Systems

Chair: Ullrich Pfeiffer, University of Wuppertal
Co-Chair: Jae-Sung Rieh, Korea University

Room: Sabine

BioWireleSS Session: WE2D

Advances in Micro and Millimeter-Wave Biosensing and Interaction

Chair: Katia Grenier, LAAS-CNRS, France
Co-Chair: J. C. Chiao, University of Texas at Arlington
Room: San Marcos

10:10

WE2A-1 Through-Wall Wearable Doppler Radar System: Active Textile Antenna Design, Prototyping and Experiment (Invited)

S. Agneessens¹, P. Van Torre¹, F. Declercq¹, B. Spinnewyn¹, G. Stockman¹, H. Rogier^{1,2}, D. Vande Ginste¹,
¹Ghent University, Ghent, Belgium,
²IMEC, Ghent, Belgium

WE2B-1 A 0.8V 1.1pJ/bit Inductive-Coupling Receiver with Pulse Extracting Clock Recovery Circuit and Intermittently Operating LNA

T. Jyo, T. Kuroda, H. Ishikuro,
Keio University, Yokohama, Japan

WE2C-1 Towards mm-Wave System-On-Chip with Integrated Antennas for Low-cost 122 / 245 GHz Radar Sensors (Invited)

J. C. Scheytt, Y. Sun, K. Schmalz, R. Wang, W. Debski, W. Winkler,
University of Paderborn, Paderborn, Germany

WE2D-1 Aqueous protein solution differentiation with high frequency microwave Debye relaxation analysis

T. H. Basey-Fisher^{1,2}, S. M. Hanham¹, S. B. Merelli¹, S. A. Maier², N. Klein¹,
¹Imperial College London, London, United Kingdom,
²Imperial College London, London, United Kingdom

08:20

WE2A-2 Highly Accurate Noncontact Water Level Monitoring using Continuous-Wave Doppler Radar

G. Wang¹, C. Gu¹, J. Rice², T. Inoue³, C. Li¹,
¹Texas Tech University, Lubbock, United States,
²University of Florida, Gainesville, United States,
³National Instruments, Austin, United States

WE2B-2 An 84 dB-Dynamic-Range and 1 GHz-Bandwidth Variable Gain Amplifier Using Gain Flattening Capacitors for Multi-Gigabit Radio

R. Kitamura, T. Tsukizawa, N. Saito,
Panasonic Corporation, Yokohama-City, Japan

WE2C-2 A High Q On-Chip Bondwire Transformer and Its Application to Low Power Receiver Front-End Design

C. Li¹, C. Kuo¹, M. Kuo²,
¹National Chiao Tung University, Hsinchu, Taiwan,
²Industrial Technology Research Institute (ITRI), Hsinchu, Taiwan

WE2D-2 Waveguide-capillary tube integration schemes for the characterization of nano-liter liquids at millimeter wave frequencies with record sensitivities

J. Stiens^{1,3}, V. Matvejev¹, W. De Raedt³, D. Mangelings²,
¹Vrije Universiteit Brussel, Brussels, Belgium, ²Vrije Universiteit Brussel, Brussels, Belgium, ³IMEC, Leuven, Belgium

10:50

WE2A-3 The Investigation of Millimetre Wave Optical Harmonic Transponders and Radar for Monitoring Small Insects

N. Tahir, G. M. Brooker,
University of Sydney, Sydney, Australia

WE2B-3 2.4-GHz 7.4-mW 300-KHz Flicker-Noise-Corner Direct Conversion Receiver Using 0.18 μ m CMOS and Deep-N-Well NPN BJT

W. Chang¹, C. Meng¹, J. Syu¹, C. Wang¹, G. Huang²,
¹National Chiao Tung University, Hsinchu, Taiwan,
²National Nano Device Laboratories, Hsinchu, Taiwan

WE2C-2 A High Q On-Chip Bondwire Transformer and Its Application to Low Power Receiver Front-End Design

C. Li¹, C. Kuo¹, M. Kuo²,
¹National Chiao Tung University, Hsinchu, Taiwan,
²Industrial Technology Research Institute (ITRI), Hsinchu, Taiwan

WE2D-3 Millimeter-Wave Integrated Reflectometer Architectures for Bio-medical Applications (Invited)

