



IEEE RFID Technology and Applications

IEEE RFID-TA 2019

Preliminary Technical Program





IEEE RFID Technology and Applications 2019 (RFID-TA) – Preliminary Technical Program (August 02, 2019)

WEDNESDAY 25 September 2019		THURSDAY 26 September 2019			FRIDAY 27 September 2019				
Registration	Auditorium Leonardo Da Vinci	Registration	Auditorium Leonardo Da Vinci	Room Galileo Galilei	Room Antonio Pacinotti	Registration	Auditorium Leonardo Da Vinci	Room Galileo Galilei	Room Antonio Pacinotti
	Registration Desk is open	Registration Desk is open			Registration Desk is open				
		Wireless Power Transfer Enabling the IoT I	Chipless and Conventional RFIDs: Challenges in Fabrication, Joint Implementation and Applications I	RFID R&D Activities in IEEE Chapters		RFID for Body-centric Networks: Wearable, Epidermal, and Implantable Systems I	Positioning, Tracking and Navigation with RFID Systems I	Smart and Sensing RFID tags I	
	Successful Case Studies and Industrial R&D activities involving RFID technology	COFFEE BREAK			COFFEE BREAK				
		Wireless Power Transfer Enabling the IoT II	Chipless and Conventional RFIDs: Challenges in Fabrication, Joint Implementation and Applications II	Ultra-Wideband and High- Frequency RFID		RFID for Body-centric Networks: Wearable, Epidermal, and Implantable Systems II	Positioning, Tracking and Navigation with RFID Systems II	Smart and Sensing RFID tags II	
	LUNCH	LUNCH			LUNCH				
	Opening Ceremony	KEYNOTE 1			KEYNOTE SPEECH 1				
	COFFEE BREAK	RFID Ladies: spotlight on recent scientific and industrial advances of Women Engineers I	Chipless RFID and Wireless Metamaterial Sensors I	Poster Session of the Best Student Paper Competition	Novel Antennas for RFID Applications I	Advances in RFID for IoT Applications I	Solutions, challenges and expectations for ubiquitous applications		
	RFID for the Made in Italy	RFID Ladies: spotlight on recent scientific and industrial advances of Women Engineers II	Chipless RFID and Wireless Metamaterial Sensors II		RFID Antenna Design, Theory and Measurement	Novel Antennas for RFID Applications II	Advances in RFID for IoT Applications II	Emerging RFID Technologies and Applications	
	Welcome Cocktail	to the Social Dinner venue			Closing Ceremony				
		SOCIAL DINNER			Farewell Party (TBD)				



PRELIMINARY TECHNICAL PROGRAM

Wednesday September 25, 2019

10:30 – 12:30 – Invited Speaker Session

Metaline UHF RFID Near-field Reader Antennas, Zhi Ning Chen, *National University of Singapore VP IEEE Council on RFID*

From Research to the Industry - How RFID Innovations Mature, Jukka Voutilainen, *VOYANTIC*

RAIN RFID Tag coding: be ready for the massive adoption, Stefano Coluccini, *CAEN RFID*

Robots for RFID-based automated inventory in retail stores, Alfredo Salvatore, *SENSOR ID*

IREAD4.0: the RFID technology for efficient warehouse management in tissue paper industry, Antonio Congi, *SOFIDEL*

Evolution of Consumerism – The RAIN Effect, Debangana Mukherjee, *CISC SEMICONDUCTOR*

Increasing Reliability of RFID Systems by applying Electromagnetic Simulation Techniques, Alberto Di Maria, *ANSOFT*

TBD

TBD

12:30 – 14:00 Lunch Break

14:00 – 16:00 Opening Ceremony

16:00 – 16:30 Lunch Break

16:40 – 18:30 RFID for the MADE IN ITALY

PRELIMINARY TECHNICAL PROGRAM

Thursday September 26

08:30 – 10:10 – Technical Sessions

SPECIAL SESSION – Wireless Power Transfer Enabling the IoT (part I)

Session Organizers: Alessandra Costanzo (*University of Bologna, Italy*), Nuno Borges Carvalho (*University of Aveiro, Portugal*)

Session Chairs: Alessandra Costanzo (*University of Bologna, Italy*), Nuno Borges Carvalho (*University of Aveiro, Portugal*)

