

# IEEE RFID 2009 PROGRAM BRIEF

## Monday, April 27 (Morning)

8:00 – 8:30

**SPEAKER BRIEFING**


Southern Hemisphere III

8:30 – 10:00

**PLENARY**

Southern Hemisphere III

<b>Welcome &amp; Introduction</b>	<b>Daniel Engels</b> , General Chair, IEEE RFID 2009
<b>Technical Program Overview</b>	<b>Christian Floerkemeier</b> , Program Chair, IEEE RFID 2009
<b>Presentation of Best Paper Award</b>	
<b>Introduction of Keynote Speaker</b>	<b>Peter Abell</b> , General Vice Chair, IEEE RFID 2009

<b>Keynote Speaker</b>		<b>Chris Diorio</b>  Co-Founder, Chairman, CTO, <b>Impinj, Inc.</b>
------------------------	---	---

10:00 - 10:30

**BREAK**

10:30 - 12:00


**TECHNICAL SESSIONS**

<p>Session 1A: <b>Tag Circuits</b> (Asia 1)</p> <p><b>Low-power Energy Supply Circuit for Passive RFID Transponder</b> Hu Jian-Guo, Tan Hong-Zhou Sun Yat-Sen University, P.R. China</p> <p><b>A Low-Power Dual-Clock Strategy for Digital Circuits of EPC Gen2 RFID tag</b> Qiasi Luo<sup>1</sup>, Li Guo<sup>2</sup>, Qing Li<sup>2</sup>, Gang Zhang<sup>2</sup>, Junyu Wang<sup>2</sup> <sup>1</sup>University of Science and Technology of China, P.R. China <sup>2</sup>Fudan University, P.R. China</p> <p><b>Analysis, Design and Implementation of Semi-Passive Gen2 Tag</b> Wenyi Che, Yuqing Yang, Conghui Xu, Na Yan, Qiang Li, Hao Min Fudan University, P.R. China</p> <p><b>Measurement methods for power requirements of high performance UHF RFID tags</b> Stefan Gruber<sup>1</sup>, Hannes Reinisch<sup>2</sup>, Wolfgang Pribyl<sup>2</sup>, Gerald Holweg<sup>1</sup> <sup>1</sup>Infineon Technologies AG, Austria <sup>2</sup>Graz University of Technology, Austria</p> <p><b>Session Chair:</b> Riad Kanan, University of Applied Sciences HES-SO Valais, Switzerland</p>	<p>Session 1B: <b>Measurement and Simulation Methods</b> (Asia 4)</p> <p><b>Wideband System-Level Simulator for Passive UHF RFID</b> Daniel Arnitz<sup>1</sup>, Ulrich Muehlmann<sup>2</sup>, Thomas Gigl<sup>1</sup>, Klaus Witrissal<sup>1</sup> <sup>1</sup>Graz University of Technology, Austria <sup>2</sup>NXP Semiconductors, Austria</p> <p><b>A UHF RFID Channel Emulator Hardware for Playback of Measured Link-Scenarios</b> Holger Arthaber, Christian Schuberth Vienna University of Technology, Austria</p> <p><b>Flexible Evaluation of RFID System Parameters using Rapid Prototyping</b> Christoph Angerer, Robert Langwieser Vienna University of Technology, Austria</p> <p><b>Read Range Measurements of UHF RFID Transponders in Mobile Anechoic Chamber</b> Wolfram Strauss Fraunhofer Institute for Integrated Circuits, Germany</p> <p><b>Session Chair:</b> Darmindra D. Arumugam, CMU, USA</p>	<p>Special Session 1C: <b>RFID and Healthcare – Trends, Applications and Technical Aspects</b> (Asia 5)</p> <p><b>Invited Talks</b></p> <p><b>Reliable and Secure Identification, Management and Tracing of Specimens</b> Joachim Gerstel, joint analytical systems (jas), Germany</p> <p><b>RFID in Healthcare - A Multidisciplinary Perspective</b> Suraj Kapa, MD, Mayo Clinic, USA</p> <p><b>Tracking of Medical Implants - from a Technical Perspective</b> Magellan Technology, Australia</p> <p><b>Discussion Panel</b> with invited speakers and guests</p> <p><b>Session Chair:</b> J. Schmidt, Infineon Technologies AG, Germany</p>
--	---	--

