TUESDAY, 17 JANUARY 2012

**RWS Session: TU1B**

**Wireless Technologies for Power Transfer, Networking and Communication**

Chair: Zhizhang Chen, Dalhousie University
Co-Chair: Debabani Choudhury, Intel Corporation

Room: California 1-3

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**TU1B-1 Electromagnetic Field Focusing for Short-Range Wireless Power Transmission (Invited)**

A. Poon, Stanford University, Stanford, United States

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**TU1B-2 Human-Area Networking Technology Based on Near-Field Coupling Transceiver**

Y. Kado1, T. Kobase1, T. Yanagawa1, T. Kusunoki1, M. Takahashi1, R. Nagai1, O. Hiromitsu1, A. Hataya1, H. Simasakii1, M. Shinagawa1, ‘Kyoto Institute of Technology, Kyoto-shi, Japan, 2’Koganei University, Koganei-shi, Japan

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**TU1B-3 Arbitrary Power and Positioning Techniques for 2D Wireless Power Transmission Systems**

T. Terada, H. Shinoda, Hitachi, Ltd., Central Research Laboratory, Kokubunji-shi, Japan

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**TU1B-4 Wireless Power Transmission Using Small Coupler for Mobile Devices**

H. Shinoda, T. Terada, Central Research Laboratory, Hitachi, Ltd., Kokubunji, Japan

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**TU1B-5 Adaptive Channel Diversity Method based on ISA100.11a Standard for Wireless Industrial Monitoring**

M. Miyazaki, R. Fujiwara, K. Mizugaki, M. Kokubo, Hitachi Ltd., Tokyo, Japan

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**SIRF Session: TU1C**

**Novel RFIC Building Block Circuits for Advanced System Applications**

Chair: Lawrence Larson, Brown University
Co-Chair: Hsieh-Hung Hsieh, TSMC

Room: California 7-9

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**TU1C-1 Synthesizing Artificial Dielectric in CMOS with Digitally Controlled Permittivity for Radio-on-a-Chip Applications (Invited)**

M. F. Chang, UCLA, Los Angeles, United States

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**TU1C-2 A 6-bit Wideband Variable Gain Amplifier with Low Group Delay Variation in 90nm CMOS**

M. Parlak1, M. Matsuo2, J. Buckwalter2, 1University of California, San Diego, La Jolla, United States, 2Panasonic Silicon Valley Laboratory, Cupertino, United States

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**TU1C-3 Using Audio to Enhance Trustworthiness in Wireless Localization for Medical Environments**

E. Martin, R. Bajcsy, University of California Berkeley, Berkeley, United States

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**TU1C-4 An Integrate-and-Dump Receiver for High Dynamic Range Photonic Analog-to-Digital Conversion**

T. D. Gathman, J. F. Buckwalter, University of California-San Diego, La Jolla, United States

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**TU1C-5 Detection Sensitivity and Power Consumption vs. Operation Modes Using System-on-Chip Based Doppler Radar Occupancy Sensor**

C. Song1, E. Yavari1, A. Singh1, O. Boric-Lubecke1, 1University of Hawaii at Manoa, Honolulu, United States, 2Concentris Systems, LLC., Honolulu, United States

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**BioWireleSS Session: TU1D**

**Wireless Technologies for Biosignals and Modeling in Medical Applications**

Chair: Jung-chin Chiao, University of Texas Arlington

Room: California 5

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**TU1D-1 RF Based Feedback System for Cardiopulmonary Resuscitation**

M. Hofmann1, J. C. Edelmann2, A. Bolz2, R. Weigel2, G. Fischer1, D. Kissinger1, University of Erlangen-Nuremberg, Erlangen, Germany, Karlsruhe Institute of Technology, Karlsruhe, Germany

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**TU1D-2 Breathing Rate Estimation from a Non-Contact Biosensor Using an Adaptive IIR Notch Filter**

T. Ballal1, R. B. Shouldice1, C. Heneghan2, A. Zhu1, University College Dublin, Dublin, Ireland, 2BiancaMed, Dublin, Ireland

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**TU1D-3 Using Audio to Enhance Trustworthiness in Wireless Localization for Medical Environments**

E. Martin, R. Bajcsy, University of California Berkeley, Berkeley, United States

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**TU1D-4 Antenna Evaluation of a Non-Contact Vital Signs Sensor for Continuous Heart and Respiration Rate Monitoring**

V. Das1, A. Boothby1, R. Hwang2, T. Nguyen1, J. Lopez1, D. Y.C. Lie1, Texas Tech University, Lubbock, United States, 2Cornel University, Ithaca, United States

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**TU2 Plenary Session**

**Arogyaswami J. Paulraj**

Key Enabler of Wireless Broadband
Received 2011 IEEE Alexander Graham Bell Medal

Time: 10:10-11:50
Room: California 4

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Title: On Scaling Wireless Capacity

Abstract:

The need for massive scaling of wireless capacity in mobile networks (say BPS/Sq. Km.) is obvious. There are many leverages for scaling that can come from adding bandwidth, multiple antennas, coding-decoding, relays, cooperation, interference management, scheduling, aggregation, time shifting, cell splitting, compute partitioning, spectrum management, etc. This talk will pick on some of these areas and discuss their potential scaling capacity value and associated implementation hurdles.