Room Leonardo Da Vinci

8:30-8:50	<i>A 5.8 GHz CMOS Analog Front-End Targeting RF Energy Harvesting for Microwave RFIDs with MIMO Reader</i>	Sanaz Haddadian; Christoph Scheytt
8:50-09:10	<i>Optimum Design of Low Energy Harvesting Detector at 5.8 GHz suitable for COTS devices</i>	Marco Passafiume
09:10-09:30	<i>Load-Independent Inductive Resonant WPT Links</i>	Giuseppina Monti; Franco Mastri; Mauro Mongiardo; Laura Corchia; Alessandra Costanzo; Luciano Tarricone
09:30-09:50	<i>Near-Field Focus Radiation from Phased Antenna Array for Best Reception by Relatively Large Antennas</i>	Hsi-Tseng Chou
09:50-10:10	<i>NFC Hybrid Harvester for Battery-free Agricultural Sensor Nodes</i>	Spyridon Nektarios Daskalakis; George Goussetis; Apostolos Georgiadis

SPECIAL SESSION – Chipless and Conventional RFIDs: Challenges in Fabrication, Joint Implementation and Applications (part I)

Session Organizers: Smail Tedjini (*Université Grenoble-Alpes*), Simone Genovesi (*University of Pisa*)

Session Chairs: Smail Tedjini (*Université Grenoble-Alpes*), Simone Genovesi (*University of Pisa*)

Room Galileo Galilei

8:30-8:50	<i>Transmission Lines to Enhance the Reading of UHF RFID Tags on Small Metallic Objects</i>	Imbolatiana Rakotomalala; Pierre Lemaitre-Auger; Smail Tedjini
8:50-09:10	<i>A Comparison of Printed Flexible RFID/NFC Antennas for a Microelectronic Measurement System</i>	Vy Le; Patrick Moser; Elke Mackensen; Uli Lemmer
09:10-09:30	<i>Parameters affecting UHF RFID tag performances</i>	Hajar Bouazza; Antonio Lazaro; Mohsine Bouya; Abdelkader Hadjoudja
09:30-09:50	<i>Experimental Demonstration of a Passive UHF RFID Communication in Time Reversal and Pulsed Wave Mode</i>	Yanis Merakeb; Hussein Ezzeddine; Julien Huillery; Arnaud Breard; Rachida Touhami; Yvan Duroc
09:50-10:10	<i>Detection of Chipless Tags Through Near Field Interrogation with Waveguide Antennas</i>	Sergio Terranova; Filippo Costa; Simone Genovesi; Giuliano Manara

SPECIAL SESSION – RFID R&D Activities in IEEE Chapters

Session Organizers: Z. N. Chen (*National University of Singapore, Singapore*), M. R. Tripathy (*Amity University, India*)

Session Chairs: Z. N. Chen (*National University of Singapore, Singapore*), M. R. Tripathy (*Amity University, India*)

Room Antonio Pacinotti

8:30-8:50	<i>Curved Meander Line Resonators for Chipless RFID Sensors</i>	Rattapong Suwalak; Chuwong Phongcharoenpanich; Danai Torrungrueng; Prayoot Akkaraekthalin
8:50-09:10	<i>Simple Estimated Patch Size for Suppressing Common-mode Noise on Bent Differential Transmission Line</i>	Ding-Bing Lin; Yong-Lun Huang; Chih-Hao Lin

09:10-09:30	<i>A simple NFC parameters measurement method based on ISO/IEC 14443 standar</i>	I-Fong Chen; Chia-Mei Peng; Zhi-Da Yan
09:30-09:50	<i>An Eccentric Annular Slotted Patch with Parasitic Element for UHF RFID Reader Applications</i>	Chow-Yen-Desmond Sim; Chuan-Wei Lin; Ting-An Chen; Jin-Rong Liou; Hsi-Tseng Chou
09:50-10:10	<i>Performance analysis of Frequency Reconfigurable Bow-Tie patch antenna with switchable bow-tie shaped Ground Plane for Wireless Application</i>	Devesh Kumar; Malay Tripathy.

10:10 – 10:50 Coffee Break

10:50 – 12:30 – Technical Sessions

SPECIAL SESSION – Wireless Power Transfer Enabling the IoT (part II)

Session Organizers: Alessandra Costanzo (*University of Bologna, Italy*), Nuno Borges Carvalho (*University of Aveiro, Portugal*)

Session Chairs: Alessandra Costanzo (*University of Bologna, Italy*), Nuno Borges Carvalho (*University of Aveiro, Portugal*)

Room Leonardo Da Vinci

10:50-11:10	<i>Performance evaluation of backscatter modulation techniques by using one and two frequencies</i>	Felisberto Pereira; Ricardo Correia; Miguel L. Nunes; Nuno Borges Carvalho
11:10-11:30	<i>Efficient Simulation Method for Wireless Power Transfer</i>	Mazen Al Shanawani; Diego Masotti; Giacomo Paolini; Alessandra Costanzo
11:30-11:50	<i>Low Thermally Activated Schottky Barrier Rectifier: A New Class of Energy Harvester</i>	Xiaoqiang Gu; Ke Wu; Simon Hemour
11:50-12:10	<i>Long Range Battery-Less UHF-RFID Platform for Sensor Applications</i>	Davide Fabbri; Eliot Berthet-Bondet; Diego Masotti; Alessandra Costanzo; Davide Dardari; Aldo Romani
12:10-12:30	<i>Near-Field WPT using Defected Ground Structures for UHF RFID Applications</i>	Sambhav Malhotra

