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## Welcome Message from the Chairpersons

On behalf of all the organizers of IEEE International Instrumentation and Measurement Technology Conference (I<sup>2</sup>MTC 2015), we welcome you to the historic and beautiful Pisa, Italy. This year, we have decided to make the theme of the conference "The Measurable of Tomorrow: Providing a Better Perspective on Complex Systems". The first part of the title embraces the challenge attributed to Galileo Galilei, "Measure what is measurable, and make measurable what is not so", while the second part calls for the instrumentation and measurement community to face the increasing complexity of systems resulting from the continuous development of new technologies.

Thus, our technical program this year not only covers an excellent variety of instrumentation and measurement topics, but also reflects the theme of the conference and emphasizes instrumentation and measurement for novel applications through eight special sessions and two special track events.

This year, perhaps for the first time in the history of I<sup>2</sup>MTC, we completely overhauled the review process of the conference. First, we went from submission of extended abstracts, as was the case in previous years, to submission of full papers. Second, we used a 2-round review process, whereby papers that after round 1 required revisions, according to reviewers' comments, were given an opportunity to perform those revisions and resubmit to round 2 together with a letter answering and addressing the reviewers' comments. Such papers were reviewed again in round 2 and final decisions were made. We believe that this 2-round review process significantly increased the quality of the final accepted papers. Third, we modified the submission tracks to ensure relevance and fair distribution of papers among tracks. As such, we are very proud of our technical program this year, which is offered in forty oral sessions distributed in groups of five parallel tracks along the three days of the conference and in two plenary poster sessions, the first of which primarily dedicated to our students.

This new review process was very challenging to implement, since it was quite different from previous years, and we were doing it for the first time. As such, we would like to thank all the authors, reviewers, Associate Technical Program Committee Chairs (a position that was created this year to implement the new review process) for the 14 conference tracks, and the Technical Program Committee Chairs, who made the new review system a success by all measures.

As in the past I<sup>2</sup>MTC conferences, we start with a full day of tutorials offering more than a dozen fascinating subjects ranging from measurement fundamentals, to signal processing, nonlinear measurements, biomedical measurements, sensors, and forensic metrology.

Dr. Nigel Lockyer, Director of Fermi National Accelerator Laboratory, will start the conference on Tuesday, May 12, 2015 with the keynote "An open window on measurements in particle physics".

Prof. Jean-Charles Bolomey, Professor Emeritus from the University Paris-Sud will start the scientific sessions on Wednesday, May 13, 2015 with the plenary talk "Fast Near-Field Measurement Techniques for Characterization of Radiating Systems".

Mr. Carlo Carganico, Chief Executive Officer of Italcertifer S.p.A., will start the last day of the conference with the plenary talk "Measurements for Certification of Railway Systems".

We are honored to have them as plenary speakers and thank them in advance for coming to our conference to share their knowledge and experiences with us.

The I<sup>2</sup>MTC organization was a complex task due to the large and increasing interest of our research and application areas. Efforts from many people were required to shape the technical program, arrange accommodations, manage the administrative aspects, and set up the social functions. We like to take this opportunity to thank all and each of them. We like also to thank all the public and private organizations that supported the meeting in different ways.

Several Awards will be assigned to colleagues to recognize their important work and contribution to the field of instrumentation and measurements. Awards will be also assigned to young researchers with the aim of encouraging them to carry on their activity.

Enjoy the fellowship of colleagues and experts, and spend some free time in the midst of natural and artistic beauty. We will appreciate your important feedback on the conference organization that represents for us the best way to improve the quality of I<sup>2</sup>MTC, and to achieve lasting excellence.

It is therefore with great honor and pride that we welcome you to Pisa, Italy, and to I<sup>2</sup>MTC 2015. We hope that you enjoy both your participation in the conference and your stay in beautiful Pisa.

Sincerely,

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Lijun Xu, *Beihang University, P.R. China*  
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Emanuele Zappa, *Politecnico di Milano, Italy*  
Maciej Zawodniok, *Missouri University of Science and Technology, USA*  
George Zentai, *Varian Medical Systems, USA*  
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***Thank you to all the Reviewers of the I<sup>2</sup>MTC 2015 papers.***

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Bernardo Tellini, *University of Pisa, Italy*  
Chi-Hung Hwang, *Instrument Technology Research Center, Taiwan*

# I<sup>2</sup>MTC 2015 Keynote and Plenary Speakers

**Nigel Lockyer**

*Fermi National Accelerator Laboratory, Italy*



*Keynote – Tuesday, May 12, 2015*  
*"An Open Window on Measurements in Particle Physics"*

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**Jean-Charles Bolomey**

*2015 Keithley Award Winner*  
*Emeritus Professor, University Paris Sud, France*



*Plenary – Wednesday, May 13, 2015*  
*"Fast Near-Field Measurement Techniques for Characterization of Radiating Systems"*

---

**Carlo Carganico**

*Italcertifer S.p.A., Italy*



*Plenary – Thursday, May 14, 2015*  
*"Measurements for Certification of Railway Systems"*

## I<sup>2</sup>MTC 2015 Conference Sponsor

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**Italcertifer** - Italcertifer is a Company belonging to the Italian FS Group; officially appointed as Notified Body (No.Bo.), Independent Safety Assessor (I.S.A.) and Inspection Body, it performs products and systems certifications, audits, inspections and other assessments activities in the field of guided transport, particularly railway and metro. Its headquarter is in Florence, where also the Rolling Stock experts and laboratory are located; the Infrastructure & Technologies experts and relative laboratories are located in Rome.

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**儀器科技研究中心**  
Instrument Technology Research Center

the industry, academia, and research bodies with a sophisticated service platform for advanced instrument applications. ITRC has been known as a pioneer in vacuum and optics technology, providing innovative engineering, prototyping, and customization. ITRC not only contributes to the national science and technology policies of Taiwan as well as seeks international collaboration opportunities.

**Instrument Technology Research Center (ITRC)** - Established in 1974 in Taiwan, Instrument Technology Research Center (ITRC) of National Applied Research Laboratories, a government funded institute, endeavors to bridge

### Bronze Patron



**National Instruments Italia**

## I<sup>2</sup>MTC 2015 Italcertifer Post Event Tour



Thanks to our platinum patron, Italcertifer, I<sup>2</sup>MTC 2015 will be hosting a post-event site visit to the Italcertifer laboratory at Osmannoro (Florence) on Friday, May 15th.

### **Preliminary schedule - Friday, May 15th:**

9:00 departure from Pisa by bus

10:00 arrival to Osmannoro

Welcome and visit to the laboratory

Coffee break or small lunch

Departure back to Pisa

## Local Patrons

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UNIVERSITÀ DI PISA

City of Pisa



City of Calci



## I<sup>2</sup>MTC 2015 Exhibitors



**CRC Press** - CRC Press, a premier global publisher of scientific, technical, and medical content, provides essential material for academics, professionals, and students. CRC Press products include world-class references, handbooks, and textbooks as well as the award-winning CRCnetBASE eBook collections. CRC Press is a member of Taylor & Francis Group, an informa business. Our mission is to serve the needs of scientists and the community at large by working with capable researchers and professionals from across the world to produce the most accurate and up to date scientific, technical, and medical resources.



**NARDA Safety Test Solutions** - NARDA Safety Test Solutions is a global leader in the development and production of measuring equipment for electromagnetic fields, owning more than 95% of all published patents for measuring such fields. We are a highly innovative company that regularly develops new technologies and instruments to cover the most demanding applications in Safety (EMF) and Electromagnetic Compatibility (EMC). Our three facilities are located at Hauppauge, Long Island / USA, Pfullingen / Germany and Cisano sul Neva / Italy.



**Rohde & Schwarz** - For more than 80 years, Rohde & Schwarz has stood for quality, precision and innovation in all fields of wireless communications. The privately owned company is strategically based on four pillars: test and measurement, broadcasting, secure communications, radiomonitoring and radiolocation. The electronics group, headquartered in Munich (Germany), has a global presence and is among the world market leaders in all of its business fields.



Zurich  
Instruments

**Zurich Instruments** - Zurich Instruments makes lock-in amplifiers, phase-locked loops, and impedance spectrometers that have revolutionized instrumentation in the high-frequency (HF) and ultra-high-frequency (UHF) ranges by combining frequency-domain tools and time-domain tools within each product. This reduces the complexity of laboratory setups, removes sources of problems and provides new measurement approaches that support the progress of research.



## I<sup>2</sup>MTC Tradition

The first *IEEE Instrumentation and Measurement Technology Conference* was held in 1984 aboard the Queen Mary in Long Beach, California, but its origins stretch back nearly 20 years earlier to the *Electrical and Electronic Measurement and Test Instrument Conference* held each year from 1966 until 1981 in Ottawa, Canada. The latter was revived by the IEEE Instrumentation and Measurement Society with a new focus on all aspects of instrumentation and measurement. The following list contains locations and themes of the I<sup>2</sup>MTC conferences:

- 1984 – Long Beach, CA, USA, *Automation-Quality-Productivity*
- 1985 – Tampa, FL, USA, *Measurement Science*
- 1986 – Boulder, CO, USA, *Standards of Excellence*
- 1987 – Boston, MA, USA, *The Changing Face of I&M Technologies*
- 1988 – San Diego, CA, USA, *Intelligence in Instrumentation*
- 1989 – Washington, DC, USA, *Persuasive I&M Technology – A Resource*
- 1990 – San Jose, CA, USA, *Emerging Measurement Technologies*
- 1991 – Atlanta, GA, USA, *Enhancing Productivity with Instrumentation and Measurement Technologies*
- 1992 – Meadowlands, NJ, USA, *Smart People, Smart Instruments, Smart Measurements*
- 1993 – Irvine, CA, USA, *Innovative Ideas for Industry*
- 1994 – Hamamatsu, JAPAN, *Advanced Technologies in Instrumentation and Measurement*
- 1995 – Waltham, MA, USA, *I3C – Integrating Intelligent Instrumentation and Control*
- 1996 – Brussels, BELGIUM, *Quality Measurements – The Indispensable Bridge between Theory and Reality (No Measurements? No Science!)*
- 1997 – Ottawa, CANADA, *Sensing, Processing, Networking*
- 1998 – St. Paul, MN, USA, *Where Instrumentation is Going*
- 1999 – Venice, ITALY, *Measurements for the New Millennium*
- 2000 – Baltimore, MD USA, *Smart Connectivity: Integrating Measurement and Control*
- 2001 – Budapest, HUNGARY, *Rediscovering Measurement in the Age of Informatics*
- 2002 – Anchorage, AK, USA, *The Frontier of Instrumentation and Measurement*
- 2003 – Vail, CO, USA, *Instrumentation and Measurement at the Summit*
- 2004 – Lake Como, ITALY, *From the Electrometer to the Networked Instruments: A Giant Step toward a Deeper Knowledge*
- 2005 – Ottawa, CANADA, *The 22nd Reunion*
- 2006 – Sorrento, ITALY, *A View on the New Technologies for Instrumentation and Measurement*
- 2007 – Warsaw, POLAND, *Synergy of Science and Technology in Instrumentation and Measurement*
- 2008 – Victoria, British Columbia, CANADA, *Advances in the Science of Measurement Technology*
- 2009 – Singapore, *Always On: Instrumentation and Measurement in the Networked World*
- 2010 – Austin, TX, USA, *Innovative and Integrated Applications of I&M*
- 2011 – Binjiang, Hangzhou, CHINA, *Instrumentation and Measurement for Improving Quality of Life*
- 2012 – Graz, Austria, *Smart Measurements for a Sustainable Environment*
- 2013 – Minneapolis, MN, USA, *Instrumentation and Measurement for Life*
- 2014 – Montevideo, Uruguay, *“Instrumentation and Measurement for Sustainable Development”*
- 2015 – Pisa, Italy, *“The “Measurable” of Tomorrow: Providing a Better Perspective on Complex Systems”*

## Awards and Distinctions

Each year the IEEE Instrumentation and Measurement Society accepts nominations for its Awards. The AdCom Awards Committee manages the nominations process, reviews the candidates, and recommends a slate. The slate of candidates is then submitted to the Society AdCom for approval and the awards are presented at our annual Awards Ceremony held as part of the I<sup>2</sup>MTC conference. The Awards Committee is pleased to announce the 2014 winners.

### 2014 Transactions Outstanding Associate Editors

Salvatore Baglio, *University of Catania, Italy*

Kurt Barbé, *Vrije Universiteit Brussel, Belgium*

Sergey Kharkhovskiy, *University of Western Sydney, Australia*

Theodore Laopoulos, *Aristotle University of Thessaloniki, Greece*

Carlo Muscas, *Università di Cagliari Dipartimento di Ingegneria Elettrica ed Elettronica (DIEE), Italy*

Dario Petri, *Università degli Studi di Trento, Italy*

Shervin Shirmohammadi, *University of Ottawa, Canada*

Jesus Urena, *University of Alcala Polytechnical School, Spain*

Wendy Van Moer, *University of Gävle, Sweden*

George Xiao, *Institute for Microstructural Science, National Research Council, Canada*

Ruqiang Yan, *Southeast University, P.R, China*

Mark Yeary, *University of Oklahoma, USA*

### IEEE Instrumentation and Measurement Society Andy Chi Best Paper Award

The I&M Society Andy Chi Best Paper Award is awarded to recognize an author or authors of a paper published in the IEEE Transactions on Instrumentation and Measurement.

The 2014 Andy Chi Best Paper Award is given for the paper: *Detecting and quantifying the nonlinear and time-variant effects in FRF measurements using periodic excitation.*

#### The recipients are:

Rik Pintelon, *Vrije Universiteit Brussel, Belgium*

Ebrahim Louarroudi, *Vrije Universiteit Brussel, Belgium*

John Lataire, *Vrije Universiteit Brussel, Belgium*

## IEEE Instrumentation and Measurement Society Outstanding Young Engineer Award

The I&M Outstanding Young Engineer Award recognizes an outstanding young I&M member who has distinguished him or herself through achievements, which are technical, of exemplary service to the I&M Society, or a combination of both, early in their career. The nominee must not have reached their 39th birthday and must be an I&M member at the time of nomination.

The 2014 Outstanding Young Engineer Award recipient is:



**Melanie Ooi Po-Leen**  
Monash University  
Australia

*"For leadership and innovation in industry-focused engineering education and research in electronic test technology."*

**Melanie Ooi Po-Leen** received her BE (2006), ME (2006) and PhD (2011) from Monash University – one of the world's top universities by major rankings. She is currently a Senior Lecturer at the School of Engineering of Monash University Malaysia teaching and researching in areas of electronics, computer engineering and instrumentation. Melanie's particular strength lies in her work in a close collaboration and cooperation with leading multinational high-tech companies like Freescale Semiconductor, Texas Instruments, Western Digital, Intel and several others. The extensive industry engagement has led to high-impact research results and excellent work readiness of her graduates. Despite being an early career researcher she has led and contributed to over half a dozen of successful national research projects. Melanie is a strong proponent of the growing role of women in engineering. Her excellent results in education and research have been acknowledged by a number of university, professional organisations and national awards including the 2014 Excellence Award for Best Practice/Innovation from the International Education Association of Australia; 2012 Faculty Course Development Award (co-recipient) from the IEEE Instrumentation and Measurement Society; 2011 Citation for Outstanding Contributions to Student Learning from the Australian Learning and Teaching Council; and 2011 Douglas Lampard Electrical Engineering Research Prize and Medal among others.

She is a Senior Member of IEEE and is actively involved in the IEEE Instrumentation and Measurement Society Chapter in Malaysia.

## IEEE Instrumentation and Measurement Society Technical Award

The I&M Technical Award is given to an individual or group of individuals for outstanding contribution or leadership in advancing instrumentation design or measurement technique.

The 2014 Technical Award recipient is:



**George Xiao**  
*National Research Council  
Canada*

*"For outstanding contributions to the advancement and implementation of safety and security monitoring instrumentation and measurement technologies."*

**Dr. George Xiao** received the Ph.D. degree from Loughborough University (UK) in 1995. He has managed large R&D projects in industries, academics and government labs. Dr. Xiao has transferred several technologies to industries and he has directly contributed to the creation of hundreds high tech jobs in Canada. His career started as a R&D engineer and team leader in Chinese Aerospace Corporation from 1987 to 1992, then a Research Fellow in Ecole National Superior des Mines de Paris from 1995 to 1997, a R&D engineer in JDS Uniphase from 1998 to 1999, a senior product development engineer and a R&D group manager in Zenastra Photonics from 1999 to 2001, a senior product designer in Lumenon Innovative Lightwave Technology from 2001 to 2002. In April 2002 he joined the National Research Council (NRC) of Canada as a research scientist. He is currently a senior Research Officer at NRC.

Dr. Xiao is a senior member of IEEE, an associate editor of IEEE TIM. He is representing the IEEE-IMS as a steering committee member of IEEE/OSA Journal of Lightwave Technology.

Dr. Xiao's expertise covers a wide range of areas. Those related to instrumentation and measurement are listed below:

- E-passport
- Fiber optic sensor system
- Photonics sensing and measurement
- Structural health monitoring
- Sensing systems for indoor air quality monitoring
- Materials characterization

Dr. Xiao has authored more than 100 refereed publications and one co-edited book, more than 10 patent disclosures.

## IEEE Instrumentation and Measurement Society J. Barry Oakes Advancement Award

The I&M Society Career Excellence Award is awarded to recognize demonstrated contributions to IMS science and engineering; potential leadership/project management skills; potential to serve as role model for other engineers.

The 2014 J. Barry Oakes Advancement Award recipient is:



**Mohammad Tayeb Ghasr**

*Missouri University of Science and Technology  
USA*

*"For contributions to the development of real-time millimeter wave imaging systems for nondestructive evaluation applications."*

**Mohammad Tayeb Ghasr** (S'01 - M'10 – SM'12) received his B.S. in electrical engineering degree (Magna Cum laude) from the American University of Sharjah (AUS), Sharjah, in 2002 and his M.S. degree in electrical engineering from the University of Missouri-Rolla, Rolla, in 2004 and the Ph.D. degree in electrical engineering from Missouri University of Science and Technology (Missouri S&T), MO, USA in 2009.

Currently, he is an Assistant Research Professor with the Applied Microwave Nondestructive Testing Laboratory (AMNTL), Electrical and Computer Engineering Department, Missouri University of Science and Technology (Missouri S&T). His research interest is mainly in the area of microwave and millimeter-wave instrumentation and measurement and its application for holographical measurement and 3D SAR imaging. His other interests include nondestructive testing and evaluation, RF circuits, antennas, and numerical electromagnetic analysis. He has over 100 journal papers, conference proceedings and presentations, and technical reports. He has 13 awarded and pending patents in the areas of microwave and millimeter wave imaging and nondestructive testing. He is a recipient of the 2013 H. A. Wheeler Prize Paper Award of the IEEE Antennas and Propagation Society for the paper titled "*Portable Real-Time Microwave Camera at 24 GHz*". He is also the recipient of the 2013 I&M Outstanding Young Engineer Award of the IEEE Instrumentation and Measurement Society "For outstanding contributions to real-time microwave imaging and nondestructive testing systems development."

Dr. Ghasr is a senior member of IEEE including Instrumentation and Measurements, Microwave Theory and Techniques, and Antennas and Propagation societies. He serves as a reviewer for several conferences and journals including; IEEE Transactions on Instrumentation and Measurements (best reviewer 2011, 2013), IEEE Transactions on Microwave Theory and Technique, IEEE Transactions on Antennas and Propagation, Elsevier International Journal of Electronics and Communications, and NDE International.

