2012 IEEE International Conference on Ultra-Wideband

(ICIUWB 2012)

Syracuse, New York, USA
17 – 20 September 2012
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Scheduled UWB Pulse Transmissions for Cooperative Localization
Satyam Dwivedi, Alessio De Angelis, Peter Händel, Royal Institute of Technology, Sweden

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A Study on SNR Estimation for Cognitive Radio
Masahiro Fujii, Yu Watanabe, Utsunomiya University, Japan

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Purely Directional MAC Protocol with Polling for 60GHz mmWave WPAN
Zhenyu Xiao¹, Depeng Jin¹, Ning Ge¹, Xiaoming Peng²
¹Tsinghua University, China; ²Institute for Infocomm Research, Singapore

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Frontend ICs for Impulse Radio Sensing and Communications
H. Schumacher, D. Lin, A. Trasser, Ulm University, Germany

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A Reconfigurable Impulse Radio Transmitter
Arndt T. Ott, Christoph J. Eisner, Thomas F. Eibert, Technische Universität München, Germany

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Development of a Radio Front End for a UWB Ranging Embedded Test Bed
Alessio De Angelis, Satyam Dwivedi, Peter Händel, Royal Institute of Technology, Sweden

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Frequency Notching Applicable to CMOS Implementation of WLAN Compatible IR-UWB Pulse Generators
Ming Shen¹, Jan H. Mikkelsen¹, Hao Jiang², Ole K. Jensen¹, Torben Larsen¹
¹Aalborg University, Denmark; ²San Francisco State University, USA

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Comparative Overview of UWB and VLC for Data-Intensive and Security-Sensitive Applications
Ramjee Prasad¹, Albena Mihovska¹, Ernestina Cianca², Sandeep Mukherjee²
¹Aalborg University, Denmark; ²University of Rome “Tor Vergata”, Italy

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Coexistence of IEEE Std 802.15.6™-2012 UWB-PHY with Other UWB Systems
Marco Hernandez, Ryu Miura, NICT, Japan
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**Chair:** Hong (Jeffery) Nie, University of Northern Iowa  
**Room:** Marshall, Time 10:30 – 12:00, Tuesday 18 Sept 2012

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<td>S. Niranjayan, Andreas F. Molisch, University of Southern California, USA</td>
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<td>Erik Leitinger, Bernhard C. Geiger, Klaus Witrisal, Graz University of Technology, Austria</td>
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<td>Qin Zhou, Zhuo Zou, Hannu Tenhunen, Li-Rong Zheng, Royal Institute of Technology, Sweden</td>
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| 67   | 11:40        | Narrowband Interference Mitigation in UWB Communication with Energy Detector                | Stephane Mebaley Ekome 1, Geneviève Baudoin 1, Martine Villegas 1, Jean Schwoerer 2  
                                                                                     | 1Université Paris-Est, France; 2Orange Labs, France                                       |

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**Chair:** Serhend Arvas, Sonnet Software  
**Room:** Comstock C, Time 13:30 – 15:00, Tuesday 18 Sept 2012

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| 72   | 13:30        | UWB Antenna for Wireless Communication and Detection Applications                            | Ahmed A. Kishk 1, Xuan Hui Wu 2, K.S. Ryu 3  
                                                                                     | 1Concordia University, Canada; 2General Dynamics SATCOM Technologies, USA; 3LG Electronics Inc., Korea |
| N/A  | 14:00        | Frequency and Pattern Reconfigured Planar UWB Antenna Array for Future Cognitive Radio Portable Devices | Tamer Aboufoul 1, Qammer Abbasi 1-2, Akram Alomainy 1, Clive Parini 1  
                                                                                     | 1Queen Mary University of London, UK; 2University of Engineering and Technology at Lahore, Pakistan |
| 82   | 14:20        | On the Use of Spiral Antennas in Ultra-Wideband Communication Links                          | Mohamed A. Elmansouri, Dejan S. Filipovic, University of Colorado at Boulder, USA            |
| 87   | 14:40        | Ultra Wide Band TEM Horn Antenna Designs for Ground Penetrating Impulse Radar                | Ahmet Serdar Turk, Ahmet Kenan Keskin, Yildiz Technical University, Turkey                   |