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Plenary Speaker:

Arogyaswami Paulraj is a Professor Emeritus at Stanford University and Sr. Advisor at Broadcom Corp.

Paulraj is the pioneer of MIMO wireless communications, a technology break through that enables improved wireless performance. MIMO is now incorporated into all new wireless systems.

Paulraj has received several awards in the US, notably the IEEE Alexander Graham Bell Medal. He is a fellow of seven scientific academies including the US National Academy of Engineering and the Royal Swedish Academy of Engineering Sciences. He is a fellow of IEEE and AAAS.

In 1999, Paulraj founded Iospan Wireless Inc - which developed the first MIMO-OFDMA wireless system. Iospan was acquired in by Intel Corporation in 2003. Paulraj in 2004, Paulraj co-founded Becem Communications Inc and the company was acquired by Broadcom Corp. in 2010.

During his 30 years in the India, he founded three national level laboratories and headed one of India’s most successful defense R&D projects APSOH sonar. His many awards in India include the Padma Bhushan, the second highest national award.
### RWS Session: TU3A

**Band Pass Filters**

**Chair:** Xun Gong, University of Central Florida  
**Co-Chair:** Roberto Gomez-Garcia, University of Alcala  
**Room:** California 1-3

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<th>Time</th>
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<th>Authors</th>
<th>Institutions</th>
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<tbody>
<tr>
<td>13:30</td>
<td>TU3A-1</td>
<td>A Compact High Selectivity Seventh-Order UWB Bandpass Filter With Ultra-Stopband Attenuation</td>
<td>R. T. Hammed, D. Mirshekar-Syahkal, University of Essex, Colchester, United Kingdom</td>
<td></td>
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<tr>
<td>13:50</td>
<td>TU3A-2</td>
<td>Millimeter-wave Liquid-Crystal-Based Tunable Bandpass Filter</td>
<td>M. Yazdanpanahi, D. Mirshekar-Syahkal, University of Essex, Colchester, United Kingdom</td>
<td></td>
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<tr>
<td>14:10</td>
<td>TU3A-3</td>
<td>A Dual-Band Bandpass Filter Using Dual and Triple-Mode Resonators</td>
<td>J. Lee, Y. Lim, Chonnam National University, Gwangju, Republic of Korea</td>
<td></td>
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<tr>
<td>14:30</td>
<td>TU3A-4</td>
<td>New Approach for Configuring a Parallel-Planar Dual-Band Bandpass Filter by Employing Multi-layered LTCC Technologies</td>
<td>Y. Takagi, K. Satoh, S. Narahashi, NTT docomo, Yokosuka, Japan</td>
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### RWS Session: TU3B

**Propagation Channel Modeling and Utilization**

**Chair:** Hiroshi Shirai, Chuo University  
**Co-Chair:** Shinobu Nanba, KDDI R&D Laboratories Inc.  
**Room:** California 4

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<tr>
<td>13:30</td>
<td>TU3B-1</td>
<td>Cellular Broadband Millimeter-Wave Propagation and Angle of Arrival for Adaptive Beam Steering Systems (Invited)</td>
<td>T. S. Rappaport, E. Ben-Dor, J. N. Murdock, Y. Qiao, J. I. Tamir, The University of Texas at Austin, Austin, United States</td>
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<tr>
<td>13:50</td>
<td>TU3B-2</td>
<td>Using Spherical Harmonics for Modeling Antenna Patterns</td>
<td>A. Schmitz, T. Karolski, L. Kobbelt, RWTH Aachen University, Aachen, Germany</td>
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<tr>
<td>14:10</td>
<td>TU3B-3</td>
<td>An Intelligent High Availability AMC Design</td>
<td>S. Ben-Guedria, J. Frigon, B. Sanso, Ecole Polytechnique de Montreal, Montreal, Canada</td>
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<tr>
<td>14:30</td>
<td>TU3B-4</td>
<td>2x2 MIMO Channel Characteristics Under Received Power Imbalance Through Indoor Propagation Measurements</td>
<td>S. Nanba, Y. Hirota, Y. Kishi, KDDI R&amp;D Laboratories Inc., Fujimino-shi, Japan</td>
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### SIRF Session: TU3C