### IEEE Instrumentation and Measurement Society Graduate Fellowship Award

To be announced.

### IEEE Instrumentation and Measurement Society Faculty Course Development Award

To be announced.

## IEEE Instrumentation and Measurement Society Distinguished Service Award

The I&M Society Distinguished Service Award is presented each year to an individual who has given outstanding service to the Society and to the profession.

The 2014 Distinguished Service Award recipient is:



**Alessandro Ferrero**  
*Politecnico di Milano*  
*Italy*

*“For eighteen years of outstanding leadership on the Society’s AdCom, including service on the IMS Fellow Review Committee, as Chair of the I<sup>2</sup>MTC Board, Vice President for Publications, President, Junior Past President, Senior Past President, and Editor-in-Chief of the Transactions for Instrumentation and Measurement.”*

**Alessandro Ferrero** (M’88–SM’96–F’99) was born in Milan, Italy, in 1954. He received the M.Sc. degree in electrical engineering from Politecnico di Milano in 1978. In 1983, he joined the Dipartimento di Elettrotecnica, Politecnico di Milano, as an Assistant Professor of electrical measurements. From 1987 to 1991, he was with the University of Catania, Catania, Italy, as an Associate Professor of measurements on electrical machines and systems. From 1991 to 1994, he was with the Dipartimento di Elettrotecnica, Politecnico di Milano, as an Associate Professor of electrical measurements. He is presently a Full Professor of electrical and electronic measurements at the Dipartimento di Elettronica, Informazione e Bioingegneria at Politecnico di Milano.

His current research interests include uncertainty evaluation, the application of digital methods to electrical measurements and measurements on electric power systems under nonsinusoidal conditions.

Prof. Ferrero is a member of the Italian Association of Electrical and Electronic Engineers and the Italian Association for Industrial Automation. He has chaired the Italian Association for Electrical and Electronic Measurements for the three-year term 2004–2007 and he has been the President of the IEEE Instrumentation and Measurements Society for the 2008 – 2009 term. He is the recipient of the 2006 Joseph F. Keithley IEEE Field Award for Instrumentation and Measurement. Since 2011 he has been Foreign Member of the Class of Technical Sciences of the Royal Flemish Academy of Belgium for Science and the Arts. In 2014 he received the Doctor Honoris Causa degree from the Polytechnic University of Bucharest, Romania. He has been the Editor-in-Chief of the IEEE Transactions on Instrumentation and Measurement since 2012.

## IEEE Instrumentation and Measurement Society Career Excellence Award

The I&M Society Career Excellence Award is awarded to recognize a lifetime career of meritorious achievement and outstanding technical contribution by an individual in the field of instrumentation and measurement.

The 2014 Career Excellence Award recipient is:



**Steve Sparks**  
*Agilent Technologies*  
USA

*"For half a century of leadership, advancing state-of-the-art test and measurement instruments."*

In the summer of 1964, **Steve Sparks** was recruited by HP fresh from high school graduation as part of a program to recruit, grow and nurture young talents. At that time HP had a program for high school graduates called the Engineering Pool. Its purpose was to give technically inclined high school graduates a glimpse of what it would be like to work at HP. The new recruit has to pass a technical test in order to be accepted in the program. The participants spent one-half the summer on the line, and one half in HP laboratories. Steve started the summer of 1964 in the Labs and was kept there. The work involved making measurements and wiring breadboards. 1964 was the 25th anniversary of HP. It was also the year the Cesium Beam Atomic Clock was introduced. It was also the year that the company flew 18 engineers to countries around the world to synchronize international time standards. "I found that summer (1964) so exciting and so much fun that I decided then and there that I wanted to work there after getting my degree," Steve said. "I continued to work summers, and one day per week during the school year, which I did by having Monday, Wednesday and Friday classes and commuting from Berkeley to Palo Alto on Thursdays. I got my MSEE degree in 1969 and came to work full-time."

During the early years of work at HP, Steve was involved in some blockbuster products. The most significant is probably the 8566 Spectrum Analyzer which is "one of the most widely known, respected and most innovative instruments in the Microwave world". -- An iconic HP instrument. It can still be seen in use today, 36 years after it shipped," Steve recalled proudly.

After moving the Microwave Instruments Division from Palo Alto, CA to Santa Rosa, CA, Steve relocated to Santa Rosa in 1974 where he continued his involvement in the design of Microwave Instruments and Products. Steve was the lead designer in a host of Signal Sources that evolved to the current state of the art Signal Sources Designed and Manufactured by Agilent Technologies. A host of products that Steve had direct involvement is listed in the resume. In the attached documents a web link is provided for each product to provide detailed description of each instrument.

Steve is the lead designer both at system and circuit levels of all state of the art Signal Sources designed by HP/Agilent Technologies for the past two decades or more. Currently, he is leading the design group of Analog and Vector signal generators that will be released by Agilent/Keysight Technologies in the near future.

Aside from Electronics, as a hobby, Steve enjoys spending some time in his Black and White darkroom he has at home, he enjoys making homebrew beer, has a private pilot's license and enjoys backpacking and backcountry driving.

Steve has a wife and two daughters.

## 2015 IEEE Joseph R. Keithley Award in Instrumentation and Measurement

*Sponsored by Keithley Instruments, Inc. and the IEEE Instrumentation and Measurement Society*



### **Jean-Charles Bolomey**

*Emeritus Professor, University Paris Sud  
France*

*"For pioneering contributions to efficient modulated probe array technology for fast electromagnetic near-field techniques and microwave imagery."*

Jean-Charles Bolomey's groundbreaking work on rapid near-field techniques has helped revolutionize the domain of electromagnetic field measurement. Using the modulated scattering technique, during the 1980s Prof. Bolomey demonstrated that simultaneously fast and accurate near-field measurements were possible using probe arrays. This greatly reduced the measurement time compared to the conventional mechanical scan of probes and is now used worldwide in characterizing intentional or nonintentional radiating systems. He also applied the benefits of probe arrays to microwave-based imagery for industrial and medical applications. A pioneer in applying microwave techniques for tomographic imaging, Prof. Bolomey developed a camera with more than 1,000 sensors to provide some of the first-ever images of isolated and perfused organs.

An IEEE Fellow, Dr. Bolomey is an Emeritus Professor, Paris Sud University, Paris, France.

## 2014 Instrumentation and Measurement Society Fellows

### **Paolo Carbone**

*University of Perugia  
Perugia, Italy*

*"For contributions to quantization and data converter theory."*

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### **Nachappa Gopalsami**

*Argonne National Laboratory  
Chicago, IL, USA*

*"For contributions to millimeter-wave spectroscopy, imaging, and reflectometry."*

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### **Gaozhi Xiao**

*National Research Council  
Ottawa, Canada*

*"For contributions to the development of safety and security monitoring instrumentation and measurement technologies."*

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## 2014 Instrumentation and Measurement Society Senior Member Elevations

Robert Estes  
Bradley Gulka  
Siddharth Ladhake  
Horst Rogalla  
Grzegorz Wiczynski  
Jin Bains  
Roberto Tinarelli  
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Yiyu Shi  
Jer-Liang Yeh  
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Phil Bartley  
Manuel C. Blanco  
Dean Hoegemeyer  
David Macii  
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Macaulay Osaisai  
Charles Hayes  
Leonardo Trigo  
Michal Kaczmarek  
Thamir Murad  
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# IEEE Instrumentation and Measurement Society

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Ferdinanda Ponci

Shervin Shirmohammadi

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Dario Petri

Juan Manuel Ramirez Cortés

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**Society Executive Assistant:** Judy Scharmman, *Conference Catalysts, LLC, USA*

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## **Standing Committee Chairs**

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**Society Management:** Ruth A. Dyer, *Kansas State University, USA*

**Publications:** Mark Yeary, *University of Oklahoma, USA*

**Technical Committees and Standards:** Open

# Social Events

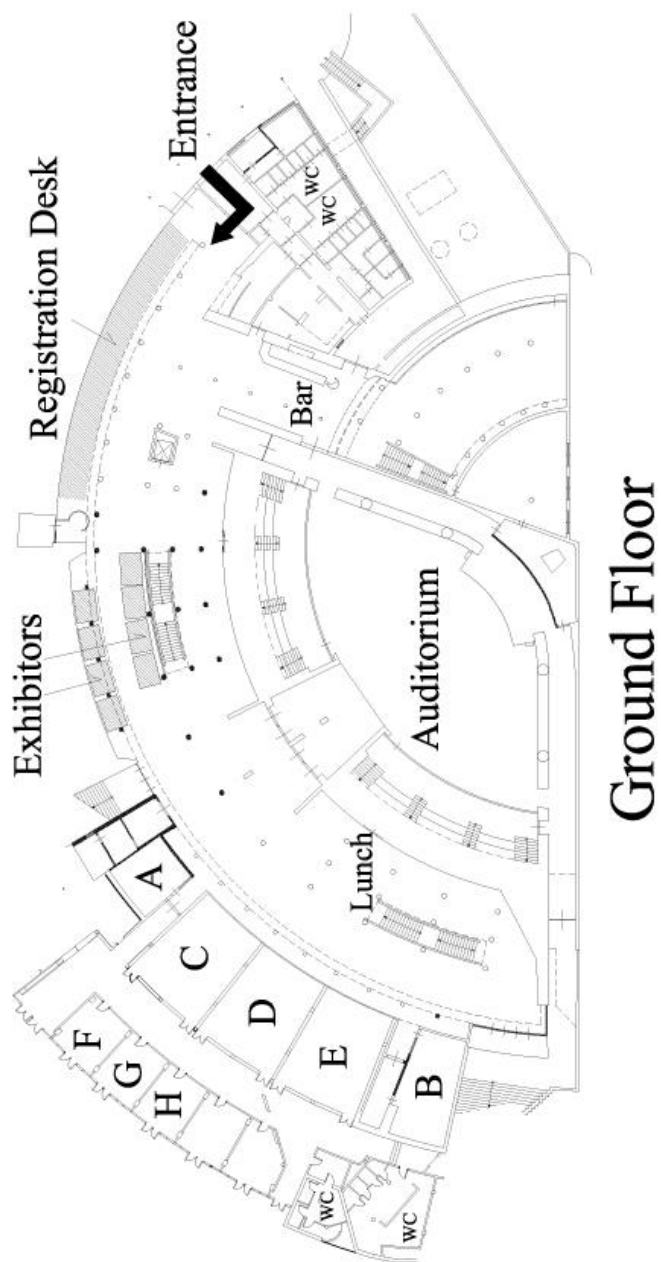
## **Welcome Reception**

All attendees are invited on Tuesday, May 12 at 20:00 to the welcome reception to be held in the cloister of San Francesco (chostro del Convento di San Francesco - via San Francesco, 14, 56127 Pisa), in the very historical center of Pisa. The location is within walking distance from the site of the conference (1.1 km – 15-20 minutes) – please see the map in your conference bag. The welcome party will include a light dinner and is free for all registered participants to the conference. Since we'll be given admittance to the cloister, be sure to bring your badge along.

## **Social Dinner**

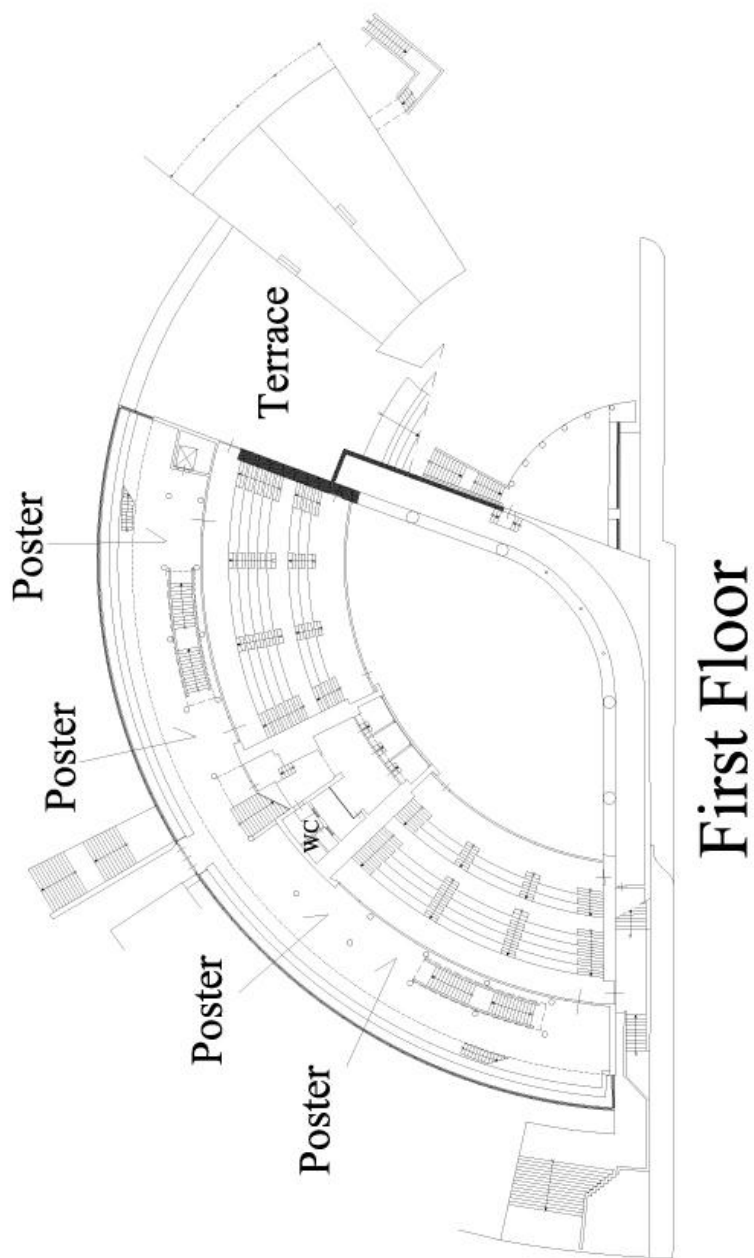
The social dinner will be held on the night of Wednesday, May 13 at the cloister of Carmine (chostro del Carmine, Corso Italia, 85, Pisa). The location is within walking distance from the site of the conference (950 m – 15 minutes) - please see the map in your conference bag. Since we'll be given admittance to the cloister, be sure to bring your badge along.

## Venue Map – Ground Floor



**Ground Floor**

## Venue Map – First Floor



## I2MTC 2015 Schedule Grid – Monday, May 11<sup>th</sup>

Time	Ground Floor Gallery	Room C	Room D	Room E	Room B	Room A
10:00-11:30		Methodology of measurement - <b>Dario Petri, University of Trento, Italy</b>	A Focus on Compressive Sensing Applications in Measurement - <b>Claudio Narduzzi &amp; Guglielmo Frigo, University of Padova, Italy</b>	Mining Sensor and Measurement Data in Real-Time - <b>Paul O'Leary, University of Leoben, Austria</b>	Measuring dynamic systems in the presence of nonlinear distortions and time varying behavior: Going beyond the Linear Time-Invariant framework instrumentation and measurement - <b>Johan Schoukens &amp; Rik Pintelon, Vrije Universiteit Brussel, Belgium</b>	
11:30-12:00	Coffee Break					Chapter Summit
12:00-13:30		Introducing Bayesian reasoning in measurements with a toy experiment - <b>Giulio D'Agostini, University "La Sapienza" and INFN Rome, Italy</b>	Analog to Information Converters: How Compressive Sampling could overcome ADC limitations - <b>Leopoldo Angrisani &amp; Rosario Schiano Lo Moriello, University of Naples Federico II, Italy</b>	Smartphone Instrumentation for Insurance Telematics - <b>Peter Händel &amp; Isaac Skog, Royal Institute of Technology, Sweden</b>	Measuring dynamic systems in the presence of nonlinear distortions - <b>Johan Schoukens &amp; Rik Pintelon, Vrije Universiteit Brussel, Belgium</b>	
13:30-14:30	Lunch					



## I2MTC 2015 Schedule Grid – Monday, May 11<sup>th</sup> (Cont.)

Time	Ground Floor Gallery	Room C	Room D	Room E	Room B	Room A
14:30-16:00		Unobtrusive smart sensing and pervasive computing for healthcare - <b>Octavian Postolache, Instituto de Telecomunicações, Lisboa/IT &amp; Instituto Universitario de Lisboa, ISCTE-IUL, Portugal</b>	Tutorial - Fiber-Optic Sensing for Power and Energy Industries - <b>Pawel Niewczas, University of Strathclyde &amp; Synaptec Ltd, United Kingdom</b>	Superconducting sensors: Josephson junction-based nanocircuits toward coherent caloritronics and thermal measurement devices - linked to SSH - <b>Francesco Giazotto, NEST, Istituto Nanoscienze, CNR and Scuola Normale Superiore Pisa, Italy</b>	Measurement data aggregation in emerging power systems - <b>Mihaela Albu, Politehnica University of Bucharest, Romania</b>	
16:00-16:30						
	Coffee Break					
16:30-18:00		Technology Transfer of Biomedical Equipment: from Bedside to Academia and to Industry to Meet Clinical Needs as Detected by Research - <b>Franco Simini, Universidad de la Republica, Uruguay</b>		Forensic metrology: how measurement can help justice - <b>Veronica Scotti &amp; Alessandro Ferrero, Politecnico di Milano, Italy</b>	Sensors and Measurements for Robotics and Automation - <b>Gourab Sen Gupta, Massey University, New Zealand</b>	
18:00-19:00	Reception - Meet the Tutorial Presenters at the bar of the Palazzo dei Congressi - Bar Area					

# I<sup>2</sup>MTC 2015 Schedule Grid – Tuesday, May 12<sup>th</sup>

Time	Ground Floor Gallery	First Floor Gallery	Auditorium	Room C	Room D	Room E	Room B	Room H	Room G	Room A	
08:30-08:45			Welcome Session								
08:45-09:45			Keynote - An Open Window on Measurements in Particle Physics								
09:45-10:00			Special Announcements								
10:00-10:20		Coffee Break, PPS1:Plenary Poster Session I							Panel on Technical Activities Volunteer Training	Distinguished Lecturers Evaluations	
10:20-12:00											PPS1:Plenary Poster Session I
12:00-12:30											
12:30-13:30	Lunch										
13:30-13:50											TIM Associate Editors Meeting

## I<sup>2</sup>MTC 2015 Schedule Grid – Tuesday, May 12<sup>th</sup> (Cont.)

Time	Ground Floor Gallery	Auditorium	Room C	Room D	Room E	Room B	Room H	Room A
13:50-15:30		SS8: Special Session 8: Superconducting Sensors and Instrumentation	SS1-1: Special Session 1: Advanced Measurement and Data Processing for Complex Engineering System Health Monitoring	SS2: Special Session 2: Going beyond the Linear Time-Invariant framework in instrumentation and measurement	SS3-1: Special Session 3: Instrumentation and measurement for improving quality, reliability and safety: new perspectives for technology and industry	SS4: Special Session 4: Advanced multi-sensor platform for Ambient Assisted Living	TIM Associate Editors Meeting	Distinguished Lecturers Evaluations
15:30-16:00								
16:00-16:20	Coffee Break							
16:20-17:00		TS1-1: Track Event 1: Measurements in Railway Systems	T5-1: Measurement and Instrumentation for Industrial Applications and Processes	T11: Robotics, Control, Mechanical, and Material Measurements	T9-1: Measurement, Instrumentation, and Methodologies for Medical, Biomedical, and Healthcare Systems	T13-1: Signal Processing Techniques		IEEE 21451-001 Working Group Meeting
17:00-18:00								
18:00-18:30							IMS Video Tutorials Meeting	
20:00-22:00								
Welcome Reception - Chiostro Convento San Francisco								