D. Kissinger, B. Laemle, I. Nasr, R. Weigel,
University of Erlangen-Nuremberg, Erlangen, Germany

11:10

WE2A-4 High Range Resolution Frequency-Hopping Sensor System

N. Keya, R. Nakamura, A. Kajiwara,
The University of Kitakyushu, Kitakyushu, Japan

WE2B-4 Dynamic Range Extension for HF Receiver Frontend

G. Ulbricht,
Fraunhofer-Institute for Integrated Circuits, Erlangen, Germany

WE2C-3 A CMOS Fully Integrated Antenna System Transceiver with Beam-formability for Millimeter-Wave Active Imaging

N. Mai Khanh, K. Asada,
The University of Tokyo, Bunkyo-ku, Japan

WE2D-4 Broadband Discrimination of Living and Dead Lymphomas Cells with a Microwave Inter-digitated Capacitor

T. Chen¹, D. Dubuc¹, M. Poupot², J. Fournié², K. Grenier¹,
¹Laas-CNRS, Toulouse, France,
²INSERM, Toulouse, France

11:30

WE2A-5 A Stepped-Frequency Continuous Wave Ranging for Aiding Pedestrian Navigation

J. M. Downey¹, J. Paramesh¹, D. D. Stancil², T. Mukherjee¹,
¹Carnegie Mellon University, Pittsburgh, United States,
²North Carolina State University, Raleigh, United States

WE2B-5 Late News Paper

TBA

WE2C-4 A 4GHz-Bandwidth Op-Amp Free Track-and-Hold and 6-bit Flash ADC in 45nm SOI CMOS

M. W. Chen, D. Tian, S. Phatak, L. R. Carley, D. S. Ricketts,
Carnegie Mellon University, Pittsburgh, United States

WE2D-5 Millimeter wave bioeffects at 94 GHz on skeletal muscle contraction

I. Chatterjee¹, J. Yoon¹, R. Wiese², S. Luongo³, P. Mastin³, L. Sadovnik³, G. L. Craviso²,
¹University of Nevada, Reno, United States, ²University of Nevada School of Medicine, Reno, United States, ³Sierra Nevada Corporation, Sparks, United States

WEDNESDAY, 23 JANUARY 2013



WISNET Session: WE3A

Wireless Integrated Sensor Front-Ends and Building Blocks

Chair: Thomas Ussmueller, University of Erlangen-Nuremberg
Co-Chair: Alexander Koelpin, University of Erlangen-Nuremberg

Room: Trinity A

Joint RWS/SiRF Session: WE3B

Power Amplifiers and Transmitter Modules

Chair: Yaoming Sun, Innovations for High Performance Microelectronics Leibniz-Institut
Co-Chair: Luciano Boglione, Solid State Scientific Corp.

Room: Trinity B

Late News Session: WE3C

Chair: TBA

Room: Sabine

WISNET Session: WE3D

Wireless Sensors for Harsh Environments, Home, Health and Communication

Chair: Alexander Koelpin, University of Erlangen-Nuremberg
Co-Chair: Rahul Khanna, Intel

Room: San Marcos

13:30

WE3A-1 Radar Measurements with Micrometer Accuracy and Nanometer Stability Using an Ultra-Wideband 80 GHz Radar System (Invited)

N. Pohl¹, T. Jaschke¹, S. Scherr², S. Ayhan², M. Pauli², T. Zwick², T. Musch¹,
¹Ruhr-University Bochum, Bochum, Germany,
²Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany

WE3B-1 A 27 dBm Output Power SiGe Power Amplifier for Mobile 16 QAM LTE Applications

G. Lee, J. Jung, J. Song,
GIST, Gwangju, Republic of Korea

WE3C-1 Late News Paper

TBA

WE3D-1 An IPv6-enabled Wireless Shoe-Mounted Platform for Health-monitoring (Invited)

C. Mariotti^{1,2}, V. Lakafozis¹, M. M. Tentzeris¹, L. Roselli²,
¹Georgia Institute of Technology, Atlanta, United States,
²University of Perugia, Perugia, Italy

13:50

WE3A-2 Range-Time-Frequency Representation of Pulse Doppler Imaging Radar for Indoor Localization and Classification (Invited)