SPECIAL SESSION – Chipless and Conventional RFIDs: Challenges in Fabrication, Joint Implementation and Applications (part II)

Session Organizers: Smail Tedjini (*Université Grenoble-Alpes*), Simone Genovesi (*University of Pisa*)

Session Chairs: Smail Tedjini (*Université Grenoble-Alpes*), Simone Genovesi (*University of Pisa*)

Room Galileo Galilei

10:50-11:10	<i>Energy Harvesting Based On Printed Organic Photovoltaic Cells for RFID Applications</i>	Abanob Assaad Amin Abdelnour; Aurélien Hallet; Sadok Ben Dkhil; Pascal Pierron; Darine Kaddour; Smail Tedjini
11:10-11:30	<i>Chemical Vapor Detecting Passive RFID Tag</i>	John Batchelor; Badredin M Turki; Ali Ziai; Aaron Hillier; Stephen Yeates; Adam Parry; Kate Belsey
11:30-11:50	<i>A Cross-Polar Orientation Insensitive Chipless RFID Tag</i>	Fatemeh Babaeian; Nemai Karmakar
11:50-12:10	<i>Simulation Framework for Studying UHF RFID Systems in Pulse Wave Mode</i>	Hussein Ezzeddine; Yanis Merakeb; Julien Huillery; Arnaud Breard; Yvan Duroc
12:10-12:30	<i>Fully Metallic Crooked Wire Antenna for UHF RFID Tags</i>	Fateh Benmahmoud; Pierre Lemaitre-Augere; Abanob Abdelnour; Smail Tedjini

SPECIAL SESSION – Ultra-Wideband and High-Frequency RFID

Session Organizers: Davide Dardari (*University of Bologna, Italy*), Raffaele D'Errico (*CEA-LETI, France*)

Session Chairs: Davide Dardari (*University of Bologna, Italy*), Raffaele D'Errico (*CEA-LETI, France*)

Room Antonio Pacinotti

10:50-11:10	<i>Radar Imaging Approach for Zero-Power Millimeter-Wave Wireless Sensors</i>	Hervé Aubert; Patrick Pons; Dominique Henry
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11:10-11:30	<i>Experimental Evaluation of a UHF-MIMO RFID System for Positioning in Multipath Channels</i>	Stefan Grebien; Florian Galler; Daniel Neunteufel; Ulrich Muehlmann; Stefan Maier; Holger Arthaber; Klaus Witrisal
11:30-11:50	<i>A Waveguide Transmitarray Antenna for Near-field Millimeter-wave Sensing Applications</i>	Siddhartha Panigrahi; Hsi-Tseng Chou; Zhi-Da Yan
11:50-12:10	<i>An Ultra-wideband Battery-less Positioning System for Space Applications</i>	Davide Dardari; Nicolò Decarli; Davide Fabbri; Anna Guerra; Marco Fantuzzi; Diego Masotti; Alessandra Costanzo; Aldo Romani; Maxime Drouguet; Thomas Feuillen; Christopher Raucy; Luc Vandendorpe; Christophe Craeye
12:10-12:30	<i>Low Power Tag Hybrid Sub-GHz UWB-IR based Indoor Positioning System - An Experimental Demonstration</i>	Ankush Vashistha; Ankur Gupta; Choi Look Law

12:30 – 13:50 Lunch Break

13:50 – 14:40 Keynote Speech 1

Room Leonardo da Vinci

Title: To be defined

Abstract: To be defined

Speaker Bio: To be defined

14:40 – 16:00 – Technical Sessions

SPECIAL SESSION – RFID Ladies: spotlight on recent scientific and industrial advances of Women Engineers (part I)

Session Organizers: Cecilia Occhiuzzi (*Tor Vergata University, Italy*), Johanna Virkki (*Tampere University of Technology, Finland*)

Session Chairs: Cecilia Occhiuzzi (*Tor Vergata University, Italy*), Johanna Virkki (*Tampere University of Technology, Finland*)