## I<sup>2</sup>MTC 2015 Schedule Grid – Wednesday, May 13<sup>th</sup>

Time	Ground Floor Gallery	Auditorium	Room C	Room D	Room E	Room B	Room G
08:15-09:00		Plenary Talk - Fast Near-Field Measurement Techniques for Characterization of Radiating Systems					
09:00-09:45		Awards, I <sup>2</sup> MTC 2016 Presentation					
09:45-10:00							
10:00-10:05	Coffee Break						
10:05-12:00		T3-1: Energy and Power Systems	SS1-2: Special Session 1: Advanced Measurement and Data Processing for Complex Engineering System Health Monitoring	T5-2: Measurement and Instrumentation for Industrial Applications and Processes	T10-1: Non-invasive Measurement Techniques and Instrumentation	SS3-2: Special Session 3: Instrumentation and measurement for improving quality, reliability and safety: new perspectives for technology and industry	
12:00-12:15							WIM Panel
12:15-13:00		J Barry Oaks Lecture Presentation (Mohammad Ghasr)					

## i<sup>2</sup>MTC 2015 Schedule Grid – Wednesday, May 13<sup>th</sup> (Cont.)

Time	Ground Floor Gallery	First Floor Gallery	Auditorium	Room C	Room D	Room E	Room B	Room G	Room A	
13:00-14:00	Lunch									
14:00-14:20									Graduate Student Panel	I2MTC 2017 Planning Meeting
14:20-16:00		PPS2:Plenary Poster Session II								
16:00-16:10		Coffee Break, PPS2:Plenary Poster Session II								
16:10-16:30										
16:30-16:50		PPS2:Plenary Poster Session II								
16:50-17:00				T7: Measurement of Electric and Magnetic Quantities	SS5: Special Session 5: Measurement fundamentals-challenges towards a unified body of knowledge	T5-3: Measurement and Instrumentation for Industrial Applications and Processes	T6-1: Measurement Applications	T14: Software Development for Measurement and Instrumentation Support	IMS Publications Panel	IMS General TC Meeting
17:00-18:30										
20:00-23:00										

Gala Dinner - Chioistro Del Carmine

## I2MTC 2015 Schedule Grid – Thursday, May 14<sup>th</sup>

Time	Ground Floor Gallery	Auditorium	Room C	Room D	Room E	Room B	Room A
08:15-09:00		Plenary Talk - Measurements for Certification of Railway Systems					
09:00-09:05							I2MTC 2015 Wrap Up Meeting
09:05-10:30		SS7: Special Session 7: Instrumentation and measurements for road safety	T9-2: Measurement, Instrumentation, and Methodologies for Medical, Biomedical, and Healthcare Systems	T1-1: Advances in Instrumentation and Measurement Developments and Techniques	T6-2: Measurement Applications	T3-2: Energy and Power Systems	
10:30-10:50							
10:50-11:00	Coffee Break						
11:00-11:10							
11:10-12:30							
12:30-12:50		T8-1: Measurement Systems and Theory	T9-3: Measurement, Instrumentation, and Methodologies for Medical, Biomedical, and Healthcare Systems	T12-1: Sensors, Actuators, and Transducers, and Sensor Fusion	T13-2: Signal Processing Techniques	T3-3: Energy and Power Systems	

# I2MTC 2015 Schedule Grid – Thursday, May 14<sup>th</sup> (Cont.)

Time	Ground Floor Gallery	Auditorium	Room C	Room D	Room E	Room B	Room A
12:50-13:00	Lunch						I2MTC Board Meeting
13:00-13:50							
13:50-16:00		T51-2: Track Event 1: Measurements in Railway Systems	T6-3: Measurement Applications	T8-2: Measurement Systems and Theory	T2: Data Acquisition Systems and Real-Time Measurements	T1-2: Advances in Instrumentation and Measurement Developments and Techniques	
16:00-16:20	Coffee Break						
16:20-18:30		T9-4: Measurement, Instrumentation, and Methodologies for Medical, Biomedical, and Healthcare Systems	T12-2: Sensors, Actuators, Transducers, and Sensor Fusion	T4: Image Processing and Computational Intelligence Techniques	T10-2: Non-invasive Measurement Techniques and Instrumentation	T5-4: Measurement and Instrumentation for Industrial Applications and Processes	

# I<sup>2</sup>MTC 2015 Tutorials – Monday, May 11<sup>th</sup>

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## Chapter Summit

Room: Room A

10:00 - 18:00

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## Session 1

10:00 - 11:30

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### Methodology of Measurement

Dario Petri (University of Trento, Italy)

Room: Room C

### A Focus on Compressive Sensing Applications in Measurement

Claudio Narduzzi & Guglielmo Frigo (University of Padova, Italy)

Room: Room D

### Mining Sensor and Measurement Data in Real-Time

Paul O'Leary (University of Leoben, Austria)

Room: Room E

### Measuring Dynamic Systems in the Presence of Nonlinear Distortions and Time Varying Behavior: Going Beyond the Linear Time-Invariant Framework in Instrumentation and Measurement

Johan Schoukens & Rik Pintelon (Vrije Universiteit Brussel, Belgium)

Room: Room B

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## Coffee Break

Room: Ground Floor Gallery

11:30 - 12:00

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## Session 2

12:00 - 13:30

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### Introducing Bayesian Reasoning in Measurements With a Toy Experiment

Giulio D'Agostini (University "La Sapienza" and INFN Rome, Italy)

Room: Room C

### Analog to Information Converters: How Compressive Sampling Could Overcome ADC Limitations

Leopoldo Angrisani & Rosario Schiano Lo Moriello (University of Naples Federico II, Italy)

Room: Room D

### Smartphone Instrumentation for Insurance Telematics

Peter Händel & Isaac Skog (Royal Institute of Technology, Sweden)

Room: Room E

### Measuring Dynamic Systems in the Presence of Nonlinear Distortions...

Johan Schoukens & Rik Pintelon (Vrije Universiteit Brussel, Belgium)

Room: Room B



# I<sup>2</sup>MTC 2015 Tutorials – Monday, May 11<sup>th</sup>

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## **Lunch**

**Room:** Ground Floor Gallery

**13:30 - 14:30**

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## **Session 3**

**14:30 - 16:00**

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### **Unobtrusive Smart Sensing and Pervasive Computing for Healthcare**

Octavian Postolache (Instituto de Telecomunicações, Lisboa/IT & Instituto Universitario de Lisboa, ISCTE-IUL, Portugal)

**Room:** Room C

### **Fiber-Optic Sensing for Power and Energy Industries**

Pawel Niewczas (University of Strathclyde & Synaptec Ltd, United Kingdom)

**Room:** Room D

### **Superconducting Sensors: Josephson Junction-Based Nanocircuits Toward Coherent Caloritronics and Thermal Measurement Devices - linked to SS8**

Francesco Giazotto (NEST, Istituto Nanoscienze, CNR and Scuola Normale Superiore Pisa, Italy)

**Room:** Room E

### **Measurement data aggregation in emerging power systems**

Mihaela Albu (Politehnica University of Bucharest, Romania)

**Room:** Room B

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## **Coffee Break**

**Room:** Ground Floor Gallery

**16:00 - 16:30**

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## **Session 4**

**16:30 - 18:00**

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### **Technology Transfer of Biomedical Equipment: from Bedside to Academia and to Industry to Meet Clinical Needs as Detected by Research**

Franco Simini (Universidad de la Republica, Uruguay)

**Room:** Room C

### **Forensic metrology: How Measurement Can Help Justice**

Veronica Scotti & Alessandro Ferrero (Politecnico di Milano, Italy)

**Room:** Room E

### **Sensors and Measurements for Robotics and Automation**

Gourab Sen Gupta (Massey University, New Zealand)

**Room:** Room B

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## **Reception - Meet the Tutorial Presenters at the bar of the Palazzo dei Congressi - Bar Area**

**Room:** Ground Floor Gallery

**18:00 - 19:00**

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**Tuesday, May 12<sup>th</sup>**

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**08:30 - 08:45**

**Welcome Session**

**Room:** Auditorium

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**08:45 - 09:45**

**Keynote - An Open Window on Measurements in Particle Physics**

Nigel Lockyer (Fermi National Accelerator Laboratory, Italy)

**Room:** Auditorium

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**09:45 - 10:00**

**Special Conference Announcements**

**Room:** Auditorium

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**10:00 - 12:00**

**Panel on Technical Activities Volunteer Training**

**Room:** Room G

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**10:00 - 15:00**

**Distinguished Lecturers Evaluations**

**Room:** Room A

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**10:00 - 10:20**

**Coffee Break**

**Room:** First Floor Gallery

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**10:00 - 12:30**

**PPS1: Plenary Poster Session I**

**Room:** First Floor Gallery

**Chairs:** Luca De Vito (University of Sannio, Italy), Peter Händel (Royal Institute of Technology, Sweden), Mirko Marracci (University of Pisa, Italy), Fernando Rangel de Sousa (Federal University of Santa Catarina, Brazil), Simona Salicone (Politecnico di Milano, Italy), Stephen C Stubberud (Oakridge Technology, USA)

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**PPS1-2: New Technologies and Perspectives for Laboratory Practices in Measurement Science**

*Francesco Adamo (Polytechnic of Bari, Italy)*

*Filippo Attivissimo (Polytechnic of Bari, Italy)*

*Giuseppe Cavone (Polytechnic of Bari, Italy)*

*Carlo Guarneri Calò Carducci (Polytechnic of Bari, Italy)*

*Anna Maria Lucia Lanzolla (Polytechnic of Bari, Italy)*

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**PPS1-3: Measurement System with a RFID Tag Antenna Mounted on Structural Members for Infrastructure Health Monitoring**

*Devaka Jayawardana (University of Western Sydney, Australia)*

*Sergey Kharkovsky (University of Western Sydney, Australia)*

*Ranjith Liyanapathirana (University of Western Sydney, Australia)*

Tuesday, May 12<sup>th</sup>

**PPS1-4: Using Synchronism Pulse to Improve A2I Implementations**

*Vanderson Reis (CDMI-IFAM, Brazil)*

*Edmar Candeia Gurjão (Federal University of Campina Grande, Brazil)*

*Raimundo Freire (Universidade Federal de Campina Grande - PB, Brazil)*

**PPS1-5: Plant Root Exit Point Search Algorithm for Weed Control Applications in Organic Farming**

*Florian Knoll (West Coast University of Applied Sciences, Germany)*

*Tim Holtorf (West Coast University of Applied Sciences, Germany)*

*Marvin Schmidt (West Coast University of Applied Sciences, Germany)*

*Stephan Hussmann (West Coast University of Applied Sciences, Germany)*

**PPS1-6: Fast Correspondence Search Algorithm for Stereo Vision Range Sensors**

*Florian Johannes Knoll (West Coast University of Applied Sciences, Germany)*

*Tim Holtorf (West Coast University of Applied Sciences, Germany)*

*Stephan Hussmann (West Coast University of Applied Sciences, Germany)*

**PPS1-7: A Fast Algorithm for Tracking Moving Objects Based on Spatio-Temporal Video Segmentation and Cluster Ensembles**

*Yumi Monma (Univ. Federal do Rio Grande do Sul, Brazil)*

*Luciano Silva (Univ. Federal do Rio Grande, Brazil)*

*Jacob Scharcanski (Univ. Federal do Rio Grande do Sul, Brazil)*

**PPS1-8: Stochastic Color Image Segmentation Using Spatial Constraints**

*Dionicio Vásquez (Federal University of Rio Grande do Sul, Brazil)*

*Jacob Scharcanski (Federal University of Rio Grande do Sul, Brazil)*

*Alexander Wong (University of Waterloo, Canada)*

**PPS1-9: Method to Measure and Analysis of Electromagnetic Interference Shielding Efficiency of Composites in X-Band Waveguide**

*Bashaiah Sindam (University of Hyderabad, India)*

*Jinu Jacob George (Rubber Research Institute of India, India)*

*K.C. James Raju (University of Hyderabad, India)*

**PPS1-10: Pulsar Signal Denoising Method Based on Multivariate Empirical Mode Decomposition**

*Jing Jin (Harbin Institute of Technology, P.R. China)*

*Xiuxiu Ma (Harbin Institute of Technology, P.R. China)*

*Xiaoyu Li (Harbin Institute of Technology, P.R. China)*

*Shen Yi (Harbin Institute of Technology, P.R. China)*

*Liangwei Huang (China Academy of Space Technology, P.R. China)*

*Liang He (Shanghai Aerospace Control Technology Institute, P.R. China)*

**PPS1-11: An Innovative Image Enhancement Method for Edge Preservation in Wavelet Domain**

*Jing Jin (Harbin Institute of Technology, P.R. China)*

*Songyuan Tang (Harbin Institute of Technology, P.R. China)*

*Shen Yi (Harbin Institute of Technology, P.R. China)*

**PPS1-12: Gas-Water Two-Phase Flow Characterization with ERT and Multivariate MLE**

*Nana Wang (Tianjin University, P.R. China)*

*Chao Tan (Tianjin University, P.R. China)*

*Feng Dong (Tianjin University, P.R. China)*

**PPS1-13: A Novel Stochastic Model for the Impulsive Noise in the Narrowband Indoor PLC Environment**

*Hela Gassara (University of Carthage, Tunisia)*

*Fatma Rouissi (University of Carthage, Tunisia)*

*Adel Ghazel (University of Carthage, Tunisia)*

**PPS1-14: Quasi-Peak Response of EMI Receiver to Corona Pulses**

*Yang Liu (North China Electric Power University, P.R. China)*

*Xiang Cui (North China Electric Power University, P.R. China)*

*Tiebing Lu (North China Electric Power University, P.R. China)*

*Xuebao Li (North China Electric Power University, P.R. China)*

*Zhenguo Wang (North China Electric Power University, P.R. China)*

**PPS1-15: A Novel Method for Target Amplitude Estimation Based on Spectrum Analysis**

*Yangyan Zhang (Huazhong University of Science and Technology, P.R. China)*

*Xiaofei Yang (Huazhong University of Science and Technology, P.R. China)*

*Shi Chen (Huazhong University of Science and Technology, P.R. China)*

*Shaojie Duan (Huazhong University of Science and Technology, P.R. China)*

*Jun Ouyang (Huazhong University of Science and Technology, P.R. China)*

**PPS1-16: A System for Turbogenerator Predictive Maintenance Based on Electrical Signature Analysis**

*Camila P Salomon (Institute Gnarus, Brazil)*

*Wilson Santana (Institute Gnarus, Brazil)*

*Erik Bonaldi (Institute Gnarus, Brazil)*

*Levy Oliveira (Institute Gnarus, Brazil)*

*Jonas Silva (Institute Gnarus, Brazil)*

*Luiz Eduardo Borges da Silva (Institute Gnarus, Brazil)*

*Germano Lambert-Torres (Institute Gnarus, Brazil)*

*Alexandre Pellicel (Termonorte, Brazil)*

*Marco Aurelio Lopes (Termonorte, Brazil)*

*Gonçalo Figueiredo (Termonorte, Brazil)*

**PPS1-17: Impact of Measurement Setup and Test Load on the Accuracy of Harmonic Current Emission Measurements**

*Ana M Blanco (Technische Universität Dresden, Germany)*

*Ronny Gelleschus (Technische Universität Dresden, Germany)*

*Jan Meyer (Technische Universität Dresden, Germany)*

*Peter Schegner (Technische Universität Dresden, Germany)*

**PPS1-18: Tuneable and Portable Lighting System for Visible Light Communications (TP-VLC)**

*Jorge E Higuera (Catalonia Institute for Energy Research, IREC, Spain)*

*Blai Verge (Catalonia Institute for Energy Research, IREC, Spain)*

*Mariano Peralvarez (Catalonia Institute for Energy Research, IREC, Spain)*

*Josep Carreras (Catalonia Institute for Energy Research, IREC, Spain)*

**PPS1-19: Detecting Defects in Photovoltaic Modules with the Help of Experimental Verification and Synchronized Thermography**

*Christian Schuss (University of Oulu, Finland)*

*Kimmo K Leppänen (University of Oulu, Finland)*

*Juha Saarela (University of Oulu, Finland)*

*Tapio Fabritius (University of Oulu, Finland)*

*Bernd Eichberger (Graz University of Technology, Austria)*

*Timo Rahkonen (University of Oulu, Finland)*

Tuesday, May 12<sup>th</sup>

**PPS1-20: Evaluating Ambient Conditions for Solar Chargers with the Help of Sensors on Smartphones**

*Christian Schuss (University of Oulu, Finland)*  
*Jaakko Huikari (University of Oulu, Finland)*  
*Tore Leikanger (University of Oulu, Finland)*  
*Bernd Eichberger (Graz University of Technology, Austria)*  
*Timo Rahkonen (University of Oulu, Finland)*

**PPS1-21: Uncertainty Sources Affecting Voltage Profile in Distribution System State Estimation**

*Marco Pau (University of Cagliari, Italy)*  
*Paolo Attilio Pegoraro (University of Cagliari, Italy)*  
*Sara Sulis (University of Cagliari, Italy)*  
*Carlo Muscas (University of Cagliari, Italy)*

**PPS1-22: Measurement of Transient Enclosure Voltage in a 220kV Gas Insulated Substation**

*Cai Yuanji (Tsinghua University, P.R. China)*  
*Guan Yonggang (Tsinghua University, P.R. China)*  
*Liu Weidong (Tsinghua University, P.R. China)*

**PPS1-23: An Automatic Voltage Disturbance Classification System Based on Clonal Selection Algorithm**

*Bruno Willian de Souza Arruda (Federal University of Campina Grande - UFCG, Brazil)*  
*Cleonilson Protasio Souza (Federal University of Para'iba, Brazil)*  
*Raimundo Freire (Federal University of Campina Grande - UFCG, Brazil)*

**PPS1-24: A Simple Method for the THD Improvement of a MV Arbitrary Waveform Generators**

*Ting Lei (Politecnico di Milano, Italy)*  
*Marco Faifer (Politecnico di Milano, Italy)*  
*Roberto Ottoboni (Politecnico di Milano, Italy)*  
*Sergio Toscani (Politecnico di Milano, Italy)*  
*Claudio Cherbaucich and Paolo Mazza (RSE S.p.A., Italy)*  
*Paolo Mazza (RSE S.p.A., Italy)*

**PPS1-25: Fast, High Accuracy, Freely Programmable Single Cell Battery Measurement System**

*Michael Grubmüller (Graz University of Technology, Austria)*  
*Bernhard Schweighofer (Graz University of Technology, Austria)*  
*Hannes Wegleiter (Graz University of Technology, Austria)*

**PPS1-26: Development of an Electrostatic Array Sensor for Measuring the Velocity and Concentration Profiles of Pneumatically Conveyed Particles**

*James Coombes (University of Kent, United Kingdom)*  
*Yong Yan (University of Kent, United Kingdom)*