Y. Wang, A. E. Fathy,
University of Tennessee, Knoxville, United States

WE3B-2 14.4mW 10Gbps CMOS Limiting Amplifier with Local DC Offset Cancellers

K. Takano¹, R. Fujimoto², M. Motoyoshi¹, K. Katayama¹, M. Fujishima¹,
¹Hiroshima University, Higashi-Hiroshima, Japan,
²Toshiba Corporation, Kawasaki, Japan

WE3C-2 Late News Paper

TBA

WE3D-2 Radiofrequency Sensors for Snow Conditions Monitoring and Real Time Avalanche Alerts

A. Carta, A. Ghaghazanian, R. Stefanelli, D. Trincherio,
iXem Labs, Politecnico di Torino, Torino, Italy

14:10

WE3A-3 Ultra-low Power Transmitter Trade-offs for Super-Resolution Tracking of Rodents

V. Goverdovsky, D. Yates, C. Papavassiliou,
Imperial College London, London, United Kingdom

WE3B-3 A SiGe HBT Power Amplifier with Integrated Mode Control Switches for LTE Applications

J. Jung, G. Lee, J. Song,
GIST, Gwangju, Republic of Korea

WE3C-3 Late News Paper

TBA

WE3D-3 Heat, Vibration, Dust, Salt Spray, Weather - Taking Wireless Positioning to the Extreme (Invited)

H. Millner¹, P. Gulden¹, S. Roehr¹, M. Christmann¹, M. Vossiek²,
¹Syneo GmbH, Neubiberg/Munich, Germany,
²Friedrich-Alexander Universität Erlangen-Nürnberg, Erlangen, Germany

14:30

WE3A-4 An Energy Harvesting System using 3-Stage Voltage Multiplier and MPVD Charge Pump for Wireless Sensor Networks

R. D. Shrivastava, D. Deshpande, C. Li, R. Gale,
ECE, TTU, Lubbock, Lubbock, United States

WE3B-4 A Hybrid GaN/Organic X-Band Transmitter Module

S. Pavlidis¹, C. A. Donado Morcillo¹, P. Song¹, R. Fitch², J. Gillespie², R. Febo², T. Quach², J. Papapolymerou¹,
¹Georgia Institute of Technology, Atlanta, United States,
²Air Force Research Laboratory, Dayton, United States

WE3C-4 Late News Paper

TBA

WE3D-4 High Efficiency X-band Class-E GaN MMIC High-Power Amplifiers

J. Moon, H. Moyer, P. Macdonald, D. Wong, M. Antcliffe, M. Hu, P. Willadsen, P. Hashimoto, C. McGuire, M. Micovic, M. Wetzel, D. Chow,
HRL Laboratories, Malibu, United States

14:50

WE3A-5 Late News Paper

TBA

WE3B-5 Late News Paper

TBA

WE3C-5 Late News Paper

TBA

WE3D-5 Dynamic Wireless Sensor Networks for Real Time Safeguard of Workers Exposed to Physical Agents in Constructions Sites

E. Pievanelli, A. Plesca, R. Stefanelli, D. Trincherio,
iXem Labs, Politecnico di Torino, Torino, Italy

WE3P-1 An Electrically-Small, 3-D Cube Antenna Fabricated with Additive Manufacturing
I. T. Nassar, T. M. Weller,
University of South Florida, Tampa, United States

WE3P-2 Characterizing a Proposed Sixteen-Element Array Antenna Designed for Microwave Imaging of Breast Cancer
A. Modiri, K. Kiasaleh, S. Chandrachud,
University of Texas at Dallas, Richardson, United States

WE3P-3 3GHz band HTS Multichannel Receiving Unit with 8 modules
H. Kayano, N. Shiokawa, T. Kawaguchi, K. Nakayama, M. Yamazaki,
Toshiba Corporation, Kawasaki, Japan

WE3P-4 Multiple Band Rejection Notches in Miniaturized UWB Fifth-Order Filter Using E-Shape Microstrip Structures
R. T. Hammed, D. Mirshekar-Syahkal,
University of Essex, Colchester, United Kingdom