12:00 – 13:30

**LUNCH**

Southern Hemisphere III

<b>Featured Speaker</b>		<b>Jens Kungl</b>  Head of RFID Base Technology, <b>MGI Metro Group Technology GmbH</b>
-------------------------	---	---

# IEEE RFID 2009 PROGRAM BRIEF

## Monday, April 27 (Afternoon)

13:30 – 15:00

### TECHNICAL SESSIONS

<p><b>Session 2A:</b> <b>Protocol Part I</b> (Asia 1)</p> <p><b>ALOHA Algorithm considering the Slot Duration Difference in RFID systems</b> Liu Dan, Zhongxiang Wang, Hao Min, Junyu Wang Fudan University, P.R. China</p> <p><b>Reliable Identification of RFID Tags Using Multiple Independent Reader Sessions</b> Rasmus Jacobsen, Karsten Nielsen, Petar Popovski, Torben Larsen Aalborg University, Denmark</p> <p><b>An Application Dependent Medium Access Protocol for Active RFID Using Dynamic Tuning of the Back-off Algorithm</b> Björn Nilsson<sup>1</sup>, Lars Bengtsson<sup>2</sup>, Bertil Svensson<sup>1</sup> <sup>1</sup>Halmstad University, Sweden <sup>2</sup>Chalmers University, Sweden</p> <p><b>Power Optimized Waveforms for Improving the Range and Reliability of RFID Systems</b> Matthew Trotter, Gregory Durgin, Joshua Griffin Georgia Institute of Technology, USA</p> <p><b>Session Chair:</b> Carlo Mutti, Facea, Switzerland</p>	<p><b>Session 2B:</b> <b>Sensors I</b> (Asia 4)</p> <p><b>Mobile-phone-readable 2.45 GHz Passive Digital Sensor Tag</b> Yann Tetu<sup>1</sup>, Iiro Jantunen<sup>2</sup>, Bertrand Gomez<sup>1</sup>, Stephanie Robinet<sup>1</sup> <sup>1</sup>CEA-Leti/Minatoc, France <sup>2</sup>Helsinki University of Technology, Finland</p> <p><b>Towards Tag Antenna Based Sensing – An RFID Displacement Sensor</b> Rahul Bhattacharyya, Christian Floerkemeier, Sanjay Sarma Massachusetts Institute of Technology, USA</p> <p><b>A Capacitive Touch Interface for Passive RFID Tags</b> Alanson Sample<sup>1</sup>, Daniel Yeager<sup>2</sup>, Joshua Smith<sup>1</sup> <sup>1</sup>Intel Research Seattle, USA <sup>2</sup>University of Washington, USA</p> <p><b>SAW RFID Spread Spectrum OFC and TDM Technology</b> John Pavlina, Donald Malocha University of Central Florida, USA</p> <p><b>Session Chair:</b> Rich Fletcher, Tagsense Inc., USA</p>	<p><b>Special Session 2C:</b> <b>Tag and Reader Testing</b> (Asia 5)</p> <p><b>Invited Talks</b></p> <p><b>Tag Measurement Principles</b> Pavel Nikitin, Intermec Inc., USA</p> <p><b>Tag Measurement Approaches</b> Jukka Voutilainen, Voyantic, Finland</p> <p><b>Reader Performance Measurements</b> Jin Mitsugi, Keio University, Japan</p> <p><b>Discussion Panel</b> with invited speakers</p> <p><b>Session Chair:</b> Daniel Deavours, University of Kansas, USA</p>
---	--	--