Room Leonardo Da Vinci

14:40-15:00	<i>Polarization Reconfigurable Patch Antenna for Compact and Low Cost UHF RFID Reader</i>	Enrico Tolin; Francesca Vipiana; Achim Bahr; Simona Bruni
15:00-15:20	<i>A Phase-based Method for UHF-RFID Gate Access Control</i>	Alice Buffi; Andrea Motroni; Paolo Nepa; Bernardo Tellini
15:20-15:40	<i>New Approaches For Augmented UHF RFID Textile Yarn</i>	Sofia Benouakta; Florin Hutu; Yvan Duroc
15:40-16:00	<i>Method and system for reading RFID tags embedded into tires on conveyors</i>	Maria Cristina Caccami; Sara Amendola; Cecilia Occhiuzzi

SPECIAL SESSION – Chipless RFID and Wireless Metamaterial Sensors (part I)

Session Organizers: Filippo Costa (*University of Pisa, Italy*), Etienne Perret (*University of Grenoble Alpes, France*)

Session Chairs: Filippo Costa (*University of Pisa, Italy*), Etienne Perret (*University of Grenoble Alpes, France*)

Room Galileo Galilei

14:40-15:00	<i>Modelling of the Multi-Resonant Circuit Frequency Behaviour in Chipless RFID tags</i>	Bernardo B. Lopes; João Matos
15:00-15:20	<i>Metasurfaces for sensing and medical diagnostics</i>	Abdel Majid Taibi; Antoine Durant; Celia Lacoste; David Binnie; Luigi La Spada



15:20-15:40 *Non-Volatile Conductive Bridging Metal-Insulator-Metal switches for Rewritable 'RF Barcodes'*

Jaykrishnan Methapettyparambu Purushothama; Arnaud Vena; Ira Susanti; Brice Sorli; Mamadou Balde; Etienne Perret

15:40-16:00 *A new paradigm in chipless-RFID: all-dielectric permittivity contrast tags*

Cristian Herrojo; Ferran Paredes; Ferran Martín

TBD

Poster Session of the Best Student Paper Award

16:00 – 16:40 – Coffee Break

16:40 – 18:20 – Technical Sessions

SPECIAL SESSION – RFID Ladies: spotlight on recent scientific and industrial advances of Women Engineers (part II)

Session Organizers: Cecilia Occhiuzzi (*Tor Vergata University, Italy*), Johanna Virkki (*Tampere University of Technology, Finland*)

Session Chairs: Cecilia Occhiuzzi (*Tor Vergata University, Italy*), Johanna Virkki (*Tampere University of Technology, Finland*)

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16:40-17:00 *User-driven development with scientific & applied research - RFID-controlled physiogame case study*

Sari Merilampi; Venni Ihanakangas; Johanna Virkki

17:00-17:20 *A Batteryless Semi-Passive RFID Sensor Platform*

Shubin Ma; Nikta Pournoori; Lauri Sydänheimo; Leena Ukkonen; Apostolos Georgiadis; Toni Björninen

17:20-17:40 *A Chipless Humidity Sensor for Wearable Applications*

Laura Corchia; Giuseppina Monti; Egidio De Benedetto; Luciano Tarricone

17:40-18:00 *Exploitation of the RFID technology for autonomous living*

Alessandra Costanzo

18:00-18:20 *RFID Technology for Industry 4.0: Architectures and Challenges*

Cecilia Occhiuzzi; Sara Amendola; Simone Nappi; Nicola D'Uva; Gaetano Marrocco

SPECIAL SESSION – Chipless RFID and Wireless Metamaterial Sensors (part II)

Session Organizers: Filippo Costa (*University of Pisa, Italy*), Etienne Perret (*University of Grenoble Alpes, France*)

Session Chairs: Filippo Costa (*University of Pisa, Italy*), Etienne Perret (*University of Grenoble Alpes, France*)

Room Galileo Galilei

16:40-17:00 *EMERGENT Project: Chipless Multisensor Rfid for Green Networks*

Giuliano Manara; Filippo Costa; Simone Genovesi; Sergio Terranova; Francesco Alessio Dicandia; Michele Borgese; Antonio Lazaro; David Girbau; Ramon Villarino; Smail Tedjini; Etienne Perret; Hatem El Matbouly; Lorenzo Monti; Luca Boggioni; Albert Escala; Christophe Mercier; Pascal Pierron

17:00-17:20 *An approach for Synchronous Reading of Near-Field Chipless-RFID Tags*

Ferran Paredes; Cristian Herrojo; Ferran Martín

17:20-17:40 *Wireless Detection of Water Level by Using Spiral Resonators Operating in Sub-GHz Range*

Filippo Costa; Danilo Brizi; Simone Genovesi; Agostino Monorchio; Giuliano Manara; Florian Requena; Etienne Perret