WE3P-6 A Compact Charge-Based Physical Model for AlGaIn/GaN HEMTs
F. M. Yigletu^{1,2}, B. Iñiguez^{1,2}, S. Khan-delwal^{2,1}, T. A. Fjeldy^{2,1},
¹*Universitat Rovira i Virgili, Tarragona, Spain,*
²*Norwegian University of Science and Technology (NTNU), Trondheim, Norway*

WE3P-7 Tunable frequency ferromagnetic resonance of Co nanowire arrays
M. Pasquale, C. P. Sasso, E. S. Olivetti, M. Coisson,
Istituto Nazionale di Ricerca Metrologica, Torino, Italy

WE3P-8 A New UWB Link Set-Up for Breast Tumor Detection
S. Razavizadeh,
Islamic Republic of Iran Broadcasting University, Tehran, Iran

WE3P-9 Time-Reversal UWB-IR Considering Channel Estimation Error
H. Ishikawa, A. Matsumoto, R. Nakamura, A. Kajiwara,
The University of Kitakyushu, Kitakyushu, Japan

WE3P-10 ICI of Time-Reversal UWB-IR Communication
Z. He, H. Ishikawa, R. Nakamura, A. Kajiwara,
The University of Kitakyushu, Kitakyushu, Japan

WE3P-11 Millimeter-Wave Phase-Locked Loops for Terahertz Transceiver using Sub-harmonic Injection Locking
S. Bhagavatheswaran, B. Banerjee,
The University Of Texas at Dallas, Richardson, United States

WE3P-12 Joint Transmitter Adaptation and Power Control in Multi-User Wireless Systems with Fading Channels
S. Abraham, D. C. Popescu,
Old Dominion University, Norfolk, United States

WE3P-13 A K-Band Low-Power CMOS Transformer-Feedback VCO
J. Tsai, J. Chou,
National Taiwan Normal University, Taipei, Taiwan

WE3P-14 Magnetostimulation by Inductive Power Transfer Systems
J. S. McLean, A. Medina, R. Sutton,
TDK R&D Corp., Cedar Park, United States

WE3P-15 Building Blocks for an X-Band SiGe BiCMOS T/R Module
T. Dinc¹, I. Kalyoncu¹, M. Kaynak², Y. Gurbuz¹,
¹*Sabancı University, Istanbul, Turkey,*
²*IHP Microelectronics, Frankfurt (Oder), Germany*

WE3P-16 Reducing Substrate Noise Coupling in a 3D-PICS Integrated Passive Device by localized P+ Guard Rings
M. Ben Salah¹, D. Pasquet², F. Voiron³, P. Descamps², J. Lefebvre¹, D. Lesenechal²,
¹*Presto Engineering, Caen, France,*
²*LaMIPS, CRISMAT Laboratory, Caen, France,*
³*IPDIA, Caen, France*

WE3P-17 Compact Wideband Race Hybrid Utilizing Composite Right/Left-Handed Transmission Lines
Y. Sumitomo¹, T. Kawai¹, A. Enokihara¹, I. Ohta², K. Satoh³, Y. Suzuki³, H. Okazaki³, S. Narahashi³,
¹*University of Hyogo, Himeji, Japan,*
²*University of Hyogo, Kobe, Japan,*
³*NTT DOCOMO Inc., Yokosuka, Japan*

WE3P-18 A 4-bit SiGe Passive Phase Shifter for X-band Phased Arrays
I. Kalyoncu¹, E. Ozeren¹, M. Kaynak², Y. Gurbuz¹,
¹*Sabancı University, Istanbul, Turkey,*
²*IHP Microelectronics, Frankfurt (Oder), Germany*

WE3P-19 Fluorine Improvement of MOSFET Interface as Revealed by RTS Measurements and HRTEM
J. Kim, J. Kim, C. Lee, J. Lee, D. Kim, S. Lee, K. Yoo, H. Park,
Foundry Division, Bucheon, Republic of Korea

WE3P-20 A fully integrated bulk-CMOS switch based tunable transformer for RF and antenna matching
W. Bakalski¹, A. Thomas^{2,1}, R. Weigel²,
¹*Infineon Technologies AG, Neubiberg, Germany,*
²*Universität Erlangen-Nürnberg, Erlangen, Germany*