15:00 – 15:30

### BREAK

15:30 – 17:00

### TECHNICAL SESSIONS

<p><b>Session 3A:</b> <b>Protocol Part II</b> (Asia 1)</p> <p><b>Effect of Gen 2 Protocol Parameters on RFID Tag Performance</b> Pavel Nikitin, Kodukula Rao Intermec Technologies, USA</p> <p><b>Evaluation of ISO 18000-6C Artifacts</b> Nikhil Ayer, Daniel Engels University of Texas at Arlington, USA</p> <p><b>Extracting Information from Tag Collisions</b> Rushikesh Khasgiwale, Rohan Adyanthaya, Daniel Engels University of Texas at Arlington, USA</p> <p><b>Separation of Multiple Passive RFID Signals Using Software Defined Radio</b> Dawei Shen<sup>1</sup>, Grace Woo<sup>1</sup>, David Reed<sup>1</sup>, Andrew Lippman<sup>1</sup>, Junyu Wang<sup>2</sup> <sup>1</sup>Massachusetts Institute of Technology, USA <sup>2</sup>Fudan University, P.R.China</p> <p><b>Session Chair:</b> Jin Mitsugi, Keio University, Japan</p>	<p><b>Session 3B:</b> <b>Localization and Active Tags</b> (Asia 4)</p> <p><b>Multifrequency-Based Range Estimation of RFID Tags</b> Xin Li, Yimin Zhang, Moeness Amin Villanova University, USA</p> <p><b>Hybrid Ultrasound-RFID Indoor Positioning: Combining the Best of Both Worlds</b> Sverre Holm, University of Oslo, Norway</p> <p><b>A Novel Localization Scheme for Passive RFID Tags – Communication Range Recognition</b> T. Wada<sup>1</sup>, N. Uchitomi<sup>1</sup>, Y. Ota<sup>1</sup>, T. Hori<sup>1</sup>, K. Mutsuura<sup>2</sup>, H. Okada<sup>1</sup> <sup>1</sup>Kansai University, Japan, <sup>2</sup>Shinshu University, Japan</p> <p><b>Verification Methodology for Battery Lifetime Requirements of Higher Class UHF RFID Tags</b> C. Trummer<sup>1</sup>, C. Kirchsteiger<sup>1</sup>, A. Janek<sup>1</sup>, C. Steger<sup>1</sup>, R. Weiss<sup>1</sup>, M. Pistauer<sup>2</sup>, D. Dalton<sup>3</sup> <sup>1</sup>Graz University of Technology, Austria <sup>2</sup>CISC Semiconductor Design + Consulting GmbH, Austria <sup>3</sup>Neosera Systems Ltd, Ireland</p> <p><b>Session Chair:</b> Gregory Durgin, Georgia Institute of Technology, USA</p>	<p><b>Special Session 3C:</b> <b>Open Source RFID Software</b> (Asia 5)</p> <p><b>Invited Talks</b></p> <p><b>Rifidi</b> Prasith Govin, Primari Inc., USA</p> <p><b>LLRP Toolkit</b> Daniel Bowman, Impinj Inc., USA</p> <p><b>Fosstrak</b> Christian Floerkemeier, MIT/Fosstrak, USA</p> <p><b>Discussion Panel</b> with invited speakers</p> <p><b>Session Chair:</b> C. Floerkemeier, MIT/Fosstrak, USA</p>
---	--	--

# IEEE RFID 2009 PROGRAM BRIEF

## Tuesday, April 28 (Morning)

8:00 - 8:30

**SPEAKER BRIEFING**


Southern Hemisphere III

8:30 – 10:30

**PLENARY**

Southern Hemisphere III

<b>Welcome</b>	<b>Daniel Engels</b> , General Chair, IEEE RFID 2009
<b>Introduction to CRFID</b>	<b>Paul Hartmann</b> , Chair, IEEE Technical Committee on RFID (CRFID)

<b>Featured Speaker</b>		<p style="text-align: center;"><b>Rene Martinez</b></p> <p style="text-align: center;">Chief Technologist, <b>Intermec Inc.</b></p>
-------------------------	---	---

