

# IEEE RFID 2010 Program Brief – Wednesday, April 14 (Morning)

8:00 – 8:30 **SPEAKER BRIEFING** S331 A

8:30 – 10:00 **OPENING PLENARY** S330 E-F-G-H

<p><b>Welcome and introduction</b></p> <p><b>Opening Remarks</b></p> <p><b>Technical Program Overview</b></p> <p><b>Presentation of Best Paper Award</b></p> <p><b>Introduction of Keynote Speaker</b></p> <p><b>Keynote Speaker</b></p>	<p><b>Daniel Engels</b>, General Chair, IEEE RFID 2010</p> <p><b>Christian Floerkemeier</b>, General Vice Chair, IEEE RFID 2010</p> <p><b>Daniel Deavours</b>, Technical Program Chair, IEEE RFID 2010</p> <p><b>Bret Kinsella</b>, ODIN Technologies (Best Paper Award Sponsor)</p> <p><b>Christian Floerkemeier</b>, General Vice Chair, IEEE RFID 2010</p> <p><b>Vivek Subramanian</b>, Associate Professor, University of California Berkeley</p>
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10:00 – 10:15 **BREAK** S330 E-F-G-H

10:15 – 11:45 **TECHNICAL SESSIONS** S331 B, C

<p>Session 1A <b>Sensors</b> S331 B</p> <p><b>Integration of Passive Multivariable RFID Sensors into Single-Use Biopharmaceutical Manufacturing Components</b> Radislav Potyrailo<sup>1</sup>, David Monk<sup>1</sup>, William Morris<sup>1</sup>, Staffan Klensmeden<sup>2</sup>, Hanno Ehring<sup>2</sup>, Timothy Wortley<sup>1</sup>, Vincent Pizzi<sup>1</sup>, Jeffrey Carter<sup>1</sup>, Gerard Gach<sup>1</sup> <sup>1</sup> General Electric, US <sup>2</sup> General Electric, SE</p> <p><b>RFID Tag Antenna Based Temperature Sensing</b> Rahul Bhattacharyya<sup>1</sup>, Christian Floerkemeier<sup>1</sup>, Sanjay Sarma<sup>2</sup> <sup>1</sup> MIT, US <sup>2</sup> MIT Auto-ID Center, US</p> <p><b>Low Power Analog Circuit Design for RFID Sensing Circuits</b> Chenglong Zhang<sup>1</sup>, Haibo Wang<sup>2</sup> <sup>1</sup> Southern Illinois University, US <sup>2</sup> Southern Illinois University Carbondale, US</p> <p><b>Selective Quantitation of Vapors and their Mixtures Using Individual Passive Multivariable RFID Sensors</b> Radislav Potyrailo, Cheryl Surman, William Morris, Steven Go, Yongjae Lee, James Cella, Kelly Chichak General Electric, US</p> <p><b>Session Chair:</b> Rich Fletcher, TagSense, Inc., US</p>	<p>Session 1B <b>Security and Privacy</b> S331 C</p> <p><b>Supply Chain Control Using a RFID Proxy Re-Signature Scheme</b> Trevor Burbridge, Andrea Soppera BT Research, UK</p> <p><b>Privacy-preserving Clone Detection for RFID-enabled Supply Chains</b> Davide Zanetti, Leo Fellmann, Srdjan Capkun ETH Zurich, CH</p> <p><b>Cryptographic Puzzles and Distance-bounding Protocols: Practical Tools for RFID Security</b> Pedro Peris-Lopez<sup>1</sup>, Julio Hernandez-Castro<sup>2</sup>, Juan Tapiador<sup>3</sup>, Esther Palomar<sup>4</sup>, Jan vanderLubbe<sup>1</sup> <sup>1</sup> Delft University, NL <sup>2</sup> University of Portsmouth, UK <sup>3</sup> University of York, UK <sup>4</sup> University Carlos III of Madrid, ES</p> <p><b>Privacy Protection for RFID-based Tracking Systems</b> Chiu Tan<sup>1</sup>, Lei Xie<sup>2</sup>, Qun Li<sup>1</sup> <sup>1</sup> College of William and Mary, US <sup>2</sup> Nanjing University, CN</p> <p><b>Session Chair:</b> Daniel Engels, Revere Security, US</p>
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11:45 – 13:30 **SPECIAL SESSION / WORKING LUNCH** S330 E-F-G-H