**RFICs for Millimeterwave Phased Array Systems**

**Chair:** Lance Kuo, Raytheon  
**Co-Chair:** Kenichi Okada, Tokyo Institute of Technology  
**Room:** California 7-9

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<tr>
<td>13:30</td>
<td>TU3C-1</td>
<td>Silicon CMOS/BICMOS Transceiver Circuits for THz Applications (Invited)</td>
<td>U. Pfeiffer, University of Wuppertal, Wuppertal, Germany</td>
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<tr>
<td>13:50</td>
<td>TU3C-2</td>
<td>A CMOS Fully Integrated Antenna Array Transmitter with On-chip Skew and Pulse-Delay Adjustment for Millimeter-Wave Active Imaging</td>
<td>N. N. Khanh, M. Sasaki, K. Asada, The University of Tokyo, Tokyo, Japan</td>
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<td>14:10</td>
<td>TU3C-3</td>
<td>Analog Baseband Beamformer for Use in a Phased-Array 60 GHZ Transmitter</td>
<td>V. Szortyka, K. Raczkowski, R. Vandezemle, M. Kuijken, P. Wambacq, IMEC, Heverlee, Belgium, Vrije Universiteit Brussel, Brussels, Belgium</td>
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<td>14:30</td>
<td>TU3C-4</td>
<td>New Approach for Configuring a Parallel-Planar Dual-Band Bandpass Filter by Employing Multi-layered LTCC Technologies</td>
<td>Y. Takagi, K. Satoh, S. Narahashi, NTT docomo, Yokosuka, Japan</td>
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### BioWireleSS Session: TU3D

**Remote Patient Monitoring**

**Chair:** David Ricketts, Carnegie Mellon University  
**Room:** California 5

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<tr>
<td>13:30</td>
<td>TU3D-1</td>
<td>Antenna Array Technology for Radar Respiration Measurement in Motion-Adaptive Lung Cancer Radiotherapy</td>
<td>C. Gu, Z. Salmani, H. Zhang, C. Li, Texas Tech University, Lubbock, United States, University of North Texas, Denton, United States</td>
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<tr>
<td>13:50</td>
<td>TU3D-2</td>
<td>AC/DC Coupling Effects on CW and Pulse Transmission Modes in Doppler Radar Physiological Monitoring System</td>
<td>E. Yavari, O. Boric-Lubecke, V. Lubecke, University of Hawaii at Manoa, Honolulu, United States</td>
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<tr>
<td>14:10</td>
<td>TU3D-3</td>
<td>VitalTrack: A Doppler Radar Sensor Platform for Monitoring Activity Levels</td>
<td>G. Reyes, D. Wang, R. Nair, C. Li, X. Li, Gainesville, United States, Lubbock, United States</td>
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TUESDAY, 17 JANUARY 2012

16:00

**RWS Session: TUSA**
**Passives**

Chair: Dariush Mirshekar, University of Essex
Co-Chair: Rasahunda Henderson, University of Texas at Dallas
Room: California 1-3

**TUSA-1 Combining 2G and 3G (4G) BTS Outputs Sharing the Same Frequency Band**
G. Resnati¹, S. Tamiazzo¹, G. Macchiarella¹, `CommScope Italy`, Agrate B., Italy, ¹Politecnico di Milano, Milano, Italy

**TUSA-2 Development of an Ultra Wide Band GCPW to SIW Transition**
R. Kazemi², A. E. Fathy², S. Yang², R. A. Sadeghzadeh¹, `K. N. toosi University of Technology`, Tehran, Iran, ²The University of Tennessee, Knoxville, United States

**TUSA-3 Design of a Low Loss Wideband Millimeter-Wave Balun on a Multilayer Liquid Crystal Polymer Technology**
C. L. Kameri Ngassa, B. Lacroix, J. Papapolymerou, Georgia Institute of Technology, Atlanta, United States

**TUSA-4 Design of Stripline Beam-Former Network Components for Low-Profile, Organic Phased Arrays in the X Band**
C. A. Donado Morcillo, C. E. Patterson, J. Papapolymerou, Georgia Institute of Technology, Atlanta, United States

**RWS Session: TUSB**
**DSP Techniques in Wireless Communication Systems**

Chair: Takao Inoue, National Instruments
Room: California 4

**TUSB-1 A Type-Based Equalization Technique for Frequency Response Distortion Compensation**
X. Huang, M. Caron, Communications Research Centre Canada, Ottawa, Canada

**TUSB-2 60-GHz OFDM Experimental System Employing Decision-Directed Phase Noise Compensation**
S. Suyama, Y. Hashimoto, H. Suzuki, K. Fukawa, Tokyo Institute of Technology, Tokyo, Japan