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**Chair:** D.V. Giri, Pro-Tech  
**Room:** Harrison, Time 13:30 – 15:00, Tuesday 18 Sept 2012

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<td>Luke Murphy, Mohsen Yazdani, Ercument Arvas, Syracuse University, USA</td>
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<td>A Miniaturized Ultra-Wideband Microstrip Filter Using Interdigital Capacitive Loading and Interresonator Tapped-In Coupling</td>
<td>Andrew Martin 1, Mahmoud EL Sabbagh 1, Baharak Mohajer-Iravani 2, 1Syracuse University, USA; 2EMWaveDev, USA</td>
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<td>An UWB High-Q Bandpass Filter with Wide Rejection Band Using Defected Ground Structures</td>
<td>Ahmet Kenan Keskin 1, Hakan P. Partal 1, 2Yildiz Technical University, Turkey; 2Syracuse University, USA</td>
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<td>He Zhu, Qing-Xin Chu, South China University of Technology, China</td>
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**Chair:** Reiner Thomae, Ilmenau University of Technology — **Co-Chair:** Rahmi Salman, University of Duisburg-Essen  
**Room Waverly, Time 13:30 – 15:00, Tuesday 18 Sept 2012**

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<td>Thanawat Thiasiriphet, Mohamed Ibrahim, Jürgen Lindner</td>
<td>Ulm University, Germany</td>
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<td><strong>Experimental Active Antenna Measurement Setup for UWB Breast Cancer Detection</strong></td>
<td>M. Helbig, Matthias A. Hein, R. Herrmann, M. Kmec, Juergen Sachs, K. Schilling, F. Scotto di Clemente, I. Hilger, K. Dahlke, P. Rauschenbach</td>
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<td>Gholamreza Alirezaei</td>
<td>RWTH Aachen University, Germany</td>
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<td><strong>High Data Rate Coexistence-Based Channel Coding for Noncoherent Multiband Impulse Radio UWB</strong></td>
<td>Hanns-Ulrich Dehner, Daniel Figielek, Holger Jäkel, Martin Braun, Friedrich K. Jondral, Klaus Witrisal</td>
<td>Karlsruhe Institute of Technology, Germany; Graz University of Technology, Austria</td>
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### TU3D: UWB Communication Systems II

**Chair:** Marco Chianai, Università di Bologna  
**Room Marshall, Time 13:30 – 15:00, Tuesday 18 Sept 2012**

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<td>David J. Young, Norman C. Beaulieu</td>
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<td>Shahzad Gishkori, Geert Leus, Vincenzo Lottici</td>
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<td>Andreas Pedross, Klaus Witrisal</td>
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Chair: Ehsan Afshari, Cornell University
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60GHz UWB Channel Measurement and Model
Dajana Cassioli, University of L’Aquila, Italy

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Estimation of the Energy Detector Performances on UWB Channel Based on the Analysis with AWGN Channel
Stephane Mebaley Ekome¹, Geneviève Baudoin¹, Martine Villegas¹, Jean Schowerer²
¹Université Paris-Est, France; ²Orange Labs, France

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Improvement of Wireless Channel Performance Using MIMO-UWB System in Underground Mine Gallery
Ismail Ben Mabrouk¹,², Larbi Talbi¹,², Mourad Nedil²
¹Université du Québec en Outaouais, Canada; ²Université du Québec en Abitibi-Témiscamingue, Canada

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Wideband Information in MOM Obtained from Narrowband Data
Fatih Kaburcuk, Serhend Arvas, Ercument Arvas, Jay K. Lee, Syracuse University, USA