**PPS1-27: Identification of Oil-Water Flow Patterns Using Conductance Probe in Vertical Well**

*Jianjun Chen (Beihang University, P.R. China)*  
*Lijun Xu (Beihang University, P.R. China)*  
*Zhang Cao (Beihang University, P.R. China)*  
*Xingbin Liu (Production Logging Institute, Daqing Logging & Testing Services Company, P.R. China)*  
*Jinhai Hu (Production Logging Institute, Daqing Logging & Testing Services Company, P.R. China)*

**PPS1-28: A Simple Microcontroller Based Digitizer for Differential Inductive Sensors**

*Nandagopal Ramadoss (Indian Institute of technology Madras, India)*  
*Boby George (Indian Institute of technology Madras, India)*

**Tuesday, May 12<sup>th</sup>**

**PPS1-29: Dielectric Spectroscopy for Measuring the Composition of Gasoline/Water/Ethanol Mixtures**

*Ger De Graaf (Delft University of Technology, The Netherlands)*  
*Reinoud Wolffenbuttel (Delft University of Technology, The Netherlands)*  
*Giuseppe Lacerenza (Delft University of Technology, The Netherlands)*  
*Jaco Visser (Ford Motor Company, USA)*

**PPS1-30: High Spatial and Temporal Resolution Film Thickness Planar Sensor: Comparison of Geometries**

*Adriana Bonilla Riaño (University of Campinas, Brazil)*  
*Antonio Carlos Bannwart (University of Campinas, Brazil)*  
*Oscar M H Rodriguez (University of São Paulo, Brazil)*

**PPS1-31: PC Based Eddy Current Non-Destructive Testing (NDT) System**

*Sumayya Abbas (National University of Sciences & Technology, Pakistan)*  
*Taha Ali (National University of Sciences and Technology, Pakistan)*  
*Uzair Gilani (National University of Sciences & Technology, Pakistan)*  
*Shayan Ahmed (National University of Sciences & Technology, Pakistan)*  
*Iqra Sajid (National University of Sciences & Technology, Pakistan)*  
*Faisal Amir (National University of Sciences & Technology, Pakistan)*  
*Tariq Mairaj khan (National University of Sciences and Technology, Pakistan)*

**PPS1-32: Investigation of Different Shapes of Plastic Optical Fiber Sensor for Refractometry and Detection of Bacteria**

*Domingos M.C. Rodrigues (Universidade Federal do Rio de Janeiro, Brazil)*  
*Regina Allil (Universidade Federal do Rio de Janeiro, Brazil)*  
*Vanessa Queiroz (Universidade Federal do Rio de Janeiro, Brazil)*  
*Rafaela Lopes (Universidade Federal do Rio de Janeiro, Brazil)*  
*Marcelo Werneck (Universidade Federal do Rio de Janeiro, Brazil)*

**PPS1-33: Prediction of NOx Emissions From a Biomass Fired Combustion Process Through Digital Imaging, Non-negative Matrix Factorization and Fast Sparse Regression**

*Nan Li (North China Electric Power University, P.R. China)*  
*Gang Lu (University of Kent, United Kingdom)*  
*Xinli Li (North China Electric Power University, P.R. China)*  
*Yong Yan (University of Kent, United Kingdom & North China Electric Power University, P.R. China)*

**PPS1-34: A Platform for Multiple DC Corona Effects Measurements and Analysis**

*Xuebao Li (North China Electric Power University, P.R. China)*  
*Xiang Cui (North China Electric Power University, P.R. China)*  
*Tiebing Lu (North China Electric Power University, P.R. China)*  
*Donglai Wang (North China Electric Power University, P.R. China)*  
*Zhenguo Wang (North China Electric Power University, P.R. China)*  
*He Zhang (North China Electric Power University, P.R. China)*

**PPS1-35: Accuracy Analysis in the Estimation of ToF of TDR Signals**

*Nicola Giaquinto (University of Salento, Italy)*  
*Giuseppe D'Aucelli (Politecnico di Bari, Italy)*  
*Egidio De Benedetto (University of Salento, Italy)*  
*Giuseppe Cannazza (University of Salento, Italy)*  
*Andrea Cataldo (University of Salento, Italy)*  
*Emanuele Piuze (Sapienza University of Rome, Italy)*  
*Antonio Masciullo (University of Salento, Italy)*

**PPS1-36: An Autonomous Water Sampling and Monitoring Device for Deployment in Harsh Underground Environment**

*Martin Pucher (University of Leoben, Austria)*  
*Paul O'Leary (University of Leoben, Austria)*  
*Christoph Gugg (University of Leoben, Austria)*  
*Claudio Hoefler-Oellinger (Geoconsult ZT GmbH, Austria)*

**PPS1-37: TTH Library: a New Tool for Diagnostic Assessment of Oil&Gas Applications**

*Marcantonio Catelani (University of Florence, Italy)*  
*Lorenzo Ciani (University of Florence, Italy)*  
*Matteo Venzi (University of Florence, Italy)*  
*Roberto Conti (Florence University, Italy)*  
*Enrico Meli (Florence University, Italy)*  
*Luca Pugi (University of Florence, Italy)*  
*Andrea Rindi (University of Florence, Italy)*  
*Stefano Rossin (University of Florence, Italy)*

**PPS1-38: Acoustic Emission Localization on A Large Anisotropic Composite Plate**

*Junjun Tang (Tsinghua University, P.R. China)*  
*Wenxiu Lu (Tsinghua University, P.R. China)*  
*Zheng Li (Tsinghua University, P.R. China)*  
*Fulei Chu (Tsinghua University, P.R. China)*

**PPS1-39: Condition Monitoring of a Complex Hydraulic System Using Multivariate Statistics**

*Nikolai Helwig (Centre for Mechatronics and Automation Technology, Germany)*  
*Eliseo Pignanelli (Centre for Mechatronics and Automation Technology, Germany)*  
*Andreas Schütze (Saarland University & Centre for Mechatronics and Automation Technology, Germany)*

**PPS1-40: Nonparametric Estimation of a Time-variant System: An Experimental Study of B-splines and the Regularization Based Smoothing**

*Péter Zoltán Csúrcsá (Vrije Universiteit Brussel, Belgium)*  
*Johan Schoukens (Vrije Universiteit Brussel, Belgium)*

**PPS1-41: Nonparametric Volterra Kernel Estimation Using Regularization**

*Georgios Birpoutsoukis (Vrije Universiteit Brussel, Belgium)*  
*Johan Schoukens (Vrije Universiteit Brussel, Belgium)*

**PPS1-42: Output Error Bounds for Discrete-Time Models with Forced Delay Under Band-Limited Assumptions an Experimental Study**

*Rishi Relan (Vrije Universiteit Brussel, Belgium)*  
*Johan Schoukens (Vrije Universiteit Brussel, Belgium)*

**PPS1-43: Design of Excitations for Structure Discrimination of Nonlinear Systems, Using the Best Linear Approximation**

*Alireza Fakhrizadeh Esfahani (Vrije Universiteit Brussel, Belgium)*  
*Johan Schoukens (Vrije Universiteit Brussel, Belgium)*  
*Laurent Vanbeylen (Vrije Universiteit Brussel, Belgium)*

**PPS1-44: Adaptive Drift Calibration of Accelerometers with Direct Velocity Measurements**

*Michael Rockwood (Carleton University, Canada)*  
*Bruce Wallace (Carleton University, Canada)*  
*Rafik Goubran (Carleton University, Canada)*  
*Frank Knoefel (Carleton University, Canada)*  
*Shawn Marshall (Ottawa Hospital, Canada)*

Tuesday, May 12<sup>th</sup>

**PPS1-45: CARDEAGate: Low-Cost, ZigBee-based Localization and Identification for AAL Purposes**

*Claudio Guerra (University of Parma, Italy)*  
*Valentina Bianchi (University of Parma, Italy)*  
*Ilaria De Munari (University of Parma, Italy)*  
*Paolo Ciampolini (University of Parma, Italy)*

**PPS1-46: Preliminary Design Issues for Inertial Rings in Ambient Assisted Living Applications**

*Dario Esposito (Scuola Superiore Sant'Anna, Italy)*  
*Filippo Cavallo (Scuola Superiore Sant'Anna, Italy)*

**PPS1-47: Induction Motor Fault Diagnosis Using Multiple Class Feature Selection**

*Xueliang Yang (Southeast University, P.R. China)*  
*Ruqiang Yan (Southeast University, P.R. China)*  
*Robert X. Gao (University of Connecticut, USA)*

**PPS1-48: Leakage Detection of Gaseous CO<sub>2</sub> Through Thermal Imaging**

*Kehinde Adefila (University of Kent, United Kingdom)*  
*Yong Yan (University of Kent, United Kingdom)*  
*Tao Wang (KROHNE Ltd, United Kingdom)*

**PPS1-49: Feasibility of Air Quality Monitoring Systems Based on Environmental Energy Harvesting**

*Damiano Crescini (University of Brescia, Italy)*  
*Farid Touari (Qatar University, Qatar)*  
*Alessio Galli (Qatar University, Qatar)*  
*Paolo Crescini (University of Brescia, Italy)*  
*Abdel Ben Mnaouer (Canadian University of Dubai, UAE)*

**PPS1-50: Design and Implementation of Automotive Data Acquisition Platform**

*Gregorio Andria (Polytechnic of Bari, Italy)*  
*Filippo Attivissimo (Polytechnic of Bari, Italy)*  
*Attilio Di Nisio (Polytechnic of Bari, Italy)*  
*Anna Maria Lucia Lanzolla (Polytechnic of Bari, Italy)*  
*Angelo Pellegrino (Polytechnic of Bari, Italy)*

**PPS1-51: An Innovative Method of Train Integrity Monitoring Through Wireless Sensor Network**

*Benedetto Allotta (University of Florence, Italy)*  
*Pierluca D'Adamio (University of Florence, Italy)*  
*Susanna Papini (University of Florence, Italy)*  
*Luca Pugi (University of Florence, Italy)*  
*Daniele Faralli (University of Florence, Italy)*

**PPS1-52: Large Eddy Simulation and Hilbert Huang Transform for Fluctuation Pressure of High Speed Train**

*Yanan Wang (Southwest Jiaotong University, P.R. China)*  
*Chunjun Chen (Southwest Jiaotong University, P.R. China)*  
*Hongyang He (Southwest Jiaotong University, P.R. China)*

**PPS1-53: Voice Pathology Detection by Fuzzy Logic**

*Daria Panek (AGH University of Science and Technology, Poland)*  
*Andrzej Skalski (AGH University of Science and Technology, Poland)*  
*Janusz Gajda (AGH University of Science and Technology, Poland)*



Tuesday, May 12<sup>th</sup>

**PPS1-54: Fault Feature Extraction of Planetary Gearboxes Under Nonstationary Conditions Based on Reassigned Wavelet Scalogram**

*Xiaowang Chen (University of Science and Technology Beijing, P.R. China)*

*Zhipeng Feng (University of Science and Technology Beijing, P.R. China)*

*Ming Liang (University of Ottawa, Canada)*

**PPS1-55: Study on the Test System of Non-coaxial Laser Detecting Field**

*Bingting Zha (Nanjing University of Science and Technology, P.R. China)*

*He Zhang (Nanjing University of Science and Technology, P.R. China)*

**PPS1-56: Coupling Analysis in the Calibration Process of Electro-Optical Detection Systems**

*Qijian Tang (Tianjin University, P.R. China & Brunel University, United Kingdom)*

*Xiangjun Wang (Tianjin University, P.R. China)*

*Qingping Yang (Brunel University, United Kingdom)*

**PPS1-57: Indoor Localization System for Emergency Responders with Ultra Low-power Radio Landmarks**

*Nikolas Simon (University of Freiburg, Germany)*

*Joan Bordoy (University of Freiburg, Germany)*

*Fabian Höflinger (University of Freiburg, Germany)*

*Johannes Wendeberg (University of Freiburg, Germany)*

*Marc Schink (University of Freiburg, Germany)*

*Robert Tannhaeuser (University of Freiburg, Germany)*

*Leonhard Reindl (University of Freiburg, Germany)*

*Christian Schindelbauer (University of Freiburg, Germany)*

**PPS1-58: Effect of Periodic Cable Nonuniformities on Transmission Measurements**

*Gilvan Borges (UFPA, Brazil)*

*Roberto Menezes Rodrigues (UFPA, Brazil)*

*Joao Crisostomo Weyl Costa (UFPA, Brazil)*

*Antoni Fertner (Ericsson AB, Sweden)*

*Adam Santos (UFPA, Brazil)*

**PPS1-59: A Measurement Setup for THz Detectors Characterization Validated on FET-Based CMOS Test Structures**

*Muhammad Ali (Fondazione Bruno Kessler, Italy)*

*Matteo Perenzoni (Fondazione Bruno Kessler, Italy)*

*David Stoppa (Fondazione Bruno Kessler, Italy)*

**PPS1-60: A Chemi-ionization Processing Approach for Characterizing Flame Flickering Behavior**

*Fangyan Li (Beihang University, P.R. China)*

*Lijun Xu (Beihang University, P.R. China)*

*Zhang Cao (Beihang University, P.R. China)*

*Minglong Du (Beihang University, P.R. China)*

**PPS1-61: Measurement of Horses Gaits Using Geo-Sensors**

*Xuefei Qin (University of Gävle, Sweden)*

*Niclas Björzell (University of Gävle, Sweden)*

**PPS1-62: High Frequency Characterization and Modeling Via Measurements of Power Electronic Capacitors Under High Bias Voltage and Temperature Variations**

*Fahim Hami (IRSEEM/ESIGELEC & VeDeCoM, France)*

*Habib Boulzazen (IRSEEM/ESIGELEC, France)*

*Moncef Kadi (IRSEEM/ESIGELEC, France)*

Tuesday, May 12<sup>th</sup>

**PPS1-63: Transmitter Leakage Analysis When Operating USRP (N210) in Duplex Mode**

Arul Mathi Maran Chandran (Missouri University of Science and Technology, USA)  
Maciej Zawodniok (Missouri University of Science and Technology, USA)

**PPS1-64: Development of an Heterogeneous Wireless Sensor Network for Instrumentation and Analysis of Beehives**

Fiona Edwards Murphy (University College Cork, Ireland)  
Emanuel M. Popovici (University College Cork, Ireland)  
Pádraig Whelan (University College Cork, Ireland)  
Michele Magno (ETH Zurich, Switzerland)

**PPS1-65: Validation of a Time-Variant Electrical Equivalent Circuit for a Dry Bacteriorhodopsin Sensor**

Joonas P. Talvitie (Lappeenranta University of Technology, Finland)  
Teemu Tukiainen (Lappeenranta University of Technology, Finland)  
Lasse Lensu (Lappeenranta University of Technology, Finland)  
Tommi J. Kärkkäinen (Lappeenranta University of Technology, Finland)  
Pertti Silventoinen (Lappeenranta University of Technology, Finland)  
Mikko P. J. Kuisma (Lappeenranta University of Technology, Finland)

**PPS1-66: Cryogenic Microwave Wideband Measurements of Superconducting Thin Films**

Enrico Silva (Università Roma Tre, Italy)  
Nicola Pompeo (Università Roma Tre, Italy)  
Kostiantyn Torokhtii (Università Roma Tre, Italy)  
Stefano Sarti (Sapienza Università di Roma, Italy)

**PPS1-67: A Wire-Mesh Sensor for Air-Water Two-Phase Flow Imaging**

Weiling Liu (Tianjin University, P.R. China)  
Chao Tan (Tianjin University, P.R. China)  
Feng Dong (Tianjin University, P.R. China)

**PPS1-68: Water Continuous Oil-Water Flow Velocity Measurement Based on Continuous Waves Ultrasonic Doppler Method**

Xiaoxiao Dong (Tianjin University, P.R. China)  
Chao Tan (Tianjin University, P.R. China)  
Feng Dong (Tianjin University, P.R. China)

**PPS1-69: Subcutaneous Veins Depth Estimation Method Using Monte Carlo Simulations**

Aamir Shahzad (Universiti Teknologi PETRONAS, Malaysia)  
Chai Tyng (Universiti Teknologi PETRONAS, Malaysia)  
Mohamad Naufal Mohamad Saad (Universiti Teknologi PETRONAS, Malaysia)  
Nicolas Walter (Universiti Teknologi PETRONAS, Malaysia)  
Aamir S Malik (Universiti Teknologi PETRONAS, Malaysia)  
Fabrice Meriaudeau (University of Burgundy, France)

**PPS1-70: A Novel Switched-Capacitor Capacitance-to-Digital Converter for Single Element Capacitive Sensors**

Vijayakumar Sreenath (Indian Institute of Technology Madras, India)  
Boby George (Indian Institute of Technology Madras, India)

**PPS1-71: Magnetic Behavior Measurements Under High Frequency Mechanical Solicitations**

Olivier Ghibaudo (University Grenoble Alpes, France)  
Herve Chazal (University Grenoble Alpes, France)  
Nicolas Galopin (University Grenoble Alpes, France)  
Lauric Garbuio (University Grenoble Alpes, France)

Tuesday, May 12<sup>th</sup>

**PPS1-72: Dedicated Hardware Implementation of a High Precision Power Quality Meter**

*Victor Araújo (Laboratório de Sistemas Integráveis e Tecnológicos, Brazil)*

*Raul Acosta (Laboratório de Sistemas Integráveis e Tecnológicos, Brazil)*

*Eduardo Simas Filho (Federal University of Bahia, Brazil)*

*Amauri Oliveira (Federal University of Bahia, Brazil)*

*Wagner Oliveira (Federal University of Bahia, Brazil)*

**PPS1-73: Feasibility Study of A Non-Contact AC Voltage Measurement System**

*Shenil P S (Indian Institute of Technology Madras, India)*

*Arjun Raveendranath (Indian Institute of Technology Madras, India)*

*Boby George (Indian Institute of Technology Madras, India)*

**PPS1-74: Data Validation and Dynamic Uncertainty Estimation of Self-validating Sensor**

*Yinsheng Chen (Harbin Institute of Technology, P.R. China)*

*Jingli Yang (Harbin Institute of Technology, P.R. China)*

*Shouda Jiang (Harbin Institute of Technology, P.R. China)*

**PPS1-76: Precision Kilovolt DC Voltage Source for Capacitance Load Application**

*Shisong Li (Tsinghua University, P.R. China)*

*Wei Zhao (Tsinghua University, P.R. China)*

*Songling Huang (Tsinghua University, P.R. China)*

*Zhonghua Zhang (National Institute of Metrology, P.R. China)*

*Zhengkun Li (National Institute of Metrology, P.R. China)*

**PPS1-77: Neural Decision Support System for Ultrasound Nondestructive Evaluation Embedded in a DSP**

*Manoel Silva (Federal University of Bahia, Brazil)*

*Fabio Cruz (State University of Santa Cruz, Brazil)*

*Paulo Farias (Federal University of Bahia, Brazil)*

*Eduardo Simas Filho (Federal University of Bahia, Brazil)*

*Maria Cléa Soares Albuquerque (Federal Institute of Bahia, Brazil)*

*Claudia Farias (Federal Institute of Bahia, Brazil)*

*Ivan Silva (Federal Institute of Bahia, Brazil)*

**PPS1-78: Dissolved Hydrogen Detection in Power Transformer Based on Etched Fiber Bragg Grating**

*Jun Jiang (North China Electric Power University, P.R. China)*

*Hong-Tu Song (North China Electric Power University, P.R. China)*

*Guo-ming Ma (North China Electric Power University, P.R. China)*

*Cheng-Rong Li (North China Electric Power University, Beijing, P.R. China)*

*Ying-Ting Luo (Electric Power Research Institute of Guangdong Power Grid Corporation, P.R. China)*