10:30 – 11:00

**BREAK**

11:00 – 12:30

**TECHNICAL SESSIONS**

<p><b>Session 4A: Privacy and Security Part I</b> <span style="float: right;">(Asia 1)</span></p> <p><b>Untraceable RFID Authentication Protocols: Revision of EC-RAC</b> Yongki Lee<sup>1</sup>, Lejla Batina<sup>2</sup>, Ingrid Verbauwhede<sup>2</sup> <sup>1</sup>University of California at Los Angeles, USA <sup>2</sup>Katholieke Universiteit Leuven, Belgium</p> <p><b>HB-MP++ Protocol: An Ultra Light-weight Authentication Protocol for RFID Systems</b> Bongno Yoon Korea University, South Korea</p> <p><b>How to Improve Security and Reduce Hardware Demands of the WIPR RFID Protocol</b> Jiang Wu, Doug Stinson University of Waterloo, Canada</p> <p><b>Preserving RFID Data Privacy</b> Benjamin Fung, Khalil Al-Hussaeni, Ming Cao Concordia University, Canada</p> <p><b>Session Chair:</b> Trevor Burbridge, BT Research, United Kingdom</p>	<p><b>Session 4B: Reader Design</b> <span style="float: right;">(Asia 4)</span></p> <p><b>Broadband Suppression Properties of Active Leaking Carrier Cancellers</b> Gregor Lasser, Robert Langwieser, Arpad Scholtz Vienna University of Technology, Austria</p> <p><b>Circularly Polarized Patch Antenna with High Tx/Rx-Separation</b> Lukas Mayer, Arpad Scholtz Vienna University of Technology, Austria</p> <p><b>Demonstration of Improved Passive UHF RFID Coverage using Optically-Fed Distributed Multi-Antenna System</b> Sithamparanathan Sabesan, Michael Crisp, Richard Penty, Ian White University of Cambridge, United Kingdom</p> <p><b>Session Chair:</b> Matthew Reynolds, Duke University, USA</p>	<p><b>Special Session 4C: Embedding and De-embedding Electromagnetic Structures for RFID Systems</b> <span style="float: right;">(Asia 5)</span></p> <p><b>Invited Talks</b></p> <p><b>Practical Passive UHF RFID Systems: Design and Characterization Challenges within Computational Electromagnetism</b> Darmindra D. Arumugam, CMU, USA</p> <p><b>Design of UHF RFID Systems with the aid of Computational Electromagnetics</b> C.J. Reddy, EMSS USA – FEKO, USA</p> <p><b>Discussion Panel</b> Darmindra D. Arumugam, CMU, USA C.J. Reddy, EMSS USA – FEKO, USA Pavel Nikitin, Intermec, USA Leonid Mats, Tego, USA</p> <p><b>Session Chair:</b> Darmindra D. Arumugam, CMU, USA</p>
---	---	---

12:30 – 14:00

**LUNCH IN EXHIBIT HALL**

# IEEE RFID 2009 PROGRAM BRIEF

## Tuesday, April 28 (Afternoon)

14:00 – 15:30

### TECHNICAL SESSIONS

<p>Session 5A: <b>Privacy and Security Part II</b> <span style="float: right;">(Asia 1)</span></p> <p><b>Serialized TID numbers: A headache or a blessing for RFID crackers?</b> M. Lehtonenv<sup>1</sup>, A. Ruhanen<sup>2</sup>, F. Michahelles<sup>1</sup>, E. Fleisch<sup>1</sup> <sup>1</sup>ETH Zurich, Switzerland <sup>2</sup>Confidex Oy, Finland</p> <p><b>Cryptography is Feasible on 4-Bit Microcontrollers - A Proof of Concept</b> Markus Vogt, Axel Poschmann, Christof Paar Ruhr-University Bochum, Germany</p> <p><b>Security Considerations in the Design and Peering of RFID Discovery Services</b> Trevor Burbridge<sup>1</sup>, Mark Harrison<sup>2</sup> <sup>1</sup>BT Research, United Kingdom <sup>2</sup>Cambridge University, United Kingdom</p> <p><b>How to detect cloned tags in a reliable way from incomplete RFID traces</b> Mikko Lehtonen, Florian Michahelles, Elgar Fleisch ETH Zurich, Switzerland</p> <p><b>Session Chair:</b> Daniel Engels, University of Texas at Arlington, USA</p>	<p>Session 5B: <b>Antenna &amp; Propagation Part I</b> <span style="float: right;">(Asia 4)</span></p> <p><b>A Circularly Polarized Planar Antenna Modified for Passive UHF RFID</b> Daniel Deavours University of Kansas, USA</p> <p><b>UHF RFID Transponders Antenna Design for Metal and Wood Surfaces</b> Riad Kanan University of Applied Sciences HES-SO Valais, Switzerland</p> <p><b>Optically Transparent Conductive Polymer RFID Meandering Dipole Antenna</b> Nicholas Kirsch, Nicholas Vacirca, Elizabeth Plowman, Timothy Kurzweg, Adam Fontecchio, Kapil Dandekar Drexel University, USA</p> <p><b>Analysis and Design of Wideband Passive UHF RFID Tags Using a Circuit Model</b> Daniel Deavours University of Kansas, USA</p> <p><b>Session Chair:</b> Smail Tedjini, Grenoble-inp/esisar, France</p>	<p>Special Session 5C: <b>Chipless RFID</b> <span style="float: right;">(Asia 5)</span></p> <p><b>Invited Talks</b></p> <p><b>Short Review of Chipless RFID</b> Rich Fletcher, Tagsense Inc., USA</p> <p><b>Design of Global SAW Tag RFID Devices</b> Clinton S Hartmann, RF SAW Inc., USA</p> <p><b>Nanobers: Printed Microwave Tags made from Carbon Nanotubes</b> Morton Green, Inkcode, USA</p> <p><b>Discussion Panel</b> with invited speakers</p> <p><b>Session Chair:</b> Rich Fletcher, Tagsense Inc., USA</p>
--	--	---