<p><b>Real-Time Locating Systems (RTLS)</b></p> <p><b>Invited Talks</b></p> <p><b>Location Technologies for Passive and Active RFID</b> Rene Martinez, Intermec Technologies, Inc., US</p> <p><b>RTLS Performance Considerations In SAW Based RFID Systems</b> Paul Hartmann, RF SAW, Inc., US</p> <p><b>RTLS using Active RFID: Challenges and Emerging Trends</b> Rich Fletcher, TagSense, Inc., US</p> <p><b>Near Field RTLS with Long Wavelengths</b> Matthew Reynolds, Duke University, US</p> <p><b>Applications for Bidirectional Electronically Steerable Phased Array (BESPA™) Antenna Systems with Passive UHF RFID Tags</b> Graham Bloy, RF Controls, LLC, US</p> <p><b>Session Chair:</b> Pavel Nikitin, Intermec Technologies, Inc., US</p>
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# IEEE RFID 2010 Program Brief – Wednesday, April 14 (Afternoon)

13:30 – 15:00

## TECHNICAL SESSIONS

S331 B, C

<p>Session 2A <b>Circuits</b></p> <p><b>Design of a Passive UHF RFID Transponder Featuring a Variation-Tolerant Baseband Processor</b> Zheng Wang<sup>1</sup>, Luhong Mao<sup>1</sup>, Liying Chen<sup>2</sup>; Lei Li<sup>1</sup>, Jinfeng Tian<sup>1</sup>, Ziqing Wang<sup>1</sup> <sup>1</sup> Tianjin University, CN <sup>2</sup> Nankai University, CN</p> <p><b>HF RFID Transponder with Phase Demodulator for Very High Bit-Rates up to 13.56 Mbit/s</b> Markus Auer<sup>1</sup>, Albert Missoni<sup>2</sup>, Walter Kargl<sup>1</sup> <sup>1</sup> TU Graz, AT <sup>2</sup> Infineon, AT</p> <p><b>An Ultra-low Power Passive UHF RFID Transponder with Self-calibrated Clock Generator</b> Jinfeng Huang<sup>1</sup>, Xin Yang<sup>1</sup>, Jinpeng Shen<sup>1</sup>, Xiaoxing Feng<sup>1</sup>, Xin'an Wang<sup>1</sup>, Ru Huang<sup>2</sup> <sup>1</sup> Peking University Shenzhen Graduate School, CN <sup>2</sup> Peking University, CN</p> <p><b>A High-Efficiency CMOS Rectifier for Low-Power RFID tags</b> Alireza Sharif Bakhtiar, Mohammad Sadegh Jalali, Shahriar Mirabbasi University of British Columbia, CA</p> <p><b>Session Chair:</b> Gregory Durgin, Georgia Tech, US</p>	<p>S331 B</p>	<p>Session 2B <b>Localization</b></p> <p><b>Accurate Localization of RFID Tags Using Phase Difference</b> Cory Hekimian-Williams, Brandon Grant, Xiuwen Liu, Zhenghao Zhang, Piyush Kumar Florida State University, US</p> <p><b>Real Time Detection and Tracking of Gauzes by RFID UWB Technique</b> Laura Pierucci<sup>1</sup>, Sergio Boncinelli<sup>2</sup>, Paolo Citti<sup>1</sup>, Enrico Del Re<sup>1</sup>, Gianni Campatelli<sup>1</sup>, Leonardo Bocchi<sup>1</sup> <sup>1</sup> University of Florence, IT <sup>2</sup> CESPRO, IT</p> <p><b>Phase Based Spatial Identification of UHF RFID Tags</b> Pavel Nikitin, Rene Martinez, Shashi Ramamurthy, Hunter Leland, Gary Spiess, Kodukula Rao Intermec Technologies, US</p> <p><b>Session Chair:</b> Paul Hartmann, RF SAW Inc., US</p>	<p>S331 C</p>
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15:00 – 15:30

## BREAK

S330 E-F-G-H

15:30 – 17:00

## POSTER SESSION

S331 A

See Poster Session Track on pages 24-25 for a list of poster titles, authors and affiliations