*Hong-Bin Wang (Electric Power Research Institute of Guangdong Power Grid Corporation, P.R. China)*

**PPS1-79: Multi-floor Navigation Method for Mobile Robot Transportation Based on StarGazer Sensors in Life Science Automation**

*Ali Abduljalil Abdulla Abdulla (Center for Life Science Automation, Germany)*

*Hui Liu (University of Rostock, Germany)*

*Norbert Stoll (University of Rostock & Institute of Automation, Germany)*

*Kerstin Thurow (Center for Life Science Automation, Germany)*

**PPS1-80: A Low-Cost Passive Wireless Capacitive Sensing Tag Based on Split-Ring Resonator**

*Roddy A Romero (Federal University of Santa Catarina, Brazil)*

*Renato Feitoza (Federal University of Santa Catarina, Brazil)*

*Carlos Rambo (Federal University of Santa Catarina, Brazil)*

*Fernando Rangel de Sousa (Federal University of Santa Catarina, Brazil)*

Tuesday, May 12<sup>th</sup>

**PPS1-81: Photocurrent Measurement Through Frequency Domain Analysis**

*Chee-Chiang Derrick Tiew (Monash University Malaysia, Singapore)*

*Ye Chow Kuang (Monash University Malaysia, Malaysia)*

**PPS1-82: Efficient Magnetic Biasing Scheme for a Bragg-Grating-Based Magnetostrictive Alternating Current Sensor**

*Fábio V. B. de Nazaré (Universidade Federal do Rio de Janeiro/COPPE, Brazil)*

*Marcelo Werneck (Universidade Federal do Rio de Janeiro/COPPE, Brazil)*

**PPS1-83: Effects of Material Type and Surface Roughness of the Rotor on the Electrostatic Sensing Based Rotational Speed Measurement**

*Lijuan Wang (North China Electric Power University, P.R. China)*

*Yong Yan (University of Kent, United Kingdom)*

*Yonghui Hu (North China Electric Power University, P.R. China)*

*Xiangchen Qian (North China Electric Power University, P.R. China)*

**PPS1-84: A Simple Measurement Scheme for Multiple Capacitors and Its Application to an Ophthalmic Anesthesia Training System**

*Biswarup Mukherjee (Indian Institute of Technology Madras, India)*

*Boby George (Indian Institute of Technology Madras, India)*

*Mohanasankar Sivaprakasam (Indian Institute of Technology Madras, India)*

**PPS1-85: Capacitive Tactile Sensor with Slip Detection Capabilities for Robotic Applications**

*Narendiran Anandan (Indian Institute of Technology Madras, India)*

*Boby George (Indian Institute of Technology Madras, India)*

**PPS1-86: Naive Bayesian Learning for Small Training Samples: Application on Chronic Low Back Pain Diagnostic with sEMG Sensors**

*Manouane Caza-Szoka (Universite du Quebec a Trois-Rivieres, Canada)*

*Daniel Massicotte (Universite du Quebec a Trois-Rivieres, Canada)*

*François Nougrou (Universite du Quebec a Trois-Rivieres, Canada)*

**PPS1-87: Optimization and Development of Concurrent EEG-fMRI Data Acquisition Setup for Understanding Neural Mechanisms of Brain**

*Rana Fayyaz Ahmad (Universiti Teknologi PETRONAS, Malaysia)*

*Aamir S Malik (Universiti Teknologi PETRONAS, Malaysia)*

*Nidal Kamel (Universiti Teknologi PETRONAS, Malaysia)*

*Faruque Reza (Universiti Sains Malaysia, Malaysia)*

*Ahmad Helmy Abdul Karim (Universiti Sains Malaysia, Malaysia)*

**PPS1-88: Evaluation of Thermal Patterns and Distribution Applied to the Study of Diabetic Foot**

*Daniel Hernandez-Contreras (Instituto Nacional de Astrofísica, Óptica y Electrónica, Mexico)*

*Hayde Peregrina-Barreto (Instituto Nacional de Astrofísica, Óptica y Electrónica, Mexico)*

*Jose J. Rangel-Magdaleno (Instituto Nacional de Astrofísica, Óptica y Electrónica, Mexico)*

*Juan Ramirez-Cortes (Instituto Nacional de Astrofísica, Óptica y Electrónica, Mexico)*

*Francisco Renero-Carrillo (Instituto Nacional de Astrofísica, Óptica y Electrónica, Mexico)*

*Gabriel Aviña-Cervantes (Universidad de Guanajuato, Mexico)*

**PPS1-89: Coded Sequences Aided Improvement of the Robustness in Mean Scatterer Spacing Measurement with Ultrasonic Backscattering**

*Wenlei Pan (Harbin Institute of Technology, P.R. China)*

*Shen Yi (Harbin Institute of Technology, P.R. China)*

*Ting Liu (Harbin Institute of Technology, P.R. China)*

*Yan Wang (Harbin Institute of Technology, P.R. China)*

*Qiang Wang (Harbin Institute of Technology, P.R. China)*

Tuesday, May 12<sup>th</sup>

**PPS1-90: A Low Power Multi-Frequency Current Mode Lock-in Amplifier for Impedance Sensing**

*Jinlong Gu (University of Tennessee, USA)*

*Nicole McFarlane (University of Tennessee, USA)*

**PPS1-91: Application of Dual-arm Robot in Biomedical Analysis: Sample Preparation and Transport**

*Xianghua Chu (University of Rostock & Center for Life Science Automation, Germany)*

*Heidi Fleischer (University of Rostock, Germany)*

*Norbert Stoll (University of Rostock & Institute of Automation, Germany)*

*Michael Klos (Yaskawa Europe GmbH, Germany)*

*Kerstin Thurow (Center for Life Science Automation - CELISCA, Germany)*

**PPS1-92: Automation of a Multiple Robot Self-Organizing Multi-Hop Mobile Ad-hoc Network (MANET) Using Signal Strength**

*Philip Necsulescu (Universität Würzburg, Germany)*

*Klaus Schilling (University of Würzburg, Germany)*

**PPS1-93: Non-invasive Blood Pressure Measurement by Pulse Wave Analysis Using FBG Sensor**

*Y Katsuragawa (Shinshu University, Japan)*

*H Ishizawa (Shinshu University, Japan)*

**PPS1-94: Arm Grasping for Mobile Robot Transportation Using Kinect Sensor and Kinematic Analysis**

*Mohammed Myasar Ali (University of Rostock & Center for Life Science Automation - CELISCA, Germany)*

*Hui Liu (University of Rostock, Germany)*

*Regina Stoll (University of Rostock, Germany)*

*Kerstin Thurow (Center for Life Science Automation - CELISCA, Germany)*

**PPS1-95: Application of Artificial Vision as Measurement Validation Tests on A Robotic Hand Driven by Shape-Memory Alloys**

*Andre Silva (Federal University of Paraíba – UFPB, Brazil)*

*Alexsandro Santos (Federal University of Paraíba – UFPB, Brazil)*

*Cícero Souto (Federal University of Paraíba – UFPB, Brazil)*

*Simplicio Silva (Federal University of Paraíba - UFPB, Brazil)*

*Evandro Filho (Federal University of Paraíba - UFPB, Brazil)*

**PPS1-96: Generation of Electricity Using Tubular PZT**

*Renato F. Rangel (Federal University of Paraíba – UFPB, Brazil)*

*Cícero Souto (Federal University of Paraíba – UFPB, Brazil)*

*Alexsandro Santos (Federal University of Paraíba – UFPB, Brazil)*

*Roberto Pimentel (Federal University of Paraíba – UFPB, Brazil)*

**PPS1-97: Automatically Density Based Breast Segmentation for Mammograms by Using Dynamic K-means Algorithm and Seed Based Region Growing**

*Abdelali Elmoufidi (University of Hassan II, Morocco)*

*Khalid El Fahssi (University of Hassan II, Morocco)*

*Said Jai-Andaloussi (University of Hassan II, Morocco)*

*Abderrahim Sekkaki (University of Hassan II, Morocco)*

**PPS1-101: Switching Local Search Particle Filtering for Heat Exchanger Degradation Prognosis**

*Peng Wang (University of Connecticut, USA)*

*Robert X. Gao (University of Connecticut, USA)*

*Zhaoyan Fan (University of Connecticut, USA)*

Tuesday, May 12<sup>th</sup>

**PPS1-102: Bond Graph for Design Improvement of a Multivariate Sensor**

*Xinyao Tang (University of Connecticut, USA)*

*Robert X. Gao (University of Connecticut, USA)*

*Zhaoyan Fan (University of Connecticut, USA)*

*David Kazmer (University of Massachusetts, Lowell, USA)*

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**12:30 - 13:50**

**Lunch**

**Room:** Ground Floor Gallery

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**13:30 - 15:30**

**TIM Associate Editor Meeting**

**Room:** Room H

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**13:50 - 16:00**

**SS8: Special Session 8: Superconducting Sensors and Instrumentation**

**Room:** Auditorium

**Chair:** Emanuela Barzi (Fermi National Accelerator Laboratory, USA)

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**INVITED TALK: Superconductivity in the Future of CERN**

Sergio Bertolucci (CERN, Switzerland)

**Development of Superconducting Tunnel Junction Detectors as a Far-Infrared Photon-By-Photon Spectrometer for Neutrino Decay Search**

*Yuji Takeuchi (University of Tsukuba, Japan)*

*Shin-Hong Kim (University of Tsukuba, Japan)*

*Kenichi Takemasa (University of Tsukuba, Japan)*

*Kenji Kiuchi (University of Tsukuba, Japan)*

*Kazuki Nagata (University of Tsukuba, Japan)*

*Kota Kasahara (University of Tsukuba, Japan)*

*Takuya Okudaira (University of Tsukuba, Japan)*

*Tatsuya Ichimura (University of Tsukuba, Japan)*

*Masahiro Kanamaru (University of Tsukuba, Japan)*

*Kouya Moriuchi (University of Tsukuba, Japan)*

*Ren Senzaki (University of Tsukuba, Japan)*

*Shunsuke Yagi (University of Tsukuba, Japan)*

*Takuo Yoshida (University of Fukui, Japan)*

*Masashi Hazumi (High Energy Accelerator Research Organization, Japan)*

*Yasuo Arai (High Energy Accelerator Research Organization, Japan)*

*Erik Ramberg (Fermi National Accelerator Laboratory, USA)*

*Jonghee Yoo (Fermi National Accelerator Laboratory, USA)*

*Mark Kozlovsky (Fermi National Accelerator Laboratory, USA)*

*Paul Rubinov (Fermi National Accelerator Laboratory, USA)*

*Dmitri Sergatskov (Fermi National Accelerator Laboratory, USA)*

*Satoru Mima (RIKEN, Japan)*

*Hirokazu Ikeda (Institute of Space and Astronautical Science, JAXA, Japan)*

*Shuji Matsuura (Institute of Space and Astronautical Science, JAXA, Japan)*

*Takehiko Wada (Institute of Space and Astronautical Science, JAXA, Japan)*

*Yukihiro Kato (Kinki University, Japan)*

*Shigetomo Shiki (Advanced Industrial Science and Technology (AIST), Japan)*

*Masahiro Ukibe (Advanced Industrial Science and Technology (AIST), Japan)*

*Go Fujii (Advanced Industrial Science and Technology (AIST), Japan)*

*Tetsuya Adachi (Advanced Industrial Science and Technology (AIST), Japan)*

*Masataka Ohkubo (Advanced Industrial Science and Technology (AIST), Japan)*

*Hirokazu Ishino (Okayama University, Japan)*

*Atsuko Kibayashi (Okayama University, Japan)*

*Soo-Bong Kim (Seoul National University, Korea)*

Tuesday, May 12<sup>th</sup>

**Superconductors in a Dc Magnetic Field: Parameters Derived From Microwave Measurements**

*Enrico Silva (Università Roma Tre, Italy)*  
*Kostiantyn Torokhtii (Università Roma Tre, Italy)*  
*Nicola Pompeo (Università Roma Tre, Italy)*

**Superconductor Requirements and Characterization for High Field Accelerator Magnets**

*Emanuela Barzi (Fermi National Accelerator Laboratory, USA)*  
*A. V. Zlobin (Fermi National Accelerator Laboratory, USA)*

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**13:50 - 16:00**

**SS1-1: Special Session 1: Advanced Measurement and Data Processing for Complex Engineering System Health Monitoring**

**Room:** Room C

**Chair:** Xuefeng Chen (Xian Jiaotong University, P.R. China)

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**Early Fault Feature Determination for Rolling Element Bearing Based by Using Improved Reassigned Wavelet Scalogram**

*Hongkun Li (Dalian University of Technology, P.R. China)*  
*Yuanjie Ren (Dalian University of Technology, P.R. China)*  
*Delu He (Dalian University of Technology, P.R. China)*  
*Ming Cong (Dalian University of Technology, P.R. China)*

**Wind Turbine Condition Monitoring by Detecting the Transient Period of A Single Generator Stator Current Signal**

*Wenxian Yang (Newcastle University, United Kingdom)*  
*Sunny Tian (Newcastle University, United Kingdom)*  
*Zhike Peng (Shanghai Jiaotong University, P.R. China)*

**Time-Frequency Manifold Histogram Matching for Transient Signal Detection**

*Qingbo He (University of Science and Technology of China, P.R. China)*

**Feature Identification with Compressive Measurements for Machine Fault Diagnosis**

*Zhaohui Du (Xi'an Jiaotong University, P.R. China)*  
*Xuefeng Chen (Xi'an Jiaotong University, P.R. China)*  
*Han Zhang (Xi'an Jiaotong University, P.R. China)*

**Bearing Fault Classification Using Firefly Clustering**

*Weihua Li (South China University of Technology, P.R. China)*  
*Waiping Shan (South China University of Technology, P.R. China)*  
*Shenglong Weng (South China University of Technology, P.R. China)*

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**13:50 - 16:00**

**SS2: Special Session 2: Going Beyond the Linear Time-Invariant framework in instrumentation and Measurement**

**Room:** Room D

**Chairs:** John Lataire (Vrije Universiteit Brussel, Belgium), Johan Schoukens (Vrije Universiteit Brussel, Belgium)

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**System Identification for Human Motion Control**

*Martijn Vlaar (Delft University of Technology, The Netherlands)*  
*Alfred Schouten (Delft University of Technology & University of Twente, The Netherlands)*

**A Local Approach for the Modeling of Linear Parameter-Varying Systems Based on Transfer Function Interpolation with Scaling Coefficients**

*Francesco Ferranti (Vrije Universiteit Brussel, Belgium)*  
*Yves Rolain (Vrije Universiteit Brussel, Belgium)*

**Tuesday, May 12<sup>th</sup>**

**Wiener-Hammerstein systems and harmonic identification**

*Laurent Baratchart (INRIA, France)*

*Yves Rolain (Vrije Universiteit Brussel, Belgium)*

*Matthias Caenepeel (Vrije Universiteit Brussel, Belgium)*

**Generalizing Periodically Time-Varying Measurements with a Parameter-Varying Input-Output Model**

*Jan Goos (Vrije Universiteit Brussel, Belgium)*

*Ebrahim Louarroudi (Vrije Universiteit Brussel, Belgium)*

*Rik Pintelon (Vrije Universiteit Brussel, Belgium)*

**Reducing the Measurement Time of the Best Linear Approximation of a Nonlinear System Using Improved Averaging Methods**

*Tadeusz Dobrowiecki (Budapest University of Technology and Economics, Hungary)*

*Johan Schoukens (Vrije Universiteit Brussel, Belgium)*

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**13:50 - 16:00**

**SS3-1: Special Session 3: Instrumentation and Measurement for Improving Quality, Reliability and Safety: New Perspectives for Technology and Industry**

**Room:** Room E

**Chair:** Loredana Cristaldi (Politecnico di Milano, Italy)

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**INVITED TALK: Data driven services for Automation**

Marco Ulrich (ABB, Germany)

**INVITED TALK: Data driven services for Power industries**

Marco Ulrich (ABB, Germany)

**An Algorithm for Data-Driven Prognostics Based on Statistical Analysis of Condition Monitoring Data on a Fleet Level**

*Simone Turrin (ABB AG, Corporate Research Center Germany, Germany)*

*Subanatarajan Subbiah (ABB AG, Corporate Research Center Germany, Germany)*

*Giacomo Leone (Politecnico di Milano, Italy)*

*Loredana Cristaldi (Politecnico di Milano, Italy)*

**Reliability Odyssey: After 2001**

*Giorgio Turconi (Politecnico di Milano, Italy)*

**Gas Turbine Sensor Loop Availability Driven Fall Back Strategies Design**

*Tommaso Addabbo (University of Siena, Italy)*

*Ada Fort (University of Siena, Italy)*

*Marco Mugnaini (University of Siena, Italy)*

*Valerio Vignoli (University of Siena, Italy)*



Tuesday, May 12<sup>th</sup>

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**13:50 - 16:00**

**SS4: Special Session 4: Advanced Multi-Sensor Platform for Ambient Assisted Living**

**Room:** Room B

**Chair:** Bruno Andò (University of Catania, Italy)

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**Advanced Multi-Sensor Platform for Chronic Disease Home Monitoring**

*Luca Fanucci (University of Pisa, Italy)*

*Massimiliano Donati (University of Pisa, Italy)*

*Alessio Celli (University of Pisa, Italy)*

*Giuseppe Spingola (TD Nuove Tecnologie S.p.a, Italy)*

*Fabio Ottonelli (SECO, Italy)*

*Massimiliano Ghilardi (Insiel Mercato, Italy)*

*Cesara Aragno (Kell S.r.l, Italy)*

*Luigi Cristiano (Kell S.r.l, Italy)*

**Daylong Sitting Posture Measurement with a New Wearable System for At Home Body Movement Monitoring**

*Mauro Serpelloni (University of Brescia, Italy)*

*Emilio Sardini (University of Brescia, Italy)*

*Viviane Pasqui (ISIR, France)*

**Monitoring User Position in the GiraffPlus AAL Environment**

*Paolo Barsocchi (ISTI-CNR, Italy)*

*Amedeo Cesta (National Research Council of Italy, Italy)*

*Gabriella Cortellessa (National Research Council of Italy, Italy)*

*Filippo Palumbo (University of Pisa & National Research Council (CNR), Italy)*

**Multiparameter Electromagnetic Sensor for AAL Indoor Measurement of the Respiration Rate and Position of a Subject**

*Lorenzo Scalise (Polytechnic University of Marche, Italy)*

*Valerio Petrini (Polytechnic University of Marche, Italy)*

*Valentina Di Mattia (Polytechnic University of Marche, Italy)*

*Paola Russo (Polytechnic University of Marche, Italy)*

*Alfredo De Leo (Polytechnic University of Marche, Italy)*

*Giovanni Manfredi (Polytechnic University of Marche, Italy)*

*Graziano Cerri (Polytechnic University of Marche, Italy)*

**Smart-phone Application for Autonomous Indoor Positioning**

*Lazar Berbakov (Institute Mihailo Pupin, Serbia)*

*Bogdan Pavkovic (Institute Mihajlo Pupin, Serbia)*

*Sanja Vraneš (Institute Mihajilo Pupin, Serbia)*

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**16:00 - 16:20**

**Coffee Break**

**Room:** Ground Floor Gallery

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**16:00 - 18:00**

**IEEE 21451-001 Working Group Meeting**

**Room:** Room A

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**16:20 - 18:30**

**TS1-1: Track Event 1: Measurements in Railway Systems**

**Room:** Auditorium

**Chair:** Massimo Macucci (University of Pisa, Italy)

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**De-noising of Rail Crack AE Signal Based on Wavelet Modulus Maxima**