15:30 – 16:00

### BREAK

16:00 – 17:30

### TECHNICAL SESSIONS

<p>Session 6A: <b>Applications &amp; Networking</b> <span style="float: right;">(Asia 1)</span></p> <p><b>A Passive SAW Based RFID System for Use on Ordnance</b> Paul Hartmann RFSAW Inc., USA</p> <p><b>Inference of Product Quality by using RFID-enabled Traceability Information -A Study on the US Pharmaceutical Supply Chain</b> Tatsuya Inaba Keio University, Japan</p> <p><b>Load Shedding Based Resource Management Techniques for RFID Data</b> Nova Ahmed Georgia Institute of Technology, USA</p> <p><b>A Real Options Approach for Strategic RFID Investment Decision</b> X. Wu<sup>1</sup>, C.H. Chu<sup>2</sup>, D. Yue<sup>1</sup>, J. Bai<sup>1</sup>, Y. Wang<sup>1</sup> <sup>1</sup>Hebei University of Technology, P.R. China <sup>2</sup>Penn State University, USA</p> <p><b>Session Chair:</b> Clinton Hartmann, RFSAW Inc., USA</p>	<p>Session 6B: <b>Antenna &amp; Propagation Part II</b> <span style="float: right;">(Asia 4)</span></p> <p><b>Multipath Fading Measurements for Multi-Antenna Backscatter RFID at 5.8 GHz</b> Joshua Griffin, Gregory Durgin Georgia Institute of Technology, USA</p> <p><b>Performance Analysis of Stacked RFID Tags</b> Terry Ye Hong Kong R&amp;D Center for Logistics and Supply Chain Management, P.R. China</p> <p><b>Change of Read Range for UHF Passive RFID Tags in Close Proximity</b> Yu Tanaka<sup>1</sup>, Yohtaro Umeda<sup>1</sup>, Osamu Takyu<sup>1</sup>, M. Nakayama<sup>2</sup>, K. Kodama<sup>2</sup> <sup>1</sup>Tokyo University of Science, Japan, <sup>2</sup>Toppan Forms Co. Ltd., Japan</p> <p><b>On the Measurement of the Delta Radar Cross Section for UHF Tags</b> Saad Skali, Christophe Chantepy, Smail Tedjini Grenoble-inp/esisar, France</p> <p><b>Session Chair:</b> Daniel Deavours, University of Kansas, USA</p>	<p>Special Session 6C: <b>Near-Field Electromagnetic Ranging</b> <span style="float: right;">(Asia 5)</span></p> <p><b>Invited Talks</b></p> <p><b>A Technical Primer on Near-Field Electromagnetic Ranging</b> Hans Schantz, Q-Track Inc., USA</p> <p><b>Near-Field Electromagnetic Ranging Versus Ultra-Wideband</b> Kai Siwiak, TimeDerivative Inc., USA</p> <p><b>Radiation Worker Dosimetry Training System</b> John Uden, Q-Track Inc., USA</p> <p><b>Discussion Panel</b> with invited speakers</p> <p><b>Session Chair:</b> Hans Schantz, Q-Track Inc., USA</p>
---	--	---