17:40-18:00 *Realistic Chipless RFID Tag Modeling, Mathematical Framework and 3D EM Simulation*

Mohamed El Hadidy; Yasmine El Sayed; Batool Yasser

18:00-18:20 *Practical Comparison of Decoding Methods for Chipless RFID System in Real Environment*

Raphael Alencar; Nicolas Barbot; Marco Garbati; Etienne Perret

REGULAR SESSION – RFID Antenna Design, Theory and Measurement

Session Chairs: M. Rodriguez Pino (*University of Oviedo, Spain*), A. Michel (*University of Pisa, Italy*)

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17:20-17:40	<i>A Dual Frequency Circularly Polarized UHF-RFID/WLAN Circular Patch Antenna for RFID Readers</i>	Sayan Sarkar; Bhaskar Gupta
17:40-18:00	<i>Measurements and Simulations of the Near-Field Generated by a Reference Source of EM Field</i>	Carlo Carobbi; Andrea Guadagnoli
18:00-18:20	<i>Design of a Compact Yagi-Uda Antenna for Near Field UHF RFID Smart gloves</i>	Rajesh K Singh; Andrea Michel; Paolo Nepa

DETAILED TECHNICAL PROGRAM

Friday September 27

08:30 – 10:10 – Technical Sessions

SPECIAL SESSION – RFID for Body-centric Networks: Wearable, Epidermal, and Implantable Systems (part I)

Session Organizers: G. Marrocco (*University of Roma Tor Vergata, Italy*), J. Batchelor (*University of Kent, United Kingdom*)

Session Chairs: G. Marrocco (*University of Roma Tor Vergata, Italy*), J. Batchelor (*University of Kent, United Kingdom*)

Room Leonardo Da Vinci

8:30-8:50	<i>Animal Body Model to Improve the Development of UHF RFID Transponders for Animal Detection</i>	Rainer Kronberger; Dominik Gottardi; Markus Heinrichs; Volker Wienstroer
8:50-09:10	<i>A Numerical Study on the Robustness of UWB Wearable Antennas w.r.t. the Human Body Proximity</i>	Giovanni Andrea Casula
09:10-09:30	<i>Glove-Integrated Textile Antenna with Reduced SAR for Wearable UHF RFID Reader</i>	Shahbaz Ahmed; Adnan Mehmood; Lauri Sydänheimo; Leena Ukkonen; Toni Björninen
09:30-09:50	<i>Clothing-Integrated Passive RFID Strain Sensor Platform for Body Movement-Based Controlling</i>	Han He; Xiaochen Chen; Leena Ukkonen; Johanna Virkki
09:50-10:10	<i>RF Detection of Micro-cracks in Orthopedic Implants by Conformal Space Filling Curves</i>	Simone Nappi; Luca Gargale; Pier Paolo Valentini; Gaetano Marrocco

SPECIAL SESSION – Positioning, Tracking and Navigation with RFID Systems (part I)

Session Organizers: A. Buffi (*University of Pisa*), K. Witrisal (*Graz University of Technology*), S. Grebien (*Graz University of Technology*)

Session Chairs: A. Buffi (*University of Pisa*), K. Witrisal (*Graz University of Technology*)

Room Galileo Galilei

8:30-8:50	<i>RFID based Vehicular Localization for Intelligent Transportation Systems</i>	Yunlei Zhang; Yongtao Ma; Kaihua Liu; Jinlong Wang; Shuai Li
8:50-09:10	<i>3D Localization of RFID Tags with a Single Antenna by a Moving Robot and "Phase ReLock"</i>	Anastasios Tzitzis; Spyros Megalou; Stavroula Siachalou; Emmanouil Tsardoulis; Traianos Yioultsis; Antonis G Dimitriou
09:10-09:30	<i>A restarting paradigm for a Range-Only SLAM algorithm using the phase of passive UHF-RFID signals</i>	Emidio Di Giampaolo; Francesco Martinelli
09:30-09:50	<i>Complex-Valued Delta RCS Simulation of RFID Tags for Time of Flight Ranging Performance Assessment</i>	Florian Galler; Daniel Neunteufel; Holger Arthaber
09:50-10:10	<i>Particle Swarm Optimization in Multi-Antenna SAR-based Localization for UHF-RFID Tags</i>	Fabio Bernardini; Alice Buffi; Andrea Motroni; Paolo Nepa; Matteo Unetti; Paolo Tripicchio

SPECIAL SESSION – Smart and Sensing RFID tags (part I)

Session Organizers: M. Merenda (*University "Mediterranea" of Reggio Calabria, Italy*), J. R. Smith (*University of Washington, USA*)

Session Chairs: M. Merenda (*University "Mediterranea" of Reggio Calabria, Italy*), J. R. Smith (*University of Washington, USA*)