**TUSB-3 Low-complexity Implementation of Per-survivor Processing for Carrier-phase Tracking in Uncertain Environment**
N. Safar!, A. Vahlin, S. A. Lund, Ceron Networks, Bergen, Norway

**TUSB-4 Low-complexity Implementation of Per-survivor Processing for Carrier-phase Tracking in Uncertain Environment**
N. Safar!, A. Vahlin, S. A. Lund, Ceron Networks, Bergen, Norway

**SIcF Session: TUc**
**Millimeter-wave Circuits for Si-based Transceiver Systems**

Chair: Chien-Nan Kuo, National Chiao Tung University
Co-Chair: Yongshik Lee, Yonsei University
Room: California 7-9

**TUSc-1 A 64 to 81 GHz PLL with Low Phase Noise in an 80 GHz SiGe HBT Technology**
G. Liu, A. Trasser, H. Schumacher, Ulm University, Ulm, Germany

**TUSc-2 Dual-Band Millimeter-Wave VCO with Embedded RF-MEMS Switch Module in BiCMOS Technology**
G. Liu¹, M. Kaynak², T. Purtova¹, A. C. Ulusoy¹, B. Tillack², H. Schumacher¹, ¹Ulm University, Ulm, Germany, ²HPI GmbH (Innovations for High Performance Microelectronics), Frankfurt (Oder), Germany, ³Berlin Institute of Technology, Berlin, Germany

**TUSc-3 16.9-mW 33.7-dB Gain mmWave Receiver Front-End in 65 nm CMOS**
C. Li, C. Kuo, National Chiao Tung University, Hsinchu City, Taiwan

**TUSc-4 An X-Band to Ka-Band SPDT Switch Using 200 nm SiGe HBTS**
C. H. Poh, R. L. Schmid, J. D. Cressler, J. Papapolymerou, Georgia Institute of Technology, Atlanta, United States

**BioWireless Session: TUcD**
**Micro-Sensors and In-vivo Microsystems**

Chair: Rizwan Bashirullah, University of Florida
Room: California 5

**TUcD-1 Smart Instruments: Wireless Technology Invades the Operating Room (Invited)**
M. R. Mahfouz, G. To, M. J. Kuhn, University of Tennessee, Knoxville, United States

**TUcD-2 Implantable Wireless Microcoils for 7Tesla Magnetic Resonance Imaging of the Rat Brain: Optimization of the PDMS Packaging**
M. Couty³, A. Rubin⁴, M. Woytasik¹, E. Dufour-Gergam, M. Tatoulia³, J. Ginefsi³, L. Darrasse³, F. Boumezbeur³, F. Leblond⁴, ¹Institute of Fundamental Electronics, Orsay, France, ²Chimie Paris Tech, Paris, France, ³IRMM, Orsay, France, ⁴CEA Neurospin, Gif-sur-Yvette, France

O. Kazanci², N. Joehl³, F. Mazzilli³, F. Maloberti³, ²Ecole Polytechnique Federale de Lausanne, Lausanne, Switzerland, ³Advanced Silicon SA, Lausanne, Switzerland, ⁴University of Pavia, Pavia, Italy

**TUcD-4 Low-Cost Electrodes for Acutely Implanted Neural Recording and Stimulation Systems**
A. Bozkurt, North Carolina State University, Raleigh, United States

**16:20**

**16:40**

**17:00**

**RWS/SiRF BANQUET**

Tuesday Evening, 17 January 2012 from 18:00-21:00
Room: Grand Ballroom

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.
**WEDNESDAY, 18 JANUARY 2012**

**WiSNnet Session: WE1A**

**Power Considerations and Novel Applications of Wireless Sensors**

Chair: Manos Tentzeris, Georgia Tech
Co-Chair: Apostolos Georgiadis, CTTC
Room: California 1-3

**WE1A-1 An Overview of RFID Localization Techniques (Invited)**

M. Vossiek, R. Miesen, Chair for Microwave Engineering and High Frequency Technology, University of Erlangen-Nuremberg, Erlangen, Germany

**WE1A-2 A 927 MHz Solar Powered Active Antenna Oscillator Beacon Signal Generator**

F. Giuppi1, A. Georgiadis2, S. Vias3, A. Collado4, R. Vias5, M. M. Tentzeris6, M. Bozzi1, 1University of Pavia, Pavia, Italy, 2Centre Tecnologic de Telecomunicacions de Catalunya, Castelldefels, Spain, 3Georgia Institute of Technology, Atlanta, United States

**WE1A-3 Magnetic Front-End with Complex Geometry for Application of Wireless Sensor Networks in Water and Liquids**

R. Stefanelii, M. Demaria, M. Marconcelli, D. Trinchero, Xem Labs - Politecnico di Torino, Torino, Italy

**WE1A-4 High Temperature, Wireless Seismometer Sensor for Venus**

G. E. Ponchak1, M. C. Scardelletti1, B. Taylor1, S. Beard1, R. D. Meredith1, G. M. Beheim1, K. Lee1, 1Naval Research Laboratories, Washington, District of Columbia, United States, 2INPROX Technology Corporation, Boston, United States, 3Lunar and Planetary Institute, Houston, Texas, USA