17:00 – 17:45

## RFID Journal LIVE! Keynote Session

TBA

17:45 – 18:30

## RFID Journal LIVE! General Session

TBA

18:30 – 20:30

## RFID Journal LIVE! Opening Reception

Exhibit Hall

20:30

## IEEE RFID 2010 Reception

S330 E-F-G-H

# IEEE RFID 2010 Program Brief – Thursday, April 15 (Morning)

8:00 – 8:30 **SPEAKER BRIEFING** S331 A

8:30 – 10:30 **PLENARY** S330 E-F-G-H

<p><b>Welcome</b>  <b>CRFID Update</b>  <b>Featured Speaker</b>  <b>Featured Speaker</b></p>	<p><b>Daniel Engels</b>, General Chair, IEEE RFID 2010  <b>Paul Hartmann</b>, Chair, IEEE Technical Committee on RFID (CRFID)  <b>Ken Traub</b>, Ken Traub Consulting LLC  <b>Matt Reynolds</b>, Assistant Professor, Duke University</p>
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10:30 – 11:00 **BREAK** S330 E-F-G-H

11:00 – 12:30 **TECHNICAL SESSIONS** S331 B, C

<p>Session 3A <span style="float: right;">S331 B</span>  <b>Applications</b>  <b>Passive Gamma-resistant RFID Tags Integrated into Gamma-sterilizable Pharmaceutical Components</b>  Radislav Potyrailo<sup>1</sup>, Cheryl Surman<sup>1</sup>, William Morris<sup>1</sup>, Hanno Ehring<sup>2</sup>, Timothy Wortley<sup>1</sup>, Vincent Pizzi<sup>1</sup>, Jeffrey Carter<sup>1</sup>, Gerard Gach<sup>1</sup>  <sup>1</sup> General Electric, US  <sup>2</sup> General Electric, SE  <b>RFID-Based Electronic Voting: What Could Possibly Go Wrong?</b>  Yossef Oren, Avishai Wool  Tel Aviv University, IL  <b>RFID Tag Antenna Based Sensing: Does your Beverage Glass need a Refill?</b>  Rahul Bhattacharyya<sup>1</sup>, Christian Floerkemeier<sup>1</sup>, Sanjay Sarma<sup>2</sup>  <sup>1</sup> MIT, US  <sup>2</sup> MIT Auto-ID Center, US  <b>RFID Diagnostics of Promotion Execution</b>  Patrick Hacker<sup>1</sup>, Christian Floerkemeier<sup>2</sup>, Sanjay Sarma<sup>3</sup>, Guenther Schuh<sup>4</sup>  <sup>1</sup> RWTH Aachen University, DE  <sup>2</sup> MIT, US  <sup>3</sup> MIT Auto-ID Center, US  <sup>4</sup> Fraunhofer Institute for Production Technology, DE  <b>Session Chair:</b> Rene Martinez, Intermec Technologies, Inc., US</p>	<p>Session 3B <span style="float: right;">S331 C</span>  <b>Interrogators and Packaging</b>  <b>Carrier Suppression Locked Loop Mechanism for UHF RFID Readers</b>  Deogracias Villame, Joel Joseph Jr. Marciano  University of the Philippines, PH  <b>UHF RFID Transponder with Miniaturized Packaging and Interconnection</b>  Laurent Dussopt, Jean Brun, Dominique Vicard, Francois Frassati, Benoit Lépine  CEA, LETI, Minatec, FR  <b>Embedded Passive UHF RFID Seal Tag for Metallic Returnable Transit Items</b>  Matti Ritamäki, Antti Ruhanen  Confidex Ltd., FI  <b>Interactive Packaging Solutions Based on RFID Technology and Controlled Delamination Material</b>  Jie Gao, Zhibo Pang, Qiang Chen, Li-Rong Zheng  Royal Institute of Technology (KTH), SE  <b>Session Chair:</b> Roger Stewart, Sourland Mountain Associates, US</p>
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12:30 – 14:00 **LUNCH** Exhibit Hall