WE3P-21 Doppler Radar Sensor for Occupancy Monitoring
E. Yavari, H. Jou, V. Lubecke, O. Boric-Lubecke,
University of Hawaii at Manoa, Honolulu, United States

WE3P-22 Transmission of 3-Gb/s Uncompressed HD Video in a Optoelectronic-Oscillator-Based Radio over Fiber Link
Z. Tang, S. Pan,
Nanjing University of Aeronautics and Astronautics, Nanjing, China

WE3P-23 Reconstruction Filter suitable for Lowpass Delta-Sigma RF Transmitters
D. Wang, R. Negra,
RWTH Aachen University, Aachen, Germany

WE3P-24 Dual Band Electrically Small Non-Uniform Pitch Ellipsoidal Helix Antenna for Cardiac Pacemakers
H. Huang^{1,2}, P. Chen², M. Ferrari¹, Y. Hu¹, D. Akinwande²,
¹*The Methodist Hospital Research Institute, Houston, United States,*
²*The University of Texas at Austin, Austin, United States*

WE3P-25 Design Considerations for Asymmetric Magnetically Coupled Resonators used in Wireless Power Transfer Applications
G. Lee^{2,1}, B. H. Waters², C. Shi², W. Park¹, J. R. Smith²,
¹*Pohang University of Science and Technology, Pohang, Republic of Korea,*
²*University of Washington, Seattle, United States*

WE3P-26 A Wireless Sensing Platform Utilizing Ambient RF Energy
A. N. Parks¹, A. P. Sample¹, Y. Zhao¹, J. R. Smith^{2,1},
¹*University of Washington (EE Dept), Seattle, United States,*
²*University of Washington (CS Dept), Seattle, United States*

WE3P-27 Performance Analysis of BPSK Dual-Hop Communication Systems with Co-channel Interference in Nakagami-m Fading Channels
M. S. Akhoirshida, M. M. Matalgah,
The University of Mississippi, United States,

WE3P-28 Evaluation of EM Absorption Loss for Continuous Monitoring of Breast Cancer
M. M. Elsewe, D. Chatterjee,
University of Missouri - Kansas City, Kansas City, United States

WE3P-29 RF Multicarrier Signaling and Antenna Systems for Low SNR Broadband Underwater Communications
K. Naishadham¹, B. Kelley²,
¹*Georgia Institute of Technology, Atlanta, United States,*
²*The University of Texas at San Antonio, San Antonio, United States*

WE3P-30 Modular Wireless Inertial Trackers for Biomedical Applications
G. To, M. R. Mahfouz,
University of Tennessee, Knoxville, United States



Downtown Skyline
Photo courtesy of Austin CVB

WEDNESDAY, 23 JANUARY 2013



WiSNet Session: WE4A

Sensor Network Communication Architecture and Topologies

Chair: Rahul Khanna, Intel
Co-Chair: Alexander Koelpin, University of Erlangen-Nuremberg

Room: Trinity A

RWW Session: WE4B

Millimeter-Wave System-in-Packages, Emerging Microwave Circuits and Techniques

Chair: Bhaskar Banerjee, University of Texas Dallas
Co-Chair: Luciano Boglione, Solid State Scientific Corp

Room: Trinity B

SiRF Session: WE4C

Millimeter-Wave Circuits

Chair: Larry Larson, Brown University
Co-Chair: Hermann Schumacher, University of Ulm

Room: Sabine

RWW Session: WE4D

Wireless Systems Architecture and Modeling 2

Chair: Debabani Choudhury, Intel

Room: San Marcos

15:40

WE4A-1 Scalable Map-Based Tasking for Urban Scale Multi-purpose Sensor Networks (Invited)

H. Tran¹, N. Bulusu¹, T. Dang², W. Feng¹,
¹Portland State University, Portland, United States,
²Washington State University Vancouver, Vancouver, United States

WE4B-1 In-depth bifurcation analysis of nonlinear microwave circuits (Invited)

A. Suarez, F. Ramirez,
University of Cantabria, Santander, Spain

WE4C-1 49 GHz 6-Bit Programmable Divider in SiGe BiCMOS

A. Ergintav¹, Y. Sun¹, C. Scheytt², Y. Gurbuz³,
¹IHP, Frankfurt (Oder), Germany,
²University Paderborn, Paderborn, Germany,
³Sabanci University, Istanbul, Turkey