**WE1A-5 Magnetic Resonant Wireless Power Delivery for Distributed Sensor and Wireless Systems.**

B. J. Lee, A. Hillenius, D. S. Ricketts, Carnegie Mellon University, Pittsburgh, United States

**RWS Session: WE1B**

**Low Power Ultra-Wideband Oscillators and Low Noise Amplifiers I**

Chair: Vijay Nair, Intel Corporation
Co-Chair: Qinging Liang, Institute of Chinese Academy and Science
Room: California 4

**WE1B-1 A Low-Power 3.2–9.7 GHz Ultra-Wideband Low Noise Amplifier with Excellent Stop-band Rejection Using 0.18 um CMOS Technology**

J. Chang, Y. Lin, J. Lee, C. Wang, National Chi Nan University, Puli, Taiwan

**WE1B-2 Analysis and Design of a 3–26 GHz Low-Noise Amplifier in SiGe HBT Technology**

P. K. Saha, S. Shankar, R. Schmid, R. Mills, J. D. Cressler, Georgia Institute of Technology, Atlanta, United States

**WE1B-3 A 0.4-V 1.08-mW 12-GHz High-Performance VCO in 0.18-µm CMOS**

T. Wang, C. Li, National Taipei University of Technology, Taipei, United States

**WE1B-4 Effect of Envelope Amplifier Nonlinearities on the Output Spectrum of Envelope Tracking Power Amplifiers**

M. Hassan1, L. E. Larson1, V. W. Leung1, P. M. Asbeck1, 1University of California at San Diego, La Jolla, United States, 2Qualcomm Inc., San Diego, United States

**WE1B-5 4G Antenna Tuner Integrated in a 130 nm CMOS SoC Technology**

F. Sonnerat1,2, R. Pillard1, F. Giannello1, F. Le Pennec1, C. Person1, D. Gloria1, 1STMicroelectronics, Crolles, France, 2Telecom Bretagne, Brest, France

**BioWireless Session: WE1C**

**Wireless Position and Localization in Medicine**

Chair: Mohamed Mahfouz, University of Tennessee Knoxville
Room: California 5

**WE1C-1 Design of Wireless Inertial Trackers for Human Joint Motion Analysis**

G. To, M. Mahfouz, University of Tennessee, Knoxville, United States

**WE1C-2 SFCW Microwave Radar for In-Door Fall Detection**

M. Mercuri1, D. Schreurs1, P. Leroux1,2, 1K.U.Leuven, Leuven, Belgium, 2K.U.Leuven, Leuven, Belgium, 3K.H.Kempen, Geel, Belgium

**WE1C-3 Ultra Wideband 3-D Tracking of Multiple Tags for Indoor Positioning in Medical Applications Requiring Millimeter Accuracy**

M. J. Kuhn1, M. R. Mahfouz1, N. Rowe2, E. Elkholy1, J. Turnmire2, A. E. Fathy2, 1University of Tennessee, Knoxville, United States, 2University of Tennessee, Knoxville, United States

**WE1C-4 Localization of a Functional Capsule for Wireless Neuro-Endoscopy**

D. Manteuffel, M. Grimm, University of Kiel, Kiel, Germany

**WE1C-5 Leveraging Bluetooth and Wireless Accelerometers to Enhance Gait Analysis and Positioning in Medical Environments**

E. Martin, R. Bajcsy, UC Berkeley, Berkeley, United States

**SiRF Session: WE1D**

**Emerging Circuit Technologies**

Chair: Luca Pierantoni, Università Politecnica delle Marche
Co-Chair: Fabio Cocetti, LAAS
Room: California 7-9

**WE1D-1 Radio Frequency Nanoelectronics Based on Carbon Nanotubes (Invited)**

N. Rouhi, D. Jain, P. J. Burke, University of California, Irvine, Irvine, United States

**WE1D-2 Graphene: An Emerging RF Technology (Invited)**

J. Moon1, M. Antcliffe1, H. Seo1, S. Lin1, A. Schmitz1, D. Wong1, D. Gaskill2, P. Campbell1, K. Lee1, P. Asbeck1, HRL Laboratories LLC, Malibu, United States, 1Naval Research Laboratories, SW United States, 2University of California San Diego, La Jolla, United States