TU4B: UWB Devices and Components
Chair: Reinhard Knochel, Christian-Albrechts-Universität
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An Inductorless 6-Path Band-Pass Filter with Tunable Center Frequency for UWB Applications
Tuan Anh Vu, Shanthi Sudalaiyandi, Håkon A. Hjortland, Øivind Naess, Tor Sverre Lande, Svein Erik Hamran, University of Oslo, Norway

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A Volterra Series Approach for the Design of Low-Voltage CG-CS Active Baluns
Shan He, Carlos E. Saavedra, Queen’s University at Kingston, Canada

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Antenna Characteristics and Ranging Robustness with Double Quadrature Receiver and UWB Impulse Radio
Farid Bautista, Dominique Morche, Serge Bories, Gilles Masson, CEA, France

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Size Reduction and Ultra Wide Harmonic Suppression of Rat-Race Hybrid Coupler Using Nonuniform Transmission Line
Mohsen Yazdani¹, Luke Murphy¹, Ercument Arvas¹, Forough Hosseini², Mohammad Khalaj-Amirhosseini²
¹Syracuse University, USA; ²Iran University of Science and Technology, Iran
TU4C: Ultra-Wideband Medical Diagnostics and Imaging

TU4C-1
 Recent Progress in Ultra-Wideband Microwave Breast Cancer Detection
 Simone A. Winkler, Emily Porter, Adam Santorelli, Mark Coates, Milica Popović, McGill University, Canada

TU4C-2
 A Bayesian Nonparametric Approach to Tumor Detection Using UWB Imaging
 Yogesh Nijasure1, Wee Peng Tay1, Erry Gunawan1, Joshua Lai Chong Yue2
 1Nanyang Technological University, Singapore; 2University of Adelaide, Australia

TU4C-3
 Conformal Microwave Tomography using a Broadband Non-Contacting Monopole Antenna Array
 N.R. Epstein, A.G. Golnabi, P.M. Meaney, K.D. Paulsen, Dartmouth College, USA

TU4C-4
 A Study of UWB Imaging for Bone Cancer Detection
 Maryory Urdaneta, Parveen Wahid, University of Central Florida, USA

TU4D: Novel Reception Strategies

TU4D-1
 Nonlinear Signal Processing Technologies for Energy Detection Based Impulse Radio UWB Transceivers
 Hong Nie1,2, Zhizhang Chen2, Zhimeng Xu1,2,3
 1University of Northern Iowa, USA; 2Dalhousie University, Canada; 3Fuzhou University, China

TU4D-2
 Algorithms for Synchronization of Coherent UWB Receivers and Their Application
 Lukasz Zwirello, Michael Hesz, Leen Sit, Thomas Zwick, Karlsruhe Institute of Technology, Germany

TU4D-3
 A Study on RAKE Reception Using Multicarrier Template Waveform for UWB-IR System
 Jumpei Ono, Takuya Tsunoda, Kohei Ohno, Makoto Itami, Tokyo University of Science, Japan

TU4D-4
 High Diversity Achievement Algorithm for Dual Carrier Modulation in MB-OFDM UWB Systems
 Jangyong Park1, Killhwan Kim1, Jaeseok Kim1, Jihun Koo2
 1Yonsei University, Korea; 2Samsung Electronics Co. Ltd., Korea
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  Recent Topics in Ultra-Wideband Antennas
  Everett G. Farr, Farr Fields LC, USA

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  Directive, Electrically-Small UWB Antennas
  Hans Gregory Schantz, Q-Track Corporation, USA

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  Ultrawideband Double-Sided Printed Dipole Arrays
  S. Barrette1, S.K. Podilchak1,2, Y.M.M. Antar1,2
  1Royal Military College of Canada, Canada; 2Queen’s University at Kingston, Canada

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  Bandwidth Requirement for Suppression of Grating Lobes in Ultrawideband Antenna Arrays
  Vit Sipal1, David Edwards1, Ben Allen2
  1University of Oxford, UK; 2University of Bedfordshire, UK