*Qiushi Hao (Harbin Institute of Technology, P.R. China)*

*Shen Yi (Harbin Institute of Technology, P.R. China)*

*Yan Wang (Harbin Institute of Technology, P.R. China)*

*Xin Zhang (Harbin Institute of Technology, P.R. China)*

**A Localization Algorithm for Railway Vehicles**

*Alessandro Ridolfi (University of Florence, Italy)*

*Benedetto Allotta (University of Florence, Italy)*

*Pierluca D'Adamio (University of Florence, Italy)*

*Monica Malvezzi (University of Siena, Italy)*

*Luca Pugi (University of Florence & Dip. Ingegneria Industriale, Italy)*

*Gregorio Vettori (University of Florence, Italy)*

**Train-side Passive Magnetic Measurements**

*Oliver Heirich (DLR - German Aerospace Center, Germany)*

*Benjamin Siebler (DLR - German Aerospace Center, Germany)*

**Track Detection in 3D Laser Scanning Data of Railway Infrastructure**

*Timo Hackel (ETH Zurich, Switzerland)*

*Denis Stein (Karlsruhe Institute of Technology (KIT), Germany)*

*Ingo Mairdorfer (Fraunhofer Institute for Physical Measurement Techniques (IPM), Germany)*

*Martin Lauer (Karlsruhe Institute of Technology (KIT), Germany)*

*Alexander Reiterer (Fraunhofer Institute for Physical Measurement Techniques (IPM), Germany)*

**Rail Health Monitoring Using Acoustic Emission Technique Based on NMF and RVM**

*Naizhang Feng (Harbin Institute of Technology, P.R. China)*

*Xin Zhang (Harbin Institute of Technology, P.R. China)*

*Zhongxian Zou (Harbin Institute of Technology, P.R. China)*

*Yan Wang (Harbin Institute of Technology, P.R. China)*

*Shen Yi (Harbin Institute of Technology, P.R. China)*

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**16:20 - 18:30**

**T5-1: Measurement and Instrumentation for Industrial Applications and Processes**

**Room:** Room C

**Chair:** Yong Yan (University of Kent, United Kingdom)

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**Design of an FPGA-Based Eddy Current Instrument for the Detection of Corrosion Pits**

*Sergio Alberto Rodriguez Gutierrez (The University of Manchester, United Kingdom)*

*Yuxi Wang (The University of Manchester, United Kingdom)*

*Robert Akid (The University of Manchester, United Kingdom)*

*Rafael Leiva-Garcia (The University of Manchester, United Kingdom)*

*Wuliang Yin (The University of Manchester, United Kingdom)*

*Robert Akid (The University of Manchester, United Kingdom)*

**AQUA - a Non-destructive Online System for Solid Material Property Measurement**

*Feng Ding (CRIQ, Canada)*

*Philippe Gagné (CRIQ, Canada)*

*Hubert Talbot (CRIQ, Canada)*

*Claude Lejeune (CRIQ, Canada)*

Tuesday, May 12<sup>th</sup>

**Determining the Electromagnetic Polarizability Tensors of Metal Objects From Rotation Measurements**

*Yifei Zhao (University of Manchester, United Kingdom)*

*Wuliang Yin (University of Manchester, United Kingdom)*

*Christos Ktistis (University of Manchester, United Kingdom)*

*Anthony Peyton (University of Manchester, United Kingdom)*

*Daren Butterworth (University of Manchester, United Kingdom)*

**Evaluation of Time-Gated Fluorescence Spectroscopy for the Classification of Fluorescently Labeled Plastics**

*Petr Fomin (University of the Bundeswehr Munich, Germany)*

*Siegfried Brunner (University of the Bundeswehr Munich, Germany)*

*Christian Kargel (University of the Bundeswehr Munich, Germany)*

**Confocal Displacement Sensor with Varifocal Lens**

*Chun-Jen Weng (National Chiao Tung University & National Applied Research Laboratories, Taiwan)*

*Tzu-Hsien Lan (National Chiao Tung University, Taiwan)*

*Chi-Hung Hwang (National Applied Research Laboratories, Taiwan)*

*Da-Ren Liu (National Applied Research Laboratories, Taiwan)*

*Pi-Ying Cheng (National Chiao Tung University, Taiwan)*

*Ken-Yuh Hsu (National Chiao Tung University, Taiwan)*

*Chih-Yen Chen (National Applied Research Laboratories, Taiwan)*

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**16:20 - 18:30**

**T11: Robotics, Control, Mechanical, and Material Measurements**

**Room:** Room D

**Chair:** Leopoldo Angrisani (University of Naples Federico II, Italy)

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**Design and Characterization of a Measurement System for Dielectric Spectroscopy Investigations on Granular Materials in the 2.45 GHz ISM Band**

*Emanuele Piuze (Sapienza University of Rome, Italy)*

*Simone Chicarella (Sapienza University of Rome, Italy)*

*Fabrizio Frezza (Sapienza University of Rome, Italy)*

*Stefano Pisa (Sapienza University of Rome, Italy)*

*Santo Prontera (Sapienza University of Rome, Italy)*

*Fabrizio Timpani (Sapienza University of Rome, Italy)*

*Giuseppe Cannazza (University of Salento, Italy)*

*Andrea Cataldo (University of Salento, Italy)*

*Egidio De Benedetto (University of Salento, Italy)*

**SPARTANS - A Cooperating Spacecraft Testbed for Autonomous Proximity Operations Experiments**

*Andrea Valmorbida (University of Padova, Italy)*

*Mattia Mazzucato (University of Padova, Italy)*

*Sergio Tronco (University of Padova, Italy)*

*Stefano Debei (University of Padova, Italy)*

*Enrico Lorenzini (University of Padova, Italy)*

**SINS/DVL/LBL Interactive Aiding Positioning Technology Based on AUV**

*Tao Zhang (Southeast University, P.R. China)*

*Xiaosu XU (Southeast University, P.R. China)*

Tuesday, May 12<sup>th</sup>

**Linear Time-invariant Feedback Operator for Mobile Robot Trajectory Tracking**

Suruz Miah (*University of Ottawa, Canada*)

Wail Gueaieb (*University of Ottawa, Canada*)

Peter Farkas (*University of Ottawa, Canada*)

Salah Al-Sharhan (*Gulf University for Science and Technology, Kuwait*)

Davide Spinello (*University of Ottawa, Canada*)

**Simultaneous Measurement of Conveyor Belt Speed and Vibration Using an Electrostatic Sensor Array**

Yonghui Hu (*North China Electric Power University, P.R. China*)

Lijuan Wang (*North China Electric Power University, P.R. China & University of Kent, United Kingdom*)

Xiaoyu Wang (*North China Electric Power University, P.R. China*)

Xiangchen Qian (*North China Electric Power University, P.R. China*)

Yong Yan (*University of Kent, United Kingdom*)

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**16:20 - 18:30**

**T9-1: Measurement, Instrumentation, and Methodologies for Medical, Biomedical, and Healthcare Systems**

**Room:** Room E

**Chair:** Voicu Groza (*University of Ottawa, Canada*)

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**Feasibility Study of in Vivo Bone Depth Measurement Using High Frequency Ultrasound**

Romano Giannetti (*Universidad Pontificia Comillas, Spain*)

Anthony Petrella (*Colorado School of Mines, USA*)

Joel Bach (*Colorado School of Mines, USA*)

Anne Silverman (*Colorado School of Mines, USA*)

**Estimation of Arrhythmia Episode Using Variational Mode Decomposition Technique**

Uday Maji (*Haldia Instiyute of Technology, India*)

Saurabh Pal (*Heritage Institute of Technology, India*)

Swanirbhar Majumder (*NERIST, India*)

**Measuring Spectral Organization in Atrial Fibrillation**

John Dyer (*University of Oklahoma, USA*)

Sepehr Malakouti (*University of Oklahoma, USA*)

Stavros Stavrakis (*University of Oklahoma Health Sciences Center, USA*)

**A Low Power Integrated Bowel Sound Measurement System**

Khandaker Abdullah Al Mamun (*The University of Tennessee, USA*)

Mohammad Habib Ullah Habib (*University of Tennessee, USA*)

Nathanael Paul (*University of South Florida, USA*)

Nicole McFarlane (*University of Tennessee, USA*)

**Study of Excitation Signals Parameters for Portable Biomedical Devices**

Dhouha Bouchaala (*Technische Universität Chemnitz, Germany*)

Emna Mekki (*University of Sfax, Tunisia*)

Thomas Guenther (*Technische Universität Chemnitz, Germany*)

Paul Büschel (*Technische Universität Chemnitz, Germany*)

Olfa Kanoun (*Technische Universität Chemnitz, Germany*)

Nabil Derbel (*University of Sfax, Tunisia*)

**Tuesday, May 12<sup>th</sup>**

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**16:20 - 18:30**

**T13-1: Signal Processing Techniques**

**Room:** Room B

**Chair:** Pasquale Arpaia (Dipartimento di Ingegneria, Università del Sannio, Italy)

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**Impact of Regularization in FIR Estimation for Short and Long Data Records**

*Anna Marconato (Vrije Universiteit Brussel, Belgium)*

*Johan Schoukens (Vrije Universiteit Brussel, Belgium)*

**An Adaptive Threshold Technique for the LR Detector in K-Clutter. Validation Using IPIX Radar**

*David Mata-Moya (University of Alcalá, Spain)*

*Nerea del Rey-Maestre (University of Alcalá, Spain)*

*Maria -Pilar Jarabo-Amores (University of Alcalá, Spain)*

*Jaime Martín de Nicolás-Presa (University of Alcalá, Spain)*

*Jose Luis Bárcena-Humanes (University of Alcalá, Spain)*

**FFT-based Spectrum Analysis in the Case of Data Loss**

*László Sujbert (Budapest University of Technology and Economics, Hungary)*

*György Orosz (Budapest University of Technology and Economics, Hungary)*

**Distorted Exponential Signal Analyser Based on Modified Prony-like Method**

*Francesco Lamonaca (University of Calabria, Italy)*

*Domenico Luca Carnì (University of Calabria, Italy)*

*Giuseppe Fedele (University of Calabria, Italy)*

*Domenico Grimaldi (University of Calabria, Italy)*

**Parameter Identification of Thermoelectric Modules Using Particle Swarm Optimization**

*Daniel Ojeda (Universidade Federal do ABC, Brazil)*

*Omar Chura Vilcanqui (Universidade Federal do Acre, Brazil)*

*Luiz Alberto Luz de Almeida (Universidade Federal do ABC, Brazil)*

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**17:00 - 18:30**

**IMS Video Tutorials Meeting**

**Room:** Room H

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**20:00 - 22:00**

**Welcome Reception - Chioistro Convento San Francesco**

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## Wednesday, May 13<sup>th</sup>

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**08:15 - 09:00**

**Plenary Talk - Fast Near-Field Measurement Techniques for Characterization of Radiating Systems**

Jean-Charles Bolomey (Emeritus Professor, University Paris Sud, Italy)

Room: Auditorium

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**09:00 - 09:45**

**Awards (Announcements), I<sup>2</sup>MTC 2016 Presentation**

Room: Auditorium

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**09:45 - 10:05**

**Coffee Break**

Room: Ground Floor Gallery

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**10:00 - 12:00**

**WIM Panel**

Room: Room G

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**10:05 - 12:15**

**T3-1: Energy and Power Systems**

Room: Auditorium

Chair: Alessandro M Ferrero (Politecnico di Milano, Italy)

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**Defining and Measuring Synchrophasors Based on Symmetry Principles**

*Kempei Seki (Mitsubishi Electric Corporation, Japan)*

**Estimation of the Apparent Power by Products of the DFT Coefficients Using Maximum Sidelobe Decay Rife-Vincent Windows**

*Dušan Agrež (University of Ljubljana, Slovenia)*

*Jalen Štremfelj (Milan Vidmar Electric Power Research Institute, Slovenia)*

**A Smarter Meter: IEEE-1459 Power Definitions in an Off-the-Shelf Smart Meter**

*Andrew Berrisford (BC Hydro, Canada)*

**Measurements with Uniform Aggregated Weighting Using Boxcar Filters for Time-Synchronised Metering, Power Quality Assessment, and Control**

*Andrew J. Roscoe (University of Strathclyde, United Kingdom)*

**Utilization of Xilinx FPGA Built-in Analog-to-Digital Converter (XADC) for Data Acquisition in Power Electronics Converter**

*Chuen Ling Toh (Norwegian University of Science and Technology, Norway)*

*Lars Norum (Norwegian University of Science and Technology, Norway)*

Wednesday, May 13<sup>th</sup>

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**10:05 - 12:15**

**SS1-2: Special Session 1: Advanced Measurement and Data Processing for Complex Engineering System Health Monitoring**

**Room:** Room C

**Chairs:** Xuefeng Chen (Xian Jiaotong University, P.R. China), Weihua Li (South China University of Technology, P.R. China)

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**Successive Approximation Method for the Measurement of Thickness Using Pulsed Eddy Current**

*Lulu Tian (University of Electronic Science and Technology of China, P.R. China)*

*Yuhua Cheng (University of Electronic Science and Technology of China, P.R. China)*

*Chun Yin (University of Electronic Science and Technology of China, P.R. China)*

*Libing Bai (University of Electronic Science and Technology of China, P.R. China)*

**Selection of Significant Independent Components in Eddy Current Pulsed Thermography Non-destructive Testing**

*Peipei Zhu (University of Electronic Science and Technology of China, P.R. China)*

*Yuhua Cheng (University of Electronic Science and Technology of China, P.R. China)*

*Libing Bai (University of Electronic Science and Technology of China, P.R. China)*

*Chun Yin (University of Electronic Science and Technology of China, P.R. China)*

**Time-Frequency Distribution Decomposition with Application to Detection of Rotor Rub-Impact Fault**

*Wang Yan (Xi'an Jiaotong University, P.R. China)*

*Zhousuo Zhang (Xi'an Jiaotong University, P.R. China)*

*Shibin Wang (Xi'an Jiaotong University, P.R. China)*

**Experiments on Battery Capacity Estimation**

*Zheng Liu (Toyota Technological Institute, Japan)*

*Rosario Morello (University Mediterranea of Reggio Calabria, Italy)*

*Wei Wu (Sichuan University, P.R. China)*

**Applicability of Linear and Nonlinear Principal Component Analysis for Damage Detection**

*Adam Santos (Federal University of Pará, Brazil)*

*Eloi Figueiredo (Lusófona University, Portugal)*

*Moisés Felipe Silva (Federal University of Pará, Brazil)*

*Claudio Sales (Federal University of Pará, Brazil)*

*Joao Crisostomo Weyl Costa (Federal University of Pará, Brazil)*

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**10:05 - 12:15**

**T5-2: Measurement and Instrumentation for Industrial Applications and Processes**

**Room:** Room D

**Chair:** Dario Petri (University of Trento, Italy)

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**Robust Machine Vision Based Displacement Analysis for Tunnel Boring Machines**

*Christoph Gugg (University of Leoben, Austria)*

*Paul O'Leary (University of Leoben, Austria)*

**Binocular Approach to 3D Pose Measurement with Auto-Calibration**

*Michael Habacher (University of Leoben, Austria)*

*Matthew Harker (University of Leoben, Austria)*

*Paul O'Leary (University of Leoben, Austria)*

**Wednesday, May 13<sup>th</sup>**

**A Low-Cost Instrument for the Accurate Measurement of Whispering-Gallery Resonances Up to 19 GHz**

*Simone Corbellini (Politecnico di Torino, Italy)*

*Chiara Ramella (Politecnico di Torino, Italy)*

*Marco Pirola (Politecnico di Torino, Italy)*

*Vito Fericola (INRiM - Istituto Nazionale di Ricerca Metrologica, Italy)*

**High Frequency Amplifiers for Piezoelectric Sensors Noise Analysis and Reduction Techniques**

*Mark B. Hopkins (University of Kent, United Kingdom)*

*Peter Lee (University of Kent, United Kingdom)*

**Energy Beam Position Monitor Design Utilizing Grounded Coplanar Waveguide Transmission Line Pickups and a Modified Six-Port Discriminator for Particle Accelerators**

*Andreas Penirschke (TU Darmstadt, Germany)*

*Tobias Mahn (TU Darmstadt, Germany)*

*Aleksandar Angelovski (TU Darmstadt, Germany)*

*Rolf Jakoby (TU Darmstadt, Germany)*

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**10:05 - 12:15**

**T10-1: Non-invasive Measurement Techniques and Instrumentation**

**Room:** Room E

**Chair:** Tomasz Tarasiuk (Gdynia Maritime University, Poland)

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**Experimental Validation of a Compact Model for EM Reflection and Transmission in Multi-Layered Structures**

*Bram Faes (Katholieke Universiteit Leuven, Belgium)*

*Jeffrey Prinzie (Katholieke Universiteit Leuven, Belgium)*

*Maarten Strackx (Katholieke Universiteit Leuven, Belgium)*

*Patrick Reynaert (Katholieke Universiteit Leuven, Belgium)*

*Paul Leroux (Katholieke Hogeschool Kempen, Belgium)*

**Parameter Measurement System of Taylor Flow in Small Channels Based on Photodiode Array Sensors**

*Huajun Li (Zhejiang University, P.R. China)*

*Haifeng Ji (Zhejiang University, P.R. China)*

*Chong Fu (Zhejiang University, P.R. China)*

*Baoliang Wang (Zhejiang University, P.R. China)*

*Zhiyao Huang (Zhejiang University, P.R. China)*

*Haiqing Li (Zhejiang University, P.R. China)*

**Microwave Resonator Sensor for Detection of Dielectric Objects in Metal Pipes**

*Johan Nohlert (Chalmers University of Technology, Sweden)*

*Thomas Rylander (Chalmers University of Technology, Sweden)*

*Tomas McKelvey (Chalmers University of Technology, Sweden)*

**Microwave Reflection Properties of Early-Age Concrete Specimens: Sensitivity Analysis**

*Md Ashrafal Islam (University of Western Sydney, Australia)*

*Sergey Kharkovsky (University of Western Sydney, Australia)*

*Kwok Chung (University of Western Sydney, Australia)*

**Wideband Millimeter Wave Interferometer for High-Resolution 3D SAR Imaging**

*Mohammad Tayeb Ghasr (Missouri University of Science and Technology, USA)*

*Kuang P. Ying (Missouri University of Science and Technology, USA)*

*Reza Zoughi (Missouri University of Science and Technology, USA)*



Wednesday, May 13<sup>th</sup>

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**10:05 - 12:15**

**SS3-2: Special Session 3: Instrumentation and Measurement for Improving Quality, Reliability and Safety: New Perspectives for Technology and Industry**

**Room:** Room B

**Chair:** Lorenzo Ciani (University of Florence, Italy)

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**Sub-Surface Defect Detection with Motion Induced Eddy Currents in Aluminium**