**WE1D-3 Feasibility Study of a Fully Organic Frequency Doubler for Harmonic RFID Applications**

L. Roselli1, F. Alimenti1, M. Virili1, F. Lolli2, D. Popescu2, D. Popescu3, S. Locci1, P. Lugli2, 1University of Perugia, Perugia, Italy, 2Technical University of Munich, Munich, Germany
**WEDNESDAY, 18 JANUARY 2012**

### 10:10

**WE2A-1** Hidden Markov Estimation of Bistatic Range From Clustered Ultra-Wideband Impulse Responses  
M. McCracken, N. Patwari, University of Utah, Salt Lake City, United States

**WE2B-2** A Novel Ultrasonic Indoor Localization System with Simultaneous Estimation of Position and Velocity  
M. Scherhaeufl, R. Pfeil, M. Pichler, A. Berger, Linz Center of Mechatronics GmbH, Linz, Austria

**WE2B-1** CMOS, Cognitive and mmW: A Wireless Revolution (Invited)  
J. Laskar, InSite Partners, Cupertino, United States

**WE2C-1** Advances in Bioelectromagnetics for Implantable Systems (Invited)  
C. J. Cela¹, A. K. RamRakhiani¹, S. Srinivas¹, G. J. Hayes¹, M. Dickey¹, G. Lazzi¹, University of Utah, Salt Lake City, United States, ¹University of Erlangen-Nuremberg, Erlangen, Germany, ¹University of Tokyo, Tokyo, Japan

**WE2D-1** Robust 60 GHz 90nm and 40nm CMOS Wideband Neutralized Amplifiers with 23dB gain 4.6dB NF and 24% PAE  
E. Cohen¹,², S. Ravdi¹, D. Ritter¹, Intel, Haifa, Israel, ²Technion, Haifa, Israel

### 10:30

**WE2A-2** A Hidden Markov Estimation of Bistatic Range From Clustered Ultra-Wideband Impulse Responses  
M. McCracken, N. Patwari, University of Utah, Salt Lake City, United States

**WE2B-3** 125 GHz CMOS Oscillator Controlled by p-Type Bulk Voltage  
N. Ono¹, M. Motoyoshi¹, K. Katayama², M. Fujishima², ¹Semiconductor Technology Academic Research Center, Tokyo, Japan, ²Hiroshima University, Hiroshima, Japan, ³University of Tokyo, Tokyo, Japan

**WE2C-2** Physical Phantoms for Microwave Imaging of the Breast  
Y. Bashkaroun, A. Trehan, N. K. Nikolova, M. D. Noseworthy, McMaster University, Hamilton, Canada

**WE2D-2** High Sensitivity Detector with Robust PVT Performance for 60GHz BIST Phased Array Systems in 90nm CMOS  
E. Cohen¹,², A. Israel¹, D. Degani¹, D. Ritter¹, Intel, Haifa, Israel, ²Technion, Haifa, Israel

### 10:50

**WE2A-3** Performance of Coherent Time Delay Estimation Techniques for Frequency Hopping GSM Signals  
A. Goetz, R. Rose, S. Zorn, G. Fischer, R. Weigel, Friedrich-Alexander-University Erlangen-Nuremberg, Erlangen, Germany

**WE2B-4** Analysis and Measurement of the Stability of Dual-Resonator Oscillators  
H. Ghaed¹, G. Chen¹, D. Blaauw², ¹University of Michigan, Ann Arbor, United States, ²Intel, Hillsboro, United States

**WE2C-3** SAR Assessment and Analysis of Cumulative Body Exposure to Multi Transmitters from a Mobile Phone  
Z. Mahfouz¹,², A. Gati¹, D. Lautru¹, ¹,²V. Hanna², ¹France Télécom Division, Issy Les Moulineaux, France, ²UPMC Univ Paris 06, Paris, France, ³Whist Lab, Paris, France

**WE2D-3** High Performance RF Inductors Integrated in Advanced Fan-Out Wafer Level Packaging Technology  
C. Durand¹, F. Gianselillo¹, R. Pilard², D. Gloria³, Y. Imbs², R. Coffy², L. Marechal³, Y. Jin¹, Y. Dodo¹, ¹STMicroelectronics, Grenoble, France, ²STMicroelectronics, Singapore, Singapore

### 11:10

**WE2A-4** The Enhanced Six-Port Architecture: A Measurement Based Proof of Concept  
A. Koelpin, S. Lindner, G. Vinci, B. Laemmlle, R. Weigel, University of Erlangen-Nuremberg, Erlangen, Germany

**WE2B-5** Wide Bandwidth GSM/ WCDMA/LTE Base Station LNA with Ultra-Low Sub 0.5 dB Noise Figure  
J. Staudinger, R. Hooper, M. Miller, Y. Wei, Freescale Semiconductor Inc, Tempe, United States