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Chair: Michal Pietrzyk, Fraunhofer-Gesellschaft
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  Genetic Algorithm Applied to Microstrip Implementation of Matching Circuits for a UWB Low-Noise Amplifier
  Filiz Güne¸ s, Ahmet Kenan Keskin, Salih Dem˙ ırel, Yıldız Technical University, Turkey

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  Particle Swarm Intelligence Use in Feasible Design Target Space of a Microwave Transistor for a Wide-Band Output-Stage Requirements
  Salih Dem˙ ırel, Filiz Güne¸ s, Hamit Torpi, Yıldız Technical University, Turkey

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  Honey-Bees Mating Algorithm Applied to Feasible Design Target Space for a Wide-Band Front-End Amplifier
  Peyman Mahouti, Filiz Güne¸ s, Salih Dem˙ ırel, Yıldız Technical University, Turkey

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  Performance Sensitivities of a Microstrip Amplifier Using Adjoint Network Method
  Salih Dem˙ ırel, Filiz Güne¸ s, Yıldız Technical University, Turkey

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  Free-Space Moisture Prediction of Small Objects Using M-Sequences
  H. Mextorf1, Juergen Sachs2, F. Daschner1, M. Kent1, R. Knöchel1
  1University of Kiel, Germany; 2Ilmenau University of Technology, Germany

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  High Precision Wireless Synchronization Receiver for M-Sequence UWB Radio Systems
  Mohamed Hamouda1, Juergen Sachs2, Georg Fischer1, Robert Weigel1, Thomas Ussmueller1
  1University of Erlangen-Nuremberg, Germany; 2Ilmenau University of Technology, Germany

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  An Integrated Switched Injection-Locked Oscillator for Pulsed Angle Modulated Ultra Wideband Communication and Radar Systems
  Alexander Esswein, Georg Fischer, Robert Weigel, Thomas Ussmueller, Christian Carlowitz, Martin Vossiek, University of Erlangen-Nuremberg, Germany
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|        |       | Yanlong Zhang, Fei Sun, Weidong Chen, University of Science and Technology of China, China

| WE1D-2 | 09:00 | Preliminary Study on Noncooperative Positioning Using UWB Impulse Radio
|        |       | Wenyan Liu, Hong Ding, Xiaotao Huang, Xiangyang Li, Jibing Yuan, National University of Defense Technology, China

| WE1D-3 | 09:20 | Through-Wall Localization with UWB Sensor Network
|        |       | Chen Chen, Hong Ding, Xiaotao Huang, Xiangyang Li, Jibing Yuan, National University of Defense Technology, China

| WE1D-4 | 09:40 | X-Band Receiver Front-End in Fully Depleted SOI Technology
|        |       | P. Orlando¹, K. Groves¹, A. Mattamana¹, T. Quach¹, P. Watson¹, L. Johnson², P. Wyatt², C.L. Chen², C.K. Chen², R. Drangmeister², C. Keast²
|        |       | ¹AFRL at Wright-Patterson AFB, USA; ²Lincoln Laboratory, USA

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WE2A: Other Topics in UWB
Chair: Norman Beaulieu, University of Alberta
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|        |       | John A. Gubner, Badri Narayan Bhaskar, Kei Hao, University of Wisconsin-Madison, USA

| WE2A-2 | 11:00 | Sensor Set Switching Noise in UWB Indoor Position Tracking
|        |       | Salil Banerjee, William Suski, Adam Hoover, Clemson University, USA

| WE2A-3 | 11:20 | A UWB 1 to 4 Wilkinson Power Divider with Triple High-Q Band-Notched Characteristic Using U-Shaped DGS
|        |       | S.H. Ramazannia¹, S. Chamaani¹, S.A. Mirtaheri¹, F. Khajeh Mirzaee Yazdi¹, Mohsen Yazdani²
|        |       | ¹K.N.Toosi University of Technology, Iran; ²Syracuse University, USA

| WE2A-4 | 11:40 | Tracking of UWB Multipath Components Using Probability Hypothesis Density Filters
|        |       | Markus Froehle, Paul Meissner, Klaus Witrisal, Graz University of Technology, Austria
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### WE2B: UWB Transmitters and Receivers