*Tiago Rocha (Universidade de Lisboa, Portugal)*

*Helena G. Ramos (Universidade de Lisboa, Portugal)*

*Artur L. Ribeiro (Universidade de Lisboa, Portugal)*

*Dário Pasadas (Universidade de Lisboa, Portugal)*

**Toward a New Definition of FMECA Approach**

*Marcantonio Catelani (University of Florence, Italy)*

*Lorenzo Ciani (University of Florence, Italy)*

*Loredana Cristaldi (Politecnico di Milano, Italy)*

*Marco Faifer (Politecnico di Milano, Italy)*

*Massimo Lazzaroni (Università degli Studi di Milano and INFN Milano, Italy)*

*Mohamed Khalil (Politecnico di Milano, Italy)*

**ECT Image Analysis Applying an Inverse Problem Algorithm with Tikhonov/TV Regularization**

*Dário Pasadas (Universidade de Lisboa, Portugal)*

*Artur L. Ribeiro (Universidade de Lisboa, Portugal)*

*Helena G. Ramos (Universidade de Lisboa, Portugal)*

*Tiago Rocha (Universidade de Lisboa, Portugal)*

**High Performance Liquid Chromatography LCC Analysis**

*Tommaso Addabbo (University of Siena, Italy)*

*Gianluca Bixio (University of Siena, Italy)*

*Ada Fort (University of Siena, Italy)*

*Marco Mugnaini (University of Siena, Italy)*

*Francesco Vigni (Novartis, Italy)*

*Valerio Vignoli (University of Siena, Italy)*

**Thermal Stress Analysis of Colored LEDs**

*Andrea Albertini (University of Bologna, Italy)*

*Giovanni Mazzanti (University of Bologna, Italy)*

*Gaetano Pasini (University of Bologna, Italy)*

*Lorenzo Peretto (University of Bologna, Italy)*

*Roberto Tinarelli (University of Bologna, Italy)*

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**12:15 - 13:00**

**J Barry Oaks Lecture Presentation**

**Mohammad Tayeb Ghasr (Missouri University of Science and Technology, USA)**

**Room:** Auditorium

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## Wednesday, May 13<sup>th</sup>

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**13:00 - 14:20**

**Lunch**

**Room:** Ground Floor Gallery

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**14:00 - 16:00**

**I<sup>2</sup>MTC 2017 Planning Meeting**

**Room:** Room A

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**14:00 - 16:00**

**Graduate Student Panel**

**Room:** Room G

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**14:20 - 14:40**

**Coffee Break**

**Room:** First Floor Gallery

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**14:20 - 16:50**

**PPS2: Plenary Poster Session II**

**Room:** First Floor Gallery

**Chairs:** Mihaela Albu (Politehnica University of Bucharest, Romania), Andrea Cataldo (University of Salento, Italy), Ada Fort (University of Siena, Italy), Carmine Landi (Second University of Naples, Italy), Andreas Penirschke (TU Darmstadt, Germany), Guillermo Robles (University Carlos III, Spain)

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**PPS2-1: State Recognition of Viscoelastic Sandwich Structures Based on Permutation Entropy and Generalized Chebyshev Support Vector Machine**

*Jinxiu Qu (Xi'an Jiaotong University, P.R. China)*

*Zhou suo Zhang (Xi'an Jiaotong University, P.R. China)*

*Xue Luo (Xi'an Jiaotong University, P.R. China)*

*Bing Li (Xi'an Jiaotong University, P.R. China)*

*Jin peng Wen (China Academy of Engineering Physics, P.R. China)*

**PPS2-2: Study of the Minimum Experiment Length to Identify Linear Dynamic Systems: a Variance Based Approach**

*Johan Schoukens (Vrije Universiteit Brussel, Belgium)*

*Sandor Kolumban (Budapest University of Technology and Economics, Hungary)*

**PPS2-3: Multi-platform Underwater Passive Acoustics Instrument for a More Cost-Efficient Assessment of Ocean Ecosystems**

*Daniel M. Toma (Universitat Politècnica de Catalunya, Spain)*

*Joaquin del Rio (Universitat Politècnica de Catalunya, Spain)*

*Normandino Carreras (Universitat Politècnica de Catalunya, Spain)*

*Eric Delory (Oceanic Platform of the Canary Islands, Spain)*

*Luigi Corradino (SMID Technology, Italy)*

*Ayoze Castro (Oceanic Platform of the Canary Islands, Spain)*

*Pablo Ruiz (Underwater Acoustics, Technological Naval Center, Spain)*

*Patrice Braulte (NKE Instrumentation, France)*

**Wednesday, May 13<sup>th</sup>**

**PPS2-4: Mixed Mode Vibration Test for Luminaires Devices: a New Proposal**

*Marcantonio Catelani (University of Florence, Italy)*  
*Lorenzo Ciani (University of Florence, Italy)*  
*Roberto Singuaroli (University of Florence, Italy)*  
*Lorenzo Signorini (Analytical srl - Laboratorio CETACE, Italy)*

**PPS2-5: Small Target Detection in Infrared Image Via Sparse Representation**

*Zhen Shi (Harbin Institute of Technology, P.R. China)*  
*Chang'an Wei (Harbin Institute of Technology, P.R. China)*  
*Ping Fu (Harbin Institute of Technology, P.R. China)*

**PPS2-6: Decoupling Static Nonlinearities in a Parallel Wiener-Hammerstein System: A First-order Approach**

*Phillippe Dreesen (Vrije Universiteit Brussel, Belgium)*  
*Maarten Schoukens (Vrije Universiteit Brussel, Belgium)*  
*Koen Tiels (Vrije Universiteit Brussel, Belgium)*  
*Johan Schoukens (Vrije Universiteit Brussel, Belgium)*

**PPS2-7: Mobile Probe for Environmental Monitoring in the INTEGRREEN Project**

*Reinhard Kloibhofer (AIT Austrian Institute of Technology GmbH, Austria)*  
*Franco Fresolone (AIT Austrian Institute of Technology GmbH, Austria)*

**PPS2-8: Organic Molecular Conductor as Active Component of a Fast and High Sensitive Thin Film Thermometer for the Environment and Climate Change Monitoring**

*Vladimir Laukhin (ICREA, ICMAB-CSIC, Spain)*  
*Victor Lebedev (ICMAB-CSIC, Spain)*  
*Elena Laukhina (ICMAB-CSIC, Spain)*  
*Concepcio Rovira (ICMAB-CSIC, Spain)*  
*Jaume Veciana (ICMAB-CSIC, Spain)*

**PPS2-9: An Open-Source Wireless Mesh Networking Module for Environmental Monitoring**

*Hsiao-Hsien Lin (National Chung-Cheng University, Taiwan)*  
*Hsi-Yuan Tsai (National Chung-Cheng University, Taiwan)*  
*Teng-Chieh Chan (National Chung-Cheng University, Taiwan)*  
*Yen-Sou Huang (National Chung-Cheng University, Taiwan)*  
*Yuan-Sun Chu (National Chung-Cheng University, Taiwan)*  
*Yu-Chieh Chen (National Applied Research Laboratories, Taiwan)*  
*Tai-Shan Liao (National Applied Research Laboratories, Taiwan)*  
*Yao-Min Fang (Feng Chia University, Taiwan)*  
*Bing-Jean Lee (Feng Chia University, Taiwan)*  
*Huang-Chen Lee (National Chung-Cheng University, Taiwan)*

**PPS2-10: Real-time Middle Wave Infrared Aerial Image Capturing and Stitching System for Vegetation Observation**

*Chun-Fu Lin (National Applied Research Laboratories, Taiwan)*  
*Sheng-Fuu Lin (National Chiao Tung University, Taiwan)*  
*Wen-Jyi Hwang (National Taiwan Normal University, Taiwan)*  
*Yung-Hsiang Chen (National Applied Research Laboratories and National Tsing Hua University, Taiwan)*  
*Chi-Hung Hwang (National Applied Research Laboratories, Taiwan)*

## Wednesday, May 13<sup>th</sup>

### **PPS2-11: A Study of Video-based Droplet Detection**

*Chih-Yen Chen (National Applied Research Laboratories, Taiwan)*

*Chi-Wen Hsieh (National Chiayi University, Taiwan)*

*Tai-Lang Jong (National Tsing Hua University, Taiwan)*

*Chi-Hung Hwang (National Applied Research Laboratories, Taiwan)*

*Chun-Jen Weng (National Applied Research Laboratories, Taiwan)*

### **PPS2-12: A Wireless Carbon Monoxide Sensor Node with Hybrid Power Supply**

*Alexander Baranov (MATI– Russian State Technological University, Russia)*

*Denis Spirjakin (MATI– Russian State Technological University, Russia)*

*Saba Akbari (MATI– Russian State Technological University, Russia)*

*Andrey Somov (CREATE-NET, Italy)*

*Roberto Passerone (University of Trento, Italy)*

### **PPS2-13: RESIMA: Adaptive Paradigms for the User Localization in Indoor Environments**

*Vincenzo Marletta (University of Catania, Italy)*

*Bruno Andò (University of Catania, Italy)*

*Salvatore Baglio (University of Catania, Italy)*

*Cristian O. Lombardo (University of Catania, Italy)*

### **PPS2-14: Strategies for the Optimal Classification of Volcanic Ash Granulometry**

*Vincenzo Marletta (University of Catania, Italy)*

*Bruno Andò (University of Catania, Italy)*

*Salvatore Baglio (University of Catania, Italy)*

### **PPS2-15: Design and Accuracy Assessment of the Multi-Sensor Weigh-In-Motion System**

*Janusz Gajda (AGH University of Science and Technology, Poland)*

*Ryszard Sroka (AGH University of Science and Technology, Poland)*

*Marek Stencel (AGH University of Science and Technology, Poland)*

*Tadeusz Zeglen (AGH University of Science and Technology, Poland)*

*Piotr Piwowar (AGH University of Science and Technology, Poland)*

*Piotr Burnos (AGH University of Science and Technology, Poland)*

*Zbigniew Marszalek (AGH University of Science and Technology, Poland)*

### **PPS2-16: Development of Lumped Element Kinetic Inductance Detectors for Phonon and Photon Detections**

*Atsuko Kibayashi (Okayama University, Japan)*

*Hirokazu Ishino (Okayama University, Japan)*

*Yosuke Yamada (Okayama University, Japan)*

*Akinori Okamoto (Okayama University, Japan)*

*Yosuke Kida (Okayama University, Japan)*

*Masashi Hazumi (KEK, High Energy Accelerator Research Organization and The University of Tokyo, Japan)*

*Nobuaki Sato (KEK, High Energy Accelerator Research Organization, Japan)*

*Hiroki Watanabe (SOKENDAI, Japan)*

### **PPS2-18: An Investigation on Rail Health Monitoring Using Acoustic Emission Technique by Tensile Test**

*Xin Zhang (Harbin Institute of Technology, P.R. China)*

*Naizhang Feng (Harbin Institute of Technology, P.R. China)*

*Zhongxian Zou (Harbin Institute of Technology, P.R. China)*

*Yan Wang (Harbin Institute of Technology, P.R. China)*

*Yi Shen (Harbin Institute of Technology, P.R. China)*

## Wednesday, May 13<sup>th</sup>

### **PPS2-19: A Probabilistic Method of Harmonic Impedance Estimation for Traction Power Network**

*Shaobing Yang (Beijing Jiaotong University, P.R. China)*

*Mingli Wu (Beijing Jiaotong University, P.R. China)*

### **PPS2-20: An Innovative Algorithm for Train Detection**

*Enrico Meli (University of Florence, Italy)*

*Benedetto Allotta (University of Florence, Italy)*

*Pierluca D'Adamio (University of Florence, Italy)*

*Luca Pugi (University of Florence, Italy)*

*Alice Innocenti (University of Florence, Italy)*

### **PPS2-21: Experimental Tests for Lithium Batteries Discharged by High Power Pulses**

*Mirko Marracci (University of Pisa, Italy)*

*Bernardo Tellini (University of Pisa, Italy)*

*Oliver Liebfried (French-German Research Institute of Saint-Louis, France)*

*Volker Brommer (French-German Research Institute of Saint-Louis, France)*

### **PPS2-22: Measurements in Abusive Tests on Lithium Ion Polymer Cells**

*Francesca Bianchi (Whitehead Sistemi Subacquei, Italy)*

*Bruno Tevenue (Whitehead Sistemi Subacquei, Italy)*

### **PPS2-23: Investigation of Different Polar to Cartesian Coordinate System Conversion Methods for ToF-cameras in the Close-Up Range**

*Stephan Hussmann (West Coast University of Applied Sciences, Germany)*

*Tim Holtorf (West Coast University of Applied Sciences, Germany)*

*Florian Knoll (West Coast University of Applied Sciences, Germany)*

### **PPS2-24: Heterogeneous Feature Fusion-based Optimal Face Image Acquisition in Visual Sensor Network**

*Kuicheng Lin (Tsinghua University, P.R. China)*

*Xue Wang (Tsinghua University, P.R. China)*

*Sujin Cui (Tsinghua University, P.R. China)*

*Yuqi Tan (Tsinghua University, P.R. China)*

### **PPS2-25: Reliability of Bench-Mark Datasets for Crowd Analytic Surveillance**

*Mohamed Abul Hassan (Universiti Teknologi Petronas, Malaysia)*

*Aamir Saeed Malik (Universiti Teknologi Petronas, Malaysia)*

*Walter Nicolas (Universiti Teknologi Petronas, Malaysia)*

*Ibrahima Faye (Universiti Teknologi Petronas, Malaysia)*

*Nadira Nordin (Universiti Teknologi Petronas, Malaysia)*

### **PPS2-26: The Field of View and Resolution of Marco Images Enhanced by Modified Superresolution Method**

*Hsin-Yi Tsai (National Applied Research Laboratories, Taiwan)*

*Kuo-Cheng Huang (National Applied Research Laboratories, Taiwan)*

*Min-Wei Hung (National Applied Research Laboratories, Taiwan)*

*Chih-Chung Yang (National Applied Research Laboratories, Taiwan)*

*Ching-Ching Yang (National Applied Research Laboratories, Taiwan)*

### **PPS2-27: All-in-Focus Image Reconstruction From In-Line Holograms of Snowflakes**

*Sami Varjo (University of Oulu, Finland)*

*Ville Kaikkonen (University of Oulu, Finland)*

*Jari Hannuksela (University of Oulu, Finland)*

*Anssi Mäkynen (University of Oulu, Finland)*

## Wednesday, May 13<sup>th</sup>

### **PPS2-28: A Rule-based Filter Network for Multiclass Data Classification**

*Balazs Tusor (Óbuda University & Integrated Intelligent Systems Japanese-Hungarian Laboratory, Hungary)*

*Annamária R. Várkonyi-Kóczy (Óbuda University, Hungary)*

### **PPS2-29: Identification of GSM and LTE Signals Using Their Second-order Cyclostationarity**

*Ebrahim Karami (Memorial University, Canada)*

*Octavia A. Dobre (Memorial University, Canada)*

*Nikhil Adnani (ThinkRF, Canada)*

### **PPS2-30: Disturbance Elimination in Near-infrared Spectroscopy by Correlated Empirical Mode Decomposition**

*Ya-Wen Tang (National Applied Research Laboratories, Taiwan)*

*Yue-Der Lin (Feng Chia University, Taiwan)*

### **PPS2-31: Fast Pursuit Method for Greedy Algorithms in Distributed Compressive Sensing**

*Hongwei Xu (Harbin Institute of Technology, P.R. China)*

*Ning Fu (Harbin Institute of Technology, P.R. China)*

*Li-yan Qiao (Harbin Institute of Technology, P.R. China)*

*Xiyuan Peng (Harbin Institute of Technology, P.R. China)*

### **PPS2-32: A Measurement and Time Series Model for Inference on Accelerometer Data Using the Wigner-Ville Distribution**

*Rahul Sinha (TCS Innovation Labs, India)*

*P. Balamuralidhar (TCS Innovation Labs, India)*

*Tapas Chakravarty (TCS Innovation Labs, India)*

### **PPS2-33: An Improved Spectral Approach to Estimate the Integral Non-Linearity of Analog-to-Digital Converters**

*Bryce Minger (Université de Bordeaux and Thales Communications & Security, France)*

*Guillaume Ferré (University of Bordeaux, France)*

*Dominique Dallet (University Bordeaux, France)*

*Eric Grivel (University Bordeaux, France)*

*Loïc Fuché (Thales Communications & Security, France)*

### **PPS2-34: Neighboring Optimal Control for Mobile Robot Trajectory Tracking with Range-Limited Sensors**

*Suruz Miah (University of Ottawa, Canada)*

*Wail Gueaieb (University of Ottawa, Canada)*

*Davide Spinello (University of Ottawa, Canada)*

*Kaisar Khan (McNeese State University, USA)*

### **PPS2-36: A Simple Measuring System and Calibration Method to Investigate Light Transmission Ability of Light-Transmitting Fiber Posts**

*Stefano Cattini (University of Modena and Reggio Emilia and Science & Technology Park for Medicine, Italy)*

*Luigi Rovati (University of Modena and Reggio Emilia, Italy)*

### **PPS2-37: Design and Performance of an Hb Measuring System: Viability of Its Use in a Haemodialysis**

*Stefano Cattini (University of Modena and Reggio Emilia & Science & Technology Park for Medicine, Italy)*

*Luigi Rovati (University of Modena and Reggio Emilia, Italy)*

## Wednesday, May 13<sup>th</sup>

### **PPS2-38: Frequency Identification for MIT Detection of EEG Based on Wavelet Energy**

Zhili Xiao (*Tianjin University, P.R. China*)

Yan Fu (*Tianjin University, P.R. China*)

Chao Tan (*Tianjin University, P.R. China*)

Feng Dong (*Tianjin University, P.R. China*)

### **PPS2-39: Design and Implementation of a Wireless Intelligent Personal Sensor Node for the Dosimetry of Interventional Radiology Operators**

Daniel Magalotti (*University of Modena and Reggio Emilia and Istituto Nazionale di Fisica Nucleare, Italy*)

Pisana Placidi (*Istituto Nazionale di Fisica Nucleare and University of Perugia, Italy*)

Elia Conti (*Istituto Nazionale di Fisica Nucleare and University of Perugia, Italy*)

Marco De Biagi (*University of Perugia, Italy*)

Stefania Fabiani (*Istituto Nazionale di Fisica Nucleare and Università degli Studi dell'Aquila, Italy*)

Lucia Bissi (*Istituto Nazionale di Fisica Nucleare and University of Perugia, Italy*)

Massimiliano Paolucci (*Istituto Nazionale di Fisica Nucleare and AUSL Umbria 2, Italy*)

Andrea Scorzoni (*Istituto Nazionale di Fisica Nucleare and University of Perugia, Italy*)

Leonello Servoli (*Istituto Nazionale di Fisica Nucleare, Italy*)

### **PPS2-40: UHF RFID Anisotropic Magnetoresistance Sensor for Human Motion Monitoring**

Brice Sorli (*University of Montpellier, France*)

Arnaud Vena (*University of Montpellier, France*)

Yassin Belaïzi (*University of Montpellier, France*)

Mamadou Balde (*University of Montpellier, France*)

### **PPS2-41: An Inkjet Printed Seismic Sensor**

Vincenzo Marletta (*University of Catania, Italy*)

Bruno Andò (*University of Catania, Italy*)

Salvatore Baglio (*University of Catania, Italy*)