Room Antonio Pacinotti

8:30-8:50	<i>The Harmonic Tunneling Tag: a Dual-Band Approach to Backscattering Communications</i>	Francesco Amato; Simon Hemour
8:50-09:10	<i>Dielectric Sensing-aid Structure for RFID Tag</i>	Chenwei Yang; Yonghui Tao; Weiwen Zhu
09:10-09:30	<i>Planar Position and Orientation Estimation Using a 5.8 GHz RFID System</i>	Muhammad Bashir Akbar; David Taylor; Gregory Durgin
09:30-09:50	<i>Application of Radio-Finger Augmented Devices to Cognitive Neural remapping</i>	Sara Amendola; Valentina Greco; Giulio M. Bianco; Elena Daprati; Gaetano Marrocco

09:50-10:10 *Field Focusing for Energy Harvesting Applications in Smart RFID Tag* Martina Teresa Bevacqua; Gennaro Bellizzi; Massimo Merenda

10:10 – 10:50 Coffee Break

10:50 – 12:30 – Technical Sessions

SPECIAL SESSION – RFID for Body-centric Networks: Wearable, Epidermal, and Implantable Systems (part II)

Session Organizers: G. Marrocco (*University of Roma Tor Vergata, Italy*), J. Batchelor (*University of Kent, United Kingdom*)

Session Chairs: G. Marrocco (*University of Roma Tor Vergata, Italy*), J. Batchelor (*University of Kent, United Kingdom*)

Room Leonardo Da Vinci

10:50-11:10	<i>SAR Measurements of UHF RFID Reader Antenna Operating in Close Proximity to a Flat Phantom</i>	Andrey S Andrenko; Yuto Shimizu; Kanako Wake
11:10-11:30	<i>An On Body Accelerometer System for streaming therapy data using COTS UHF RFID</i>	Robert J Horne; Philippa Jones; Paul S Taylor; John Batchelor; Cathy Holt
11:30-11:50	<i>Engineered and miniaturized 13.56 MHz omni-directional WPT system for medical applications</i>	Francesca Benassi; Alessandra Costanzo; Diego Masotti
11:50-12:10	<i>UHF RFID-Based EMG for Prosthetic Control: preliminary results</i>	Carolina Miozzi; Vito Errico; Giovanni Saggio; Emanuele Gruppioni; Gaetano Marrocco
12:10-12:30	<i>Voice Prosthesis Implantable UHF RFID Self-Sensing Tag for Microbial Growth Detection</i>	Viktorija Makarovaite; Aaron Hillier; Simon Holder; Campbell Gourlay; John Batchelor

SPECIAL SESSION – Positioning, Tracking and Navigation with RFID Systems (part II)

Session Organizers: A. Buffi (*University of Pisa*), K. Witrisal (*Graz University of Technology*), S. Grebien (*Graz University of Technology*)

Session Chairs: A. Buffi (*University of Pisa*), K. Witrisal (*Graz University of Technology*)

Room Galileo Galilei

10:50-11:10	<i>Particle Filter Object Tracking by a Handheld UHF RFID Reader</i>	Aristidis Raptopoulos; Traianos Yioultsis; Antonis G Dimitriou
11:10-11:30	<i>Multiple Baseline Synthetic Array for UHF RFID Localization</i>	Emidio Di Giampaolo; Francesco Martinelli
11:30-11:50	<i>A UHF-RFID gate control system based on a Convolutional Neural Network</i>	Guillermo Alvarez Narciandi; Andrea Motroni; Marcos R. Pino; Alice Buffi; Paolo Nepa
11:50-12:10	<i>RePos: Relative Position Estimation of UHF-RFID Tags for Item-level Localization</i>	Chenglong Li; Emmeric Tanghe; David Plets; Pieter Suanet; Jeroen Hoebeke; Eli De Poorter; Wout Joseph
12:10-12:30	<i>Robotic Inventorying and Localization of RFID Tags, Exploiting Phase-Fingerprinting</i>	Stavroula Siachalou; Spyros Megalou; Anastasios Tzitzis; Emmanouil Tsardoulis; Aggelos Bletsas; John Sahalos; Traianos Yioultsis; Antonis G Dimitriou

SPECIAL SESSION – Smart and Sensing RFID tags (part II)

Session Organizers: M. Merenda (*University “Mediterranea” of Reggio Calabria, Italy*), J. R. Smith (*University of Washington, USA*)

Session Chairs: M. Merenda (*University “Mediterranea” of Reggio Calabria, Italy*), J. R. Smith (*University of Washington, USA*)