*Chair: Hong Nie, University of Northern Iowa*

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<td>Guixuan Liang, Jorge Portilla, Teresa Riesgo, Universidad Politécnica de Madrid, Spain</td>
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### WE2C: Special Session on the German Research Program UKoLoS: Detection and Communication II

*Chair: Thomas Ussmueller, University of Erlangen — Co-Chair: Alexander Esswein, University of Erlangen*

*Room Waverly, Time 10:30 – 12:00, Wednesday 19 Sept 2012*

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<td>Integrated Ultra-Wideband Hardware for MIMO Sensing Using Pn-Sequence Approach</td>
<td>M. Kmec (^1), M. Helbig (^1), Juergen Sachs (^1), P. Rauschenbach (^2)</td>
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<td>(^1)Ilmenau University of Technology, Germany; (^2)MEODAT GmbH, Germany</td>
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<td>Artificial Diversity for UWB MB-OFDM Interference Alignment Based on Real-World Channel Models and Antenna Selection Techniques</td>
<td>Mohamed El-Hadidy, Mohammed El-Absi, Thomas Kaiser, Duisburg-Essen University, Germany</td>
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<td>Synthesis of Pulsed Frequency Modulated Ultra Wideband Radar Signals Based on Stepped Phase Shifting</td>
<td>Christian Carlowitz, Martin Vossiek, Alexander Esswein, Robert Weigel, University of Erlangen-Nuremberg, Germany</td>
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WE2D : Novel Communication Systems
Chair: Ercument Arvas, Syracuse University
Room Marshall, Time 10:30 – 12:00, Wednesday 19 Sept 2012

Fractionally Spaced RAKE Receiver in Realistic Digital SC-UWB Systems
Zhenyu Xiao, Depeng Jin, Ning Ge, Tsinghua University, China

Improvement of Coexisting Signal Detection for MB-OFDM System
Kohei Ohno¹, Makoto Itami¹, Tetsushi Ikegami²
¹Tokyo University of Science, Japan; ²Meiji University, Japan

An Experimental Study of High Precision TOA Based UWB Positioning Systems
Ömer Çetin¹, Hakki Nazlı¹, Redvan Gürçan¹, Hilmi Öztürk¹, Hilal Gürneren¹,
Yasin Yelkovan¹, Mustafa Çayr¹, Hasari Çelebi², Hakan P. Partal³,⁴
¹TÜBİTAK, Turkey; ²Gebze Institute of Technology, Turkey; ³Yıldız Technical
University, Turkey; ⁴Syracuse University, USA

WE3A : UWB Antennas III
Chair: Marco Chianai, Università di Bologna
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Reflectarray Antennas for Space Applications
Atef Z. Elsherbeni¹, Payam Nayeri¹, Fan Yang¹,²
¹University of Mississippi, USA; ²Tsinghua University, China

A Via-Fed Band-Notched UWB Antenna with Shunt LC-Resonator
Chun-Xu Mao, Qing-Xin Chu, South China University of Technology, China

Standard Gain UWB Planar Horn Antennas
Hans Gregory Schantz¹, Jae Jeon²
¹Next-RF Inc., USA; ²Lawrence Livermore National Laboratory, USA

WE3B : Amplifiers and Pulse Generators
Chair: Ian Oppermann, CSIRO
Room Harrison, Time 13:30 – 15:00, Wednesday 19 Sept 2012

A 2GHz Bandwidth LNA Using Resistive Feedback with Added Inductor
Zhichao Zhang, Anh Dinh, Li Chen, University of Saskatchewan, Canada