**WE2C-4** Analysis of Passive Electromagnetic Exposure to Multisources Distributed in Outdoor Places  
C. P. Costa¹, G. Fontgalland², ¹University, Campina Grande, Brazil, ²University, Sao Paulo, Brazil

**WE2D-4** A Comparison of Intermodulation Distortion Performance of HICUM and VBIC Compact Models for pnp SiGe HB Ts on SOI  
S. Seth¹, J. D. Cressler¹, J. A. Babcock², G. Cestra², T. Krakowski², J. Tang³, A. Buchholz³, ¹Georgia Tech, Atlanta, United States, ²National Semiconductor, Santa Clara, United States

### 11:30

**WE2A-5** A Wireless Smart Sensor Network based on Multi-function Interferometric Radar Sensors for Structural Health Monitoring  
C. Gu¹, J. Rice², and C. Li³, Tech University, Lubbock, TX United States, ¹University of Florida, Gainesville, FL, United States

**WE2B-6** A 2.87±0.19 dB NF 3.1~10.6 GHz Ultra-Wideband Low-Noise Amplifier Using 0.18 um CMOS Technology  
C. Wu, Y. Lin, J. Lee, C. Wang, National Chi Nan University, Puli, Taiwan

**WE2C-5** An Empirical Investigation of the Capacitive Body Coupled Communications Channel for Body Area Networks  
S. Attard¹, S. Zammit¹, Imperial College London, London, United Kingdom, ²University of Malta, Msida, Malta

**WE2D-5** Concept of Vertical Bipolar Transistor with Lateral Drift Region, Applied to High Voltage SiGe HBT  
R. Sorge, A. Fischer, R. Plouquet, C. Wipf, R. Barth, IHP, Frankfurt(Oder), Germany
Radio Wireless 2012 Demo Track - Tuesday, 17 January 14:30-16:00

The technical program for the 2012 IEEE Radio and Wireless Week (RWW) will have a new and exciting demo track on Tuesday afternoon. Relevant and interesting new developments from a variety of wireless innovations will be presented by industry experts. The demo track will provide an interactive forum with hands-on demonstrations of the latest wireless experiments.

4. “Learning Algorithm for Reconfigurable Antenna Set Selection”, David Gonzalez
5. “All - Digital Transmitter”, Kostas Galanopoulos
6. “A Software Definable GNSS RF Signal Generator”, Ammar Kouki

All participants are encouraged to attend the demo track session on Tuesday and benefit from the variety and richness of the six informal demo sessions running in parallel. We look forward to seeing you in Santa Clara for RWW 2012 in the Santa Clara Marriott, Santa Clara, California, USA, 15-18, January 2012 and on Tuesday afternoon for the demo sessions.

Seyed Tabatabaei, T-Optics
Jeffrey Pawlan, Pawlan Communications
WE3P-28 Adaptive Sensing for Increased Spectrum Utilization in Dynamic Cognitive Radio Systems
D. Treemunck, D. C. Popescu, Old Dominion University, Norfolk, United States

WE3P-29 Balun with Passband Characteristic for Ultra-Wideband (UWB) Impulse Radio Transmitter
R. Dong1, R. K. Pokharel2, H. Kansaya1, K. Yoshida1, 1Kyushu University, Fukuoka, Japan, 2Kyushu University, Fukuoka, Japan

WE3P-30 Empirical Study on 60GHz In-Vehicle Radio Channel
N. Sakam, A. Kajiwara, The University of Kitakyushu, Kitakyushu, Japan

WE3P-31 Mobile WIMAX Performance Analysis Including Polar Architecture Under Various Environmental Conditions
O. Zydareva1, M. Suarez2, Eindhoven University of Technology, Eindhoven, Netherlands, 1Institut Technologi Elektronowej, Warsaw, Poland

WE3P-32 Optimal Subcarrier Assignment for Single Cell Multicarrier OFDM System
O. Takyu1, Y. Umeda2, Shinshu University, Nagano, Japan, 1Tokyo University of Science, Noda, Japan

WE3P-33 Electromagnetic Georeferenced Footprints for Harvesting Solar Energy Systems
L. Guenda1, A. Collado2, N. B. Carvacho1, A. Georgiadis2, K. Niotaki2, 1Instituto de Telecomunicacoes, Aveiro, Portugal, 2CTTC, Castelldefels, Spain, 3Aristotle University of Thessaloniki, Thessaloniki, Greece

WE3P-34 A Planar Resonant-type EM Wave Absorber Using a Periodic Surface
D. Sim1, Y. Chong1, J. Choi2, S. Park2, 1ETRI, Daejeon, Republic of Korea, 2KAIST, Daejeon, Republic of Korea

WE3P-35 Sub-Sampling Technique for Spectrum Sensing in Cognitive Radio Systems
A. Kwan, S. A. Bassam, F. M. Ghannouchi, iRadio Lab, Schulich School of Engineering, University of Calgary, Canada