Room Antonio Pacinotti

10:50-11:10	<i>Wireless Angular Displacement Sensing System Based on Electromagnetic Coupling of UHF RFID Tag Array</i>	Cheng Teng; Wen-Hai Zhang; Kam Weng Tam; Wai Wa Choi; Sut-Kam Ho
11:10-11:30	<i>Deformation Sensitivity Study of Embroidered UHF RFID Antennas</i>	Xuanyu Shang; Mengxia Yu; Miao Wang; Yulong Liu; Terry Ye
11:30-11:50	<i>Learning Gestures Using A Passive Data-Glove With RFID Tags</i>	Sai Nithin Reddy Kantareddy; Yongbin Sun; Rahul Bhattacharyya; Sanjay Sarma

11:50-12:10	Reconfigurable UHF RFID tag with sensing capabilities	Massimo Merenda; Demetrio Iero; Francesco Della Corte
12:10-12:30	Increasing of Operation Range of RFID System	Igor Borisovich Shirokov

12:30 – 13:50 Lunch Break

13:50 – 14:40 Keynote Speech 2

Room Leonardo da Vinci

Title: To be defined

Abstract: To be defined

Speaker Bio: To be defined

14:40 – 16:00 – Technical Sessions

SPECIAL SESSION – Novel Antennas for RFID Applications (part I)

Session Organizers: Z. N. Chen (National University of Singapore, Singapore), G. A. Casula (Università degli Studi di Cagliari, Italy), R. Colella (Università del Salento, Italy)

Session Chairs: Z. N. Chen (National University of Singapore, Singapore), G. A. Casula (Università degli Studi di Cagliari, Italy)

Room Leonardo Da Vinci

14:40-15:00	A heuristically designed high-frequency RFID antenna head for use within libraries	Ian Pratt; Shiyun Zhong
15:00-15:20	Beam Scanning UHF RFID Reader Antenna with High Gain and Wide Axial Ratio Beamwidth	Rui Chen; Shuai Yang; Michael J Crisp; Ajeck M Ndifon
15:20-15:40	Self-Tuning UHF Epidermal Antennas	Francesco Amato; Simone Nappi; Carolina Miozzi; Gaetano Marrocco
15:40-16:00	A 3D-Printed Wideband Antenna for UHF RFID	Giovanni Andrea Casula; Zhi Ning Chen; Riccardo Colella; Luca Catarinucci

SPECIAL SESSION – Advances in RFID for IoT Applications (part I)

Session Organizers: Luca Catarinucci (University of Salento, Italy), Petar Solic (University of Split, Croatia)

Session Chairs: Luca Catarinucci (University of Salento, Italy), Petar Solic (University of Split, Croatia)

Room Galileo Galilei

14:40-15:00	A Flexible Biopolymer based UHF RFID-Sensor for food quality monitoring	Benjamin Saggin; Yassin Belaizi; Arnaud Vena; Brice Sorli
15:00-15:20	Passive UHF RFID Sensor to Monitor Fragile Objects during Transportation	Arnaud Vena; Brice Sorli; Benjamin Saggin; Ricardo Garcia; Jean Podlecki
15:20-15:40	Influence of the Vehicle Velocity on the Number of Reads in UHF RFID Scenarios	Alexander R. Unterhuber; Stoyan Iliev; Erwin Biebl
15:40-16:00	Opportunity to Analyze Laboratory Mice Behavior by using UHF RFID Technology: pros and cons	Enea Cirillo; Paola Minosi; Francesca Marzoli; Ilaria Sergi; Riccardo Colella; Luigi Patrono; Luca Catarinucci; Stefano Pieretti

SPECIAL SESSION – Solutions, challenges and expectations for ubiquitous applications

Session Organizers: R. Ferrero (Politecnico di Torino, Italy), J. Vales Alonso (Polytechnic University of Cartagena, Spain)

Session Chairs: R. Ferrero (Politecnico di Torino, Italy), J. Vales Alonso (Polytechnic University of Cartagena, Spain)

Room Antonio Pacinotti

14:40-15:00	Evaluation of off-the-shelf NFC Devices for Biomedical Applications	Antonio Virdis; Carlo Vallati; Francesco Di Rienzo; Nicola Carbonaro; Alessandro Tognetti
15:00-15:20	Multistatic Gen2 RFID over Ethernet with Commodity SDRs	Michail Ouroutzoglou; Georgios Vougioukas; Panos N. Alevizos; Antonis G Dimitriou; Aggelos Bletsas

15:20-15:40	<i>LBTM: A LBT protocol for Ubiquitous Applications in Multi-class RFID Networks</i>	Javier Vales-Alonso; Pablo Lopez-Matencio; Juan Jose Alcaraz
15:40-16:00	<i>Ubiquitous fridge with natural language interaction</i>	Renato Ferrero; Mohammad Ghazi Vakili; Edoardo Giusto; Mauro Guerrera; Vincenzo Randazzo