A 90nm CMOS High Order Derivative Gaussian Pulse Generator Using LC-Tank
Oscillator for 6–10GHz UWB Transceiver
Nhan Nguyen¹, nghia Duong¹, Anh Dinh², Tao Wang²
¹Vietnam National University, Vietnam; ²University of Saskatchewan, Canada

Noise-Cancelled Subthreshold UWB LNA for Wireless Sensor Network Application
Aravindh Kumar A.R., Ashudeb Dutta, Shiv Govind Singh, IIT Hyderabad, India

An 8–18GHz Low Noise Amplifier Design in 0.18μm CMOS Technology
Puria Jamshidi, Sasan Naseh, Ferdowsi University of Mashhad, Iran
WE3C: Special Session on the German Research Program UKoLoS: Detection and Communication III

Chair: Matthias Hein, Ilmenau University of Technology — Co-Chair: Hanns-Ulrich Dehner, KIT
Room Waverly, Time 13:30 – 15:00, Wednesday 19 Sept 2012

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Motion Detection in-vivo by Multi-Channel Ultra-Wideband Radar
O. Kosch¹, F. Thiel¹, F. Seifert¹, Juergen Sachs², Matthias A. Hein²
¹PTB, Germany; ²Ilmenau University of Technology, Germany

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WE3C-2
14:00
Energy Detection with Optimal Symbol Constellation for M-PAM in UWB Fading Channels
Rainer Moorfeld, Yun Lu, Adolf Finger, Dresden University of Technology, Germany

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WE3C-3
14:20
On Polarization Diversity Gain in Short Range UWB-Radar Object Imaging
R. Salman¹, I. Willms¹, L. Reichardt², Thomas Zwick², W. Wiesbeck²
¹Universität Duisburg-Essen, Germany; ²Karlsruhe Institute of Technology, Germany

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WE3C-4
14:40
Polarimetric Ultrawideband Radar — Principles and Applications
Elke Malz¹, Reiner S. Thomá¹, Rudolf Zetik¹, Pavel Semashko¹, Alexis Paolo Garzia Ariza²
¹Ilmenau University of Technology, Germany; ²MEDAV GmbH, Germany

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WE3D : UWB Antennas VI

Chair: Ahmed Kishk, Concordia University
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Characterization of Compact Disc UWB Monopole Antennas Using the Singularity Expansion Method
D. Rialet¹, S.K. Podilchak¹,², M. Clénet³, M. Essaaidi², Y.M.M. Antar¹,²
¹Royal Military College of Canada, Canada; ²Queen’s University at Kingston, Canada; ³Defence Research & Development Canada, Canada; ⁴Abdelmalek Essaadi University, Morocco

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WE3D-2
14:00
A Passive Ultra Wideband Tag for Radio Frequency Identification or Wireless Sensor Networks
Philipp K. Gentner¹, Peter Amreich², Hannes Reinisch², Guenter Hofer²
¹Vienna University of Technology, Austria; ²Infineon Technologies Austria AG, Austria

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WE3D-3
14:20
On the Range of WiMedia OFDM UWB Wireless
Vit Sipal¹, David Edwards¹, Ben Allen²
¹University of Oxford, UK; ²University of Bedfordshire, UK

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WE3D-4
14:40
A Compact CPW Fed Ultra-Wideband Antenna with a Band-Notch Characteristic
Osama M. Haraz¹, Abdel-Razik Sebak¹,², Khalid Jamil²
¹Concordia University, Canada; ²King Saud University, Saudi Arabia
WE4A: UWB Antennas IV
Chair: Jayanti Venkataraman, Rochester Institute of Technology
Room Comstock C, Time 15:30 – 17:00, Wednesday 19 Sept 2012

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Increasing the Bandwidth of Patch Antennas
S. Taha Imeci, Istanbul Commerce University, Turkey