WE3P-36 Analytical Modeling of Transducer Gain and Gain Compression in Degenerate Parametric Amplifiers
B. Gray1, M. Pontoni1, A. Suarez2, S. Kenney1, Eindhoven University of Technology, Eindhoven, Netherlands, 1Institut Technologi Elektronowej, Warsaw, Poland

WE3P-37 Mobile WIMAX Performance Analysis Including Polar Architecture Under Various Environmental Conditions
O. Zydareva1, M. Suarez2, Eindhoven University of Technology, Eindhoven, Netherlands, 1Institut Technologi Elektronowej, Warsaw, Poland

WE3P-38 Adaptive Bit Allocation for OFDM Cognitive Radio Systems with Imperfect Channel Estimation
E. Bedeer1, M. Marey1, O. Dobre2, K. Baddour2, 1Memorial University of Newfoundland, St. John’s, Canada, 2Communications Research Centre, Ottawa, Canada

WE3P-39 Doubling the Throughput of a Digital Microwave Radio System by the Implementation of a Cross-Polarization Interference Cancellation Algorithm
P. Noel, M. Klemes, DragonWave Inc, Ottawa, Canada

WE3P-40 MIMO Capacity Upper Bound for k-μ and η-ν Faded Channels
V. M. Vergara1, S. E. Babbin1, 1University of New Mexico, Albuquerque, United States, 2Polytechnic School of Engineering University of Sao Paulo, Sao Paulo, Brazil

WE3P-41 Double Stage and Combining Detection for Cyclo-Stationary Feature
O. Takyu1, H. Yano1, T. Fujii2, T. Ohtsuki1, 1Shinshu University, Nagano, Japan, 2Keio University, Yokohama, Japan, 1The University of Electro-Communications, Chofu, Japan

WE3P-42 M-FSK Signal Recognition in Fading Channels for Cognitive Radio
H. Wang1, O. Dobre1, C. Li1, R. Inkol2, 1Memorial University of Newfoundland, St. John’s, Canada, 2Defence Research and Development Canada, Ottawa, Canada

WE3P-43 Tunability of an Area-Efficient Microstrip Patch Antenna at 60GHz
B. D. Horwath, T. Al-Attar, Santa Clara University, Santa Clara, United States

WE3P-44 Metamaterial Cell Patterns Applied to Quasi-Yagi Antenna for RFID Applications
H. X. Araujo1, S. E. Babbin2, 1University of Campinas, Campinas, Brazil, 2University of Sao Paulo, Sao Paulo, Brazil

WE3P-45 Directive Dielectric Resonator Antenna Excited by Probe or Narrow Slot
A. A. Kishk, Concordia University, Montreal, Canada

WE3P-46 Real-Time Scheduling with Security Awareness for Packet Switched Networks
M. Saleh1, L. Dong2, 1Western Michigan University, Kalamazoo, United States, 2Baylor University, Waco, United States

WE3P-47 Self-Powered Smart Meter with Synchronized Data
F. Cai, E. Farantatos, R. Huang, A. Melopoulos, J. Papapolymerrou, Georgia Institute of Technology, Atlanta, United States

WE3P-48 Frequency Agile RF Filter for Interference Attenuation
M. W. Wyvill1, R. C. Smiley2, J. S. Wright1, Carleton University, Ottawa, Canada, 1Ericsson, Ottawa, Canada

WE3P-49 Spectrum Sharing Technique for Cognitive UWB Systems over Indoor UWB Channel
F. Sarabchi, C. Nerguzian, Poly-GRAMES Research Centre, Montreal, Canada

WE3P-50 Polarized Antenna-Based MIMO for Mobile Terminals
Y. Okoshi, T. Maeyama, Takushoku University, Hachioji-shi, Japan

WE3P-51 Improving Coding Efficiency by Compromising Linearity in Delta-Sigma Based Transmitters
M. Ebrahimi, M. Helaoui, F. Ghannouchi, University of Calgary, Calgary, Canada

WE3P-52 Phase Calibration Techniques for Injection-Locked Based LO-Path Phase-Shifting Phased-Array Architectures
Y. Soliman, R. Mason, Carleton University, Ottawa, Canada

WE3P-53 An Optimized Encryption Framework Based on the Modified-DES Algorithm: A Trade-Off between Security and Throughput in Wireless Channels
W. Y. Zibideh, M. M. Matalgah, University of Mississippi, University, United States

WE3P-54 Evaluation of a Wireless In-Shoe Sensor Based on ZigBee Used for Drop Foot Stimulation
C. A. Mecherau1,2, J. Cobb1, J. Swain1, 1Salisbury District Hospital, Salisbury, United Kingdom, 2Bournemouth University, Pool, United Kingdom