16:00 – 16:40 Coffee Break

16:40 – 18:20 – Technical Sessions

SPECIAL SESSION # 02 – Novel Antennas for RFID Applications (part II)

Session Organizers: Z. N. Chen (*National University of Singapore, Singapore*), G. A. Casula (*Università degli Studi di Cagliari, Italy*), R. Colella (*Università del Salento, Italy*)

Session Chairs: Z. N. Chen (*National University of Singapore, Singapore*), G. A. Casula (*Università degli Studi di Cagliari, Italy*)

Room Leonardo Da Vinci

16:40-17:00	<i>On the Use of Additive Manufacturing 3D-Printing Technology in RFID Antenna Design</i>	Riccardo Colella; Francesco Chietera; Francesco Montagna; Antonio Greco; Luca Catarinucci
17:00-17:20	<i>A Comparative Study of Coupler-Based Retrodirective Arrays for Next-Generation RFID Tags</i>	Mohammad Alhassoun; Gregory Durgin
17:20-17:40	<i>A Wideband Circularly Polarized Antenna With Conical-Beam Radiation</i>	Wei HE; Long Zhang; Yejun He; Sai-Wai Wong
17:40-18:00	<i>A Spiral Shaped Loop Fed high Read Range Compact Tag Antenna for UHF RFID Applications</i>	Aarti Bansal; Surbhi Sharma; Rajesh Khanna
18:00-18:20	<i>A Compact UHF RFID Ceramic Tag for High-Temperature Applications</i>	Vittorio Franchina; Andrea Michel; Paolo Nepa; Andrea Ria; Paolo Bruschi; Alfredo Salvatore

SPECIAL SESSION # 03 – Advances in RFID for IoT Applications (part II)

Session Organizers: Luca Catarinucci (*University of Salento, Italy*), Petar Solic (*University of Split, Croatia*)

Session Chairs: Luca Catarinucci (*University of Salento, Italy*), Petar Solic (*University of Split, Croatia*)

Room Galileo Galilei

16:40-17:00	<i>Adding RFID Capabilities to IoT Technologies: Proof-of-Concept on Microwave Doppler Sensors</i>	Riccardo Colella; Luca Catarinucci
17:00-17:20	<i>Kalman Filter based RFID tag velocity estimation in the presence of frequency hopping</i>	Nico-Paul Bester; Alwyn Hoffman
17:20-17:40	<i>Comparing RFID Tags Performance through Software Defined Radio</i>	Hamid Zargariasl; Petar Šolić; Katarina Radoš; Toni Perkovic; Zoran Blažević; Joel J. P. C. Rodrigues
17:40-18:00	<i>Monitoring of temperature stress during firefighters training by means of RFID epidermal sensors</i>	Francesca Camera; Cecilia Occhiuzzi; Carolina Miozzi; Simone Nappi; Andrea Bozzo; Paolo Tomola; Alessandra Bin; Gaetano Marrocco
18:00-18:20	<i>RFID-assisted Continuous User Authentication for IoT-based Smart Farming</i>	Alexander Bothe; Jan Bauer; Nils Aschenbruck

SPECIAL SESSION # 11 – Emerging RFID Technologies and Applications

Session Organizers: Egidio Ragonese (*University of Catania, Italy*), Nenad Marjanović (*CSEM Center Muttentz, Italy*)

Session Chairs: Riccardo Colella (*University of Salento, Italy*), Andrea Motroni (*University of Pisa, Italy*)

Room Antonio Pacinotti

16:40-17:00	<i>RFID in Today's Intelligent Hospital</i>	Paul Frisch
17:00-17:20	<i>Using RFID Technology and Discrete-Events, Agent-Based Simulation Tools to Build Digital-Twins of Large Warehouses</i>	Marcello Braglia; Roberto Gabbrielli; Marco Frosolini; Leonardo Marrazzini; Luca Padellini
17:20-17:40	<i>A Phase-based Method for Mobile Node Localization through UHF-RFID passive tags</i>	Andrea Motroni; Alice Buffi; Paolo Nepa; Bernardo Tellini



17:40-18:00	<i>Effectivity of Sports Timing RFID System, Field Study</i>	Jan Kolaja; Jana Kolaja Ehlerová
18:00-18:20	<i>Implementation of Multi-level Modulated-Backscatter Communication System Using Ambient Wi-Fi Signal</i>	Young-Han Kim; Changseok Yoon; Hyun-Seok Ahn; Seung Ok Lim