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WE4A-2
16:00
A Novel Partially Grounded Super-Wideband Antenna
Hossein Mehrpour Bernety, Bijan Zakeri, Ataollah Ebrahimzadeh, Babol Noshirvani University of Technology, Iran

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16:20
A Multiband Slotted Bowtie Antenna for Stroke Detection
Xuyang Li, Malyhe Jalilvand, Jijing Yan, Lukasz Zwirello, Thomas Zwick, Karlsruhe Institute of Technology, Germany

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WE4A-4
16:40
Modeling and Benchmarking Ultra-Wideband Localization for Mobile Robots
Alexander Bahr¹, Alexander Feldman², James Colli-Vignarelli¹, Stephan Robert², Catherine Dehollain¹, Alcherio Martinoli¹
¹EPFL, Switzerland; ²HEIG-VD, Switzerland

WE4B: UWB Devices and Decoders
Chair: Klaus Witrisal, Graz University of Technology
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X-Band Energy Harvester with Miniaturized On-Chip Slot Antenna Implemented in 0.18-μm RF CMOS
Praharshin M. Senadeera¹, James Griggs¹, Zhijian Xie¹, Numan S. Dogan¹, Meng Li², Nader Behdad², Huseyin S. Savci³
¹North Carolina Agricultural & Technical State University, USA; ²University of Wisconsin-Madison, USA; ³Istanbul Sabahattin Zaim University, Turkey

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WE4B-2
16:00
UWB Pulses Generator Filter for M-ary Communication Systems
Leonardo C. Neves, Genival M. de Araújo, José C. da Costa, Heider M.G. Madureira, Sandro A.P. Haddad, Universidade de Brasília, Brazil

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WE4B-3
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Comparative Study of Various Antenna Selection Techniques Under MIMO for Multiuser DS-CDMA Based OFDM System for UWB Communication
Himanshu B. Soni, G.H. Patel College of Engineering Technology, India

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Multigigabit BASIC-Pipelined Viterbi Decoder Architecture for 60GHz WPAN Systems
Bo Gao¹, Zhenyu Xiao¹, Zhen Chen², Depeng Jin¹, Lieguang Zeng¹
¹Tsinghua University, China; ²China University of Geosciences, China
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WE4C: Ultra-Wideband Radar
Chair: Marco Chiani, Università di Bologna
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WE4C-1
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Adventures in UWB
Barry L. Clark, SRC Inc., USA

WE4C-2
16:00
Indirect Path Detection of Passive Localization Based on Wireless Propagation Measurements
Junyang Shen, Andreas F. Molisch, University of Southern California, USA

WE4C-3
16:20
Target Recognition Using UWB Radar Signatures Extracted via Complex ICA
Ismail Jouny, Lafayette College, USA

WE4C-4
16:40
Wide Bandwidth Source for High Resolution Ranging
Luke Rumbaugh 1, William D. Jemison 1, Yifei Li 2, Todd A. Wey 3
1Clarkson University, USA; 2University of Massachusetts Dartmouth, USA; 3Lafayette College, USA

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WE4D: Ultra-Wideband Sensing Issues I
Chair: Juergen Sachs, Ilmenau University of Technology
Room Marshall, Time 15:30 – 17:00, Wednesday 19 Sept 2012

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15:30
Ultra-Wideband Radar Sensors for Biomedical Diagnostics and Imaging
Matthias A. Hein, Ilmenau University of Technology, Germany

WE4D-2
16:00
An Ultra-Wideband Spatial Filter for a Tunnel Environment
Natalie Jones, Sean V. Hum, University of Toronto, Canada

WE4D-3
16:20
Accurate Permittivity Estimation Method by Compensating Waveform Deformation for UWB Internal Imaging Radar
Ryunosuke Souma, Shouhei Kidera, Tetsuo Kirimoto, University of Electro-Communications, Japan

WE4D-4
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Software Defined Radio IR-UWB Positioning Platform for RFID and WSN Application
Chuanying Zhai, Zhuo Zou, Li-Rong Zheng, Royal Institute of Technology, Sweden
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### TH2A: UWB Antennas V