# IEEE RFID 2010 Program Brief – Thursday, April 15 (Afternoon)

14:00 – 15:30

TECHNICAL SESSIONS

S331 B, C

<p>Session 4A <b>Antennas and Propagation Part I</b></p> <p><b>Helical Antenna for Handheld UHF RFID Reader</b> Pavel Nikitin, Kodukula Rao Intermec Technologies, US</p> <p><b>Platform-tolerant PIFA-type UHF RFID Tag Antenna</b> Jingtian Xi, Hailong Zhu, Terry Ye Hong Kong R&amp;D Centre for LSCM Enabling Technologies, HK</p> <p><b>The “Weak Spots” in Stacked UHF RFID Tags in NFC Applications</b> Xiaosheng Chen, Feng Lu, Terry Ye Hong Kong R&amp;D Centre for LSCM Enabling Technologies, HK</p> <p><b>Improving the Near-Metal Performance of UHF RFID Tags</b> Daniel Deavours, University of Kansas, US</p> <p><b>Session Chair:</b> Smail Tedjini, Grenoble-INP, FR</p>	<p>S331 B</p>	<p>Session 4B <b>Communications and MAC</b></p> <p><b>Survey of Range Improvement of Commercial RFID Tags With Power Optimized Waveforms</b> Matthew Trotter, Gregory Durgin Georgia Institute of Technology, US</p> <p><b>Very High Data Rate Contactless Air Interface: an Innovative Solution for Card to Reader Link</b> Florian Pebay Peyroula, Jacques Reverdy, Elisabeth Crochon, Thierry Thomas CEA, FR</p> <p><b>QAM Backscatter for Passive UHF RFID Tags</b> Stewart Thomas, Matthew Reynolds Duke University, US</p> <p><b>A Data Transmission Technique for Passive Sensor Transponders in Medicine</b> Andreas Hennig, Gerd vom Bögel Fraunhofer IMS, DE</p> <p><b>Session Chair:</b> Tom Kerr</p>	<p>S331 C</p>
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15:30– 16:00

BREAK

S330 E-F-G-H

16:00 – 17:30

TECHNICAL SESSIONS

S331 B, C

<p>Session 5A <b>Antennas and Propagation Part II</b></p> <p><b>Towards Design of Robust UHF RFID Tag</b> Chaabane Hamza, Etienne Perret, Smail Tedjini Grenoble-INP, FR</p> <p><b>Analysis and Synthesis of UHF RFID Antennas using the Embedded T-match</b> Naaser Ahmed Mohammed, Ken Demarest, Daniel Deavours University of Kansas, US</p> <p><b>Optimum Power Transmission of Wireless Sensors Embedded in Concrete</b> Shan Jiang, Stavros Georgakopoulos Florida International University, US</p> <p><b>UHF RFID Based Tracking of Logs in the Forest Industry</b> Janne Häkli, Kaarle Jaakkola, Pekka Pursula, Miika Huusko, Kaj Nummila VTT, FI</p> <p><b>Session Chair:</b> Pavel Nikitin, Intermec Technologies, Inc., US</p>	<p>S331 B</p>	<p>Session 5B <b>System Tools and Deployment</b></p> <p><b>Chipless RFID SAW Sensor System-Level Simulator</b> John Pavlina, Donald Malocha University of Central Florida, US</p> <p><b>New Methods to determine the Impedance of UHF RFID Chips</b> Rainer Kronberger, Cologne University of Applied Sciences, DE</p> <p><b>Non-Thermal Effects of Radio Frequency Exposure on Biologic Pharmaceuticals for RFID Applications</b> Ismail Uysal<sup>1</sup>, Price Dehay<sup>1</sup>, Erdem Altunbas<sup>1</sup>, Jean-Pierre Emond<sup>1</sup>, Scott Rasmussen<sup>2</sup>, David Ulrich<sup>2</sup> <sup>1</sup> University of Florida, US <sup>2</sup> Abbott Laboratories, US</p> <p><b>Blocking Reader: Design and Implementation of a Low-Cost Passive UHF RFID Blocking Reader</b> Gaurov Narayanaswamy<sup>1</sup>, Shesh Kumar Jagannatha<sup>1</sup>, Daniel Engels<sup>2</sup> <sup>1</sup> University of Texas Arlington, US <sup>2</sup> Revere Security, US</p> <p><b>Session Chair:</b> Rahul Bhattacharyya, MIT, US</p>	<p>S331 C</p>
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18:30 – 20:30

IEEE RFID 2010 Conference Banquet S330 E