Cristian O. Lombardo (*University of Catania, Italy*)

Antonio Pistorio (*University of Catania, Italy*)

### **PPS2-42: Research on Dynamic Calibration and Dynamic Compensation of the Thermocouple**

Yanfeng Li (*North University of China, P.R. China*)

Zhijie Zhang (*North University of China, P.R. China*)

Xiaojuan Hao (*North University of China, P.R. China*)

### **PPS2-43: Ultrasound Attenuation Characteristics in Oil-water Two-phase Flow**

Qian Su (*Tianjin University, P.R. China*)

Chao Tan (*Tianjin University, P.R. China*)

Feng Dong (*Tianjin University, P.R. China*)

### **PPS2-44: Amplifier Errors in Dry Bacteriorhodopsin Sensor Measurements**

Joonas P. Talvitie (*Lappeenranta University of Technology, Finland*)

Teemu Tukiainen (*Lappeenranta University of Technology, Finland*)

Lasse Lensu (*Lappeenranta University of Technology, Finland*)

Tommi J. Kärkkäinen (*Lappeenranta University of Technology, Finland*)

Pertti Silventoinen (*Lappeenranta University of Technology, Finland*)

Mikko P. J. Kuisma (*Lappeenranta University of Technology, Finland*)

**Wednesday, May 13<sup>th</sup>**

**PPS2-45: 60 GHz Active Microscopy with A Bow-Tie Antenna as Near-Field Probe**

*Rachid Omarouayache (Université Montpellier 2, France)*

*Laurent Chusseau (Université Montpellier 2, France)*

*Pierre Payet (Université Montpellier 2, France)*

*Jérémy Raoult (Université Montpellier 2, France)*

*Sylvie Jarrix (Université Montpellier 2, France)*

**PPS2-46: Full-Span Error Calibration Method for On-Chip Quadrature Accuracy Measurement**

*Ya-Wen Ou (National Applied Research Laboratories, Taiwan)*

*Yin-Cheng Chang (National Applied Research Laboratories, Taiwan)*

*Shuw-Guann Lin (National Applied Research Laboratories, Taiwan)*

*Da-Chiang Chang (National Applied Research Laboratories, Taiwan)*

*Hwann-Kaeo Chiou (National Central University, Taiwan)*

**PPS2-47: Maximum Likelihood Estimator, FFT Estimator and Cramér-Rao Bounds of the Laser Doppler Frequency: The Effect of a Particle Trajectory Through the Measurement Volume**

*Lu Zhang (North China Electric Power University, P.R. China)*

*Janusz Kulon (University of South Wales, United Kingdom)*

*Yong Yan (University of Kent, United Kingdom)*

**PPS2-48: Application of Frequency Selective Surfaces for Inspection of Layered Structures**

*Dustin Pieper (Missouri University of Science and Technology, USA)*

*Kristen M Donnell (Missouri University of Science and Technology, USA)*

**PPS2-49: Microwave Sensing of Sand Production From Petroleum Wells**

*Jaswanth N. Vutukury (Missouri University of Science and Technology, USA)*

*Steven Hilgedick (Missouri University of Science & Technology, USA)*

*Kristen M. Donnell (Missouri University of Science and Technology, USA)*

**PPS2-50: A Kalman Filtering Based Method for Available Bandwidth Measurement**

*Leopoldo Angrisani (University of Naples Federico II, Italy)*

*Gianfranco Miele (University of Cassino and Southern Lazio, Italy)*

*Rosario Schiano Lo Moriello (University of Naples Federico II, Italy)*

*Michele Vadursi (University of Naples Parthenope, Italy)*

**PPS2-51: Out-of-Resonance Measurement Scheme for Ring Resonator Gyroscopes**

*Mario Nicola Armenise (Politecnico di Bari, Italy)*

*Caterina Ciminelli (Politecnico di Bari, Italy)*

*Francesco Dell'Olio (Politecnico di Bari, Italy)*

*Attilio Di Nisio (Politecnico di Bari, Italy)*

*Mario Savino (Politecnico di Bari, Italy)*

*Maurizio Spadavecchia (Politecnico di Bari, Italy)*

**PPS2-52: A Modular Pipelined Processor for Nuclear and Particle Physics Applications**

*Alejandro Veiga (Universidad Nacional de La Plata, Argentina)*

*Christian M. Grunfeld (Universidad Nacional de La Plata, Argentina)*

**PPS2-53: Digital System for Monitoring Volcanic Seismicity**

*Normandino Carreras (Universitat Politècnica de Catalunya, Spain)*

*Spartacus Gomariz (Universitat Politècnica de Catalunya, Spain)*

*Antoni Mànuel (Universitat Politècnica de Catalunya, Spain)*

*Montserrat Carbonell (Universitat Politècnica de Catalunya, Spain)*

*Pedro Antonio Torres Gonzalez (Instituto Geografico Nacional, Spain)*

*Angel David Moure (Instituto Geografico Nacional, Spain)*

*Ramon Ortiz (Institute IGEO, CSIC-UCM, Spain)*



## Wednesday, May 13<sup>th</sup>

### **PPS2-54: Towards the Evaluation of the Measurement Uncertainty of Environmental Acoustic Noise**

*Consolatina Liguori (University of Salerno, Italy)*

*Alfredo Paolillo (University of Salerno, Italy)*

*Alessandro Ruggiero (University of Salerno, Italy)*

*Domenico Russo (University of Salerno, Italy)*

### **PPS2-55: Perspectives in Electric Energy Metrology**

*Mohammed Abbas (King Fahd University of Petroleum and Minerals, Saudi Arabia)*

*Luai Al-Hadhrami (King Fahd University of Petroleum & Minerals, Saudi Arabia)*

*Sayyid Anas Vaqar (King Fahd University of Petroleum and Minerals, Saudi Arabia)*

### **PPS2-56: Wireless Power Distribution System for Brain Implants**

*Tobias Volk (University of Freiburg, Germany)*

*Adnan Yousaf (University of Freiburg, Germany)*

*Sebastian Stocklin (University of Freiburg, Germany)*

*Joan Albesa (University of Freiburg, Germany)*

*Shah Hussain (University of Freiburg, Germany)*

*Leonhard Reindl (University of Freiburg, Germany)*

*Tonio Ball (University of Freiburg, Germany)*

*C. Alexis Gkogkidis (University of Freiburg, Germany)*

### **PPS2-57: Power Meter Verification Issue: Reactive Power Measurement in Non Sinusoidal Conditions**

*Daniele Gallo (Second University of Naples, Italy)*

*Carmine Landi (Second University of Naples, Italy)*

*Mario Luiso (Second University of Naples, Italy)*

### **PPS2-58: Design and Characterization of a Power Transfer Inductive Link for Wireless Sensor Network Nodes**

*Rodrigo W. Porto (Federal University of Rio Grande do Sul (UFRGS), Brazil)*

*Ivan Müller (Federal University of Rio Grande do Sul (UFRGS), Brazil)*

*Valner J. Brusamarello (Federal University of Rio Grande do Sul (UFRGS), Brazil)*

*Fernando Rangel de Sousa (Federal University of Santa Catarina, Brazil)*

### **PPS2-59: A Low-Cost Power Transducer for Transient Currents**

*Giovanni Bucci (Università degli Studi dell' Aquila, Italy)*

*Fabrizio Ciancetta (Università degli Studi dell' Aquila, Italy)*

*Flavio D'Innocenzo (Università degli Studi dell' Aquila, Italy)*

*Edoardo Fiorucci (Università degli Studi dell' Aquila, Italy)*

*Santo Dolce (Università degli Studi dell' Aquila, Italy)*

### **PPS2-60: Iterative Model-Based Maximum Power Point Tracker for Photovoltaic Panels**

*Marco Faifer (Politecnico di Milano, Italy)*

*Loredana Cristaldi (Politecnico di Milano, Italy)*

*Sergio Toscani (Politecnico di Milano, Italy)*

*Payam Soulatiantork (Politecnico di Milano, Italy)*

*Marco Rossi (RSE S.p.A, Italy)*

## Wednesday, May 13<sup>th</sup>

### **PPS2-61: Uncertainty Evaluation of a Backward/Forward Load Flow Algorithm for a MV Smart Grid**

*Antonio Cataliotti (University of Palermo, Italy)*

*Valentina Cosentino (Università di Palermo, Italy)*

*Dario Di Cara (National Research Council, Institute of Intelligent System for Automation, Italy)*

*Enrico Telaretti (University of Palermo, Italy)*

*Giovanni Tinè (National Research Council, Institute of Intelligent System for Automation, Italy)*

### **PPS2-62: Linear Solar PV/T Concentrator Monitoring System and Derivation of Performance Index**

*Alberto Reatti (University of Florence, Italy)*

*Marian K. Kazmierczuk (Wright State University, USA)*

*Marcantonio Catelani (University of Florence, Italy)*

*Lorenzo Ciani (University of Florence, Italy)*

### **PPS2-63: Design of an Experimental Methodology for Generation of Partial Discharges Signals**

*Euler Tavares Macedo (Federal University of Paraíba, Brazil)*

*Juan Moises Mauricio Villanueva (Federal University of Paraíba, Brazil)*

*Edson G. da Costa (Federal University of Campina Grande, Brazil)*

*Raimundo C. S. Freire (Federal University of Campina Grande, Brazil)*

*José Maurício Ramos de Souza Neto (Federal University of Paraíba, Brazil)*

### **PPS2-64: Control Valve Position Response Identification by Matlab**

*Leili Esmaeilani (Isfahan University of Technology & SPGC South Pars Gas Complex, Iran)*

*Jafar Ghaisari (Isfahan University of Technology, Iran)*

*Mohsen Ahmadian (Islamic Azad University of Bushehr, Iran)*

*Roya Esmaeilani (Universiti Teknologi Malaysia, Iran)*

### **PPS2-65: High Throughput Screening System for Screening of 3D Cell Cultures**

*Carolin Gallert (University of Rostock and CELISCA, Germany)*

*Ricarda Lehmann (University of Rostock, Germany)*

*Thomas Roddelkopf (CELISCA, Germany)*

*Steffen Junginger (University of Rostock & IEF, Germany)*

*Kerstin Thurow (CELISCA, Germany)*

### **PPS2-66: Adaptive Soft Sensor Modeling Method Based on Multi-model Dynamic Fusion and Its Industrial Application**

*Fu Yongfeng (Zhejiang University of Technology, P.R. China)*

*Ji Haifeng (Zhejiang University of Technology, P.R. China)*

*Xu Ouguan (Zhejiang University of Technology, P.R. China)*

*Chen Weijie (Zhejiang University of Technology, P.R. China)*

### **PPS2-67: Development of a Multivariable Control System on an Experimental Platform Dedicated to the Study of Fouling Phenomena**

*Thamiles Rodrigues de Melo (Federal University of Campina Grande, Brazil)*

*Jaidilson Jo Silva (Federal University of Campina Grande, Brazil)*

*J. S. Rocha Neto (Federal University of Campina Grande, Brazil)*

### **PPS2-68: Points of Load: Performance Test in High-B Environment**

*Massimo Lazzaroni (Università degli Studi di Milano and INFN, Italy)*

*Mauro Citterio (INFN, Italy)*

*Stefano Latorre (INFN, Italy)*

## Wednesday, May 13<sup>th</sup>

### **PPS2-69: Image Processing Based System for the Classification of Vehicles for Parking Purposes**

*Amit Kumar (The University of the South Pacific, Fiji)*

*Mansour H. Assaf (The University of the South Pacific, Fiji)*

*Sunil R. Das (University of Ottawa, Canada and Troy University, USA)*

*Satyendra Biswas (Ahsanullah University of Science and Technology, Bangladesh)*

*Emil M. Petriu (University of Ottawa, Canada)*

*Voicu Groza (University of Ottawa, Canada)*

### **PPS2-70: A New Dynamic Testing System for Wheel-soil Interactions**

*Fan Yang (Southeast University, P.R. China)*

*Guoyu Lin (Southeast University, P.R. China)*

*Weigong Zhang (Southeast University, P.R. China)*

### **PPS2-71: Research on the Characteristics of Internal Turbine Sensor Mounted on Underwater High Speed Moving Body**

*Yong Chen (Nanjing University of Science and Technology, P.R. China)*

*He Zhang (Nanjing University of Science and Technology, P.R. China)*

*Shaojie Ma (Nanjing University of Science and Technology, P.R. China)*

### **PPS2-72: Design, Calibration and Validation of a Novel Surface Imaging Tool for Medical Endoscopic Applications**

*Paul King (University of South Wales, United Kingdom)*

*Janusz Kulon (University of South Wales, United Kingdom)*

*Peter Plassmann (University of South Wales, United Kingdom)*

*Peter Theobald (Cardiff University, United Kingdom)*

*Michael Jones (Cardiff University, United Kingdom)*

*Steve Wilcox (University of South Wales, United Kingdom)*

### **PPS2-73: Measurement of Wheelchair Users' Activity Level for Developing a Small Device**

*Yoshio Tanimoto (Kibikogen Rehabilitation Center, Japan)*

*Kuniharu Nanba (Kibikogen Rehabilitation Center, Japan)*

*Kazunari Furusawa (Kibikogen Rehabilitation Center, Japan)*

*Hideki Yamamoto (Kibikogen Rehabilitation Center, Japan)*

*Akihiro Tokuhiro (Kibikogen Rehabilitation Center, Japan)*

*Hiroyuki Ukida (The University of Tokushima, Japan)*

### **PPS2-74: Research on Flow Diagnosis of Multipath Ultrasonic Flowmeter**

*Dan-Dan Zheng (Tianjin University, P.R. China)*

*Jing-Li Zhang (Tianjin University, P.R. China)*

*Shan-Shan Zhao (Tianjin University, P.R. China)*

*Hua-Xiang Wang (Tianjin University, P.R. China)*

*Zi-Qiang Cui (Tianjin University, P.R. China)*

### **PPS2-75: Characterization of Thermoelectric Cell for Electric Power Generation**

*Carlos Henrique Alencar Almeida (Federal Institute of Paraiba - IFPB, Brazil)*

*Cícero da Rocha Souto (Federal University of Paraiba - UFPB, Brazil)*

*Jean Pierre Veronese (Federal University of Paraiba - UFPB, Brazil)*

*Jose Carlos de Oliveira Custodio (Federal University of Paraiba - UFPB, Brazil)*

### **PPS2-76: Start-up Response Improvement for a MEMS Inclinometer**

*Martin Vágner (Brno University of Technology, Czech Republic)*

*Petr Beneš (Brno University of Technology, Czech Republic)*

**Wednesday, May 13<sup>th</sup>**

**PPS2-77: Measurement Equipment for Characterization of Ferromagnetic Materials**

*Tarcisio Oliveira Moraes, Júnior (Federal University of Campina Grande, Brazil)*

*Raimundo Carlos Silverio Freire (Federal University of Campina Grande, Brazil)*

*Cleonilson Protasio de Souza (Federal University of Paraiba, Brazil)*

*Débora Albuquerque Vieira (Federal University of Paraíba, Brazil)*

**PPS2-78: A Noncontact Conductivity Detection Method Based on the Principle of Electromagnetic Induction**

*Shijie Sun (Beihang University, P.R. China)*

*Zhang Cao (Beihang University, P.R. China)*

*Lijun Xu (Beihang University, P.R. China)*

**PPS2-79: Damage Detection of CFRP Composites Using Open Electrical Impedance Tomography**

*Wenru Fan (Civil Aviation University of China, P.R. China)*

*Huaxiang Wang (Tianjin University, P.R. China)*

*Ziqiang Cui (Tianjin University, P.R. China)*

**PPS2-80: Estimation of Radius of Curvature Using Reflected-Spot Method**

*Yu-Hsuan Lin (National Applied Research Laboratories, Taiwan)*

*Yi-Ju Chen (National Applied Research Laboratories, Taiwan)*

*Kuo-Cheng Huang (National Applied Research Laboratories, Taiwan)*

**PPS2-81: Laser Rangefinder for Steel Pipes Characterization**

*Alessandro Pesatori (Politecnico di Milano, Italy)*

*Federico Cavedo (Politecnico di Milano, Italy)*

*Michele Norgia (Politecnico di Milano, Italy)*

*Gabriel Solari (Dalmine S.p.A., Italy)*

**PPS2-82: Laser Diode for Flow-Measurement**

*Michele Norgia (Politecnico di Milano, Italy)*

*Alessandro Pesatori (Politecnico di Milano, Italy)*

*Silvano Donati (University of Pavia, Italy)*

**PPS2-83: Non-invasive Measurements for Shallow Depth Soil Exploration: Development and Application of an Electromagnetic Induction Instrument**

*Andrea Scozzari (National Research Council of Italy, Italy)*

*Yuri Manstein (IPGG - SBRAS, Russia)*

*Grigory Panin (Trofimuk Institute of Petroleum Geology and Geophysics, Russia)*

*Alexander Manstein (Trofimuk Institute of Petroleum Geology and Geophysics, Russia)*

*Evgeniy Balkov (Trofimuk Institute of Petroleum Geology and Geophysics, Russia)*

**PPS2-84: Mid-infrared Optical Tomography for Imaging Through Petroleum: a Feasibility Study**

*Tiago P. Vendruscolo (Federal University of Technology - Paraná, Brazil)*

*Rodolfo L. Patyk (Federal University of Technology - Paraná, Brazil)*

*Guilherme Dutra (Federal University of Technology - Paraná, Brazil)*

*Cicero Martelli (Federal University of Technology - Paraná, Brazil)*

*Rigoberto E. M. Morales (Federal University of Technology - Paraná, Brazil)*

*Marco J. da Silva (Federal University of Technology - Paraná, Brazil)*

**Wednesday, May 13<sup>th</sup>**

**PPS2-85: Calibration of AC Clamp Meters**

*Karel Draxler (Czech Technical University, Czech Republic)*

*Renata Styblikova (Czech Metrology Institute, Czech Republic)*

**PPS2-86: Designing Elementary-Tree Space Compressors Using AND/NAND and XOR/XNOR Combinations**

*Nicholas Malan (Troy University, USA)*

*Sunil R. Das (Troy University, USA and University of Ottawa, Canada)*

*Satyendra Biswas (Ahsanullah University of Science and Technology, Bangladesh)*

*Mansour H Assaf (The University of the South Pacific, Fiji)*

*Scott Morton (Troy University, Montgomery, Canada)*

*Emil M. Petriu (University of Ottawa, Canada)*

*Voicu Groza (University of Ottawa, Canada)*

**PPS2-87: Measurement of Liquid Level with a Small Surface Area Using High Frequency Electromagnetic Sensing Technique**

*Qian Zhao (Qufu Normal University, P.R. China)*

*Kai Xu (China Shipbuilding Industry Corporation, P.R. China)*

*Yuedong Xie (University of Manchester, United Kingdom)*

*Wuliang Yin (The University of Manchester, United Kingdom)*

**PPS2-88: Impact of Sampling Frequency on Accuracy of Unbalance Factor Measurement by DFT**

*Tomasz Tarasiuk (Gdynia Maritime University, Poland)*

*Andrzej Pilat (Gdynia Maritime University, Poland)*

**PPS2-89: Microwave Measurements of Dielectric Constants of Ceramic Materials by Powder Mixture Equations**

*Jyh Sheen (National Formosa University, Taiwan)*

*Yong-Lin Wang (National Formosa University, Taiwan)*

**