**Chair:** Zhizhang (David) Chen, Dalhousie University  
**Room Comstock C, Time 10:30 – 12:00, Thursday 20 Sept 2012**

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<td>TH2A-1</td>
<td>10:30</td>
<td>Three Centuries of UWB Antenna Development</td>
<td><em>Hans Gregory Schantz</em>, Q-Track Corporation, USA</td>
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<td>513</td>
<td>TH2A-2</td>
<td>11:00</td>
<td>A Novel Ultra Wideband Horn Feed for Parabolic Reflector Antennas</td>
<td><em>Türker İsenlik</em>, <em>Erkul Başaran</em>, <em>Bahattin Türetken</em>, TÜBİTAK, Turkey</td>
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<td>TH2A-3</td>
<td>11:20</td>
<td>Ultrawideband Square and Circular Quad-Ridge Horns with Near-Constant Beamwidth</td>
<td><em>Ahmed Akgiray</em>, <em>Sander Weinreb</em>, California Institute of Technology, USA</td>
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| N/A  | TH2A-4  | 11:40| Design of Ultra Wideband and High Efficiency Multilayer Cavity Backed $16 \times 16$ Planar Array | *D. Ramakrishna*¹, *V.M. Pandharipande*², *M. Muthukumar*³  
¹Osmania University, India; ²Dr.Babasaheb Ambedkar Marathwada University, India; ³Astra Microwave Product Limited, India |

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### TH2B: Special Session: Novel Computational Techniques II

**Chair:** Filiz Gunes, Yildiz Technical University  
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| 528  | TH2B-1  | 10:30| Calculation of TMz Scattering from a Conductive Object Buried in a Grounded Lossy Medium | *Ahmet Kizilay*¹, *Senem Makal*²  
¹Yıldız Technical University, Turkey; ²TÜBİTAK, Turkey |
| 532  | TH2B-2  | 11:00| Analysis and Design of X-Band Reflectarray Antenna Using 3-D EM-Based Artificial Neural Network Model | *Selahattin Nesil*¹, *Filiz Güneş*², *Gökhan Kaya*²  
¹Fatih University, Turkey; ²Yıldız Technical University, Turkey |
| 537  | TH2B-3  | 11:20| Data Mining Models for Computing the Characteristic Impedances of Elliptic and Circular Shaped Microshield Lines | *Yavuz Cengiz*¹, *Sedat Atşe*²  
¹Süleyman Demirel University, Turkey; ²Isparta Provincial Agriculture Directorate, Turkey |
| 541  | TH2B-4  | 11:40| Ultra-Wideband RF Systems for Harsh Propagation Environments | *Faranak Nekoogar*, *Farid Dowla*, Lawrence Livermore National Laboratory, USA |
Interference and Clock Drift Effects in UWB RFID Systems Using Backscatter Modulation
Nicolò Decarli\textsuperscript{1}, Francesco Guidi\textsuperscript{1,2}, Andrea Conti\textsuperscript{3}, Davide Dardari\textsuperscript{1}
\textsuperscript{1}University of Bologna, Italy; \textsuperscript{2}ENSTA Paristech, France; \textsuperscript{3}University of Ferrara, Italy

Ultra-Wideband Radar Micro-Doppler Corrections and Applications
Dave Tahmoush, Jerry Silvious, US Army Research Laboratory, USA

Nonparametric and Accurate Imaging Algorithm for a Target with Arbitrary Motion Using Multi-Static UWB Radar
Ryo Yamaguchi, Shouhei Kidera, Tetsuo Kirimoto, University of Electro-Communications, Japan

Efficient 3-Dimensional Imaging Algorithm Using PI Extraction Based RPM for Quasi-Far Field UWB Radars
Shouhei Kidera, Tetsuo Kirimoto, University of Electro-Communications, Japan

Book of Abstracts and Abstract Cards