WE4D-1 Verification of Interference Avoidance Effect with Adaptive Channel Diversity Method based on ISA100.11a Standard

Y. Serizawa, T. Yano, M. Miyazaki, K. Mizugaki, R. Fujiwara, M. Kokubo, Hitachi Ltd., Kokubunji, Japan

16:00

WE4A-2 Energy-Efficient Monitoring of Distributed System Resources for Self-Organizing Sensor Networks (Invited)

F. Dressler, D. Neuner,
University of Innsbruck, Innsbruck, Austria

WE4B-2 A Low-Cost, Wide-Band 60 GHz Down-Converter Module for Multi-Gigabit per Second Wireless Communication

G. Liu, A. C. Ulusoy, A. Trasser, H. Schumacher,
Ulm University, Ulm, Germany

WE4C-2 A K-Band CMOS Monopulse Comparator Incorporating the Phase-Invertible Variable Attenuator

J. Lee, C. Nguyen,
Texas A&M University, College Station, United States

WE4D-2 Range Extension Using Optimal Node Deployment in Linear Multi-hop Cooperative Networks

S. A. Hassan,
National University of Sciences and Technology, Islamabad, Pakistan

16:20

WE4A-3 A Distributed Self-Relocating Algorithm for Randomly Deployed Mobile Wireless Sensors

Y. Qu, S. Georgakopoulos,
Florida International University, Miami, United States

WE4B-3 Non-Reciprocal Faraday Rotation in Graphene: Just a Unique Phenomenon or Even More? (Invited)

D. Sounas, C. Caloz,
Ecole Polytechnique de Montreal, Montreal, Canada

WE4C-3 A 13/24/35-GHz Concurrent Tri-band LNA with Feedback Notches

J. Lee, C. Nguyen,
Texas A&M University, College Station, United States

WE4D-3 Simulator for Capacity Analysis of Base Stations for Mobile Networks using Google Maps

J. A. Figueira¹, P. Sebastião^{1,2}, F. Cercas^{1,2}, N. David¹,
¹Lisbon University Institute, Lisboa, Portugal,
²Instituto de Telecomunicações, Lisboa, Portugal

16:40

WE4A-4 Synchronization and Synchronization of Wireless Sensor Networks

J. Reis, N. B. Carvalho,
IT Aveiro, Aveiro, Portugal

WE4B-4 A Packaged 60 GHz Low-Power Transceiver with Integrated Antennas for Short-Range Communications

J. A. Zevallos Luna¹, A. Siligaris¹, C. Pujol², L. Dussot¹,
¹Cea, Grenoble, France,
²Agilent Technologies, Massy, France

WE4C-4 Key components of a 130GHz Dicke-radiometer SiGe RFIC

E. Shumakher, J. Elkind, D. Elad,
IBM, Haifa, Israel

WE4D-4 Physical Layer Security of Hybrid Spread Spectrum Systems

A. Martin, Y. Hasan, R. M. Buehrer,
Virginia Tech, Blacksburg, United States

17:00

WE4A-5 Late News Paper

TBA

WE4B-5 Ultra Low Noise Cryogenic Amplifiers for Radio Astronomy (Invited)

E. W. Bryerton, M. Morgan, M. W. Pospieszalski,
National Radio Astronomy Observatory, Charlottesville, United States

WE4C-5 A Fully Integrated 120-GHz Six-Port Receiver Front-End in a 130-nm SiGe BiCMOS Technology

B. Laemmler¹, K. Schmalz², J. Borngraeber², J. C. Scheytt³, R. Weigel¹, A. Koelpin¹, D. Kissinger¹,
¹University of Erlangen-Nuremberg, Erlangen, Germany,
²IHP, Frankfurt (Oder), Germany,
³University of Paderborn, Paderborn, Germany

WE4D-5 Late News Paper

TBA

WIRELESS OTA TECHNICAL TOUR AND BBQ

Bus loads at Renaissance at 5:45 pm, bus returns to hotel at 8:45 pm

See "Highlights" on RWW2013 website for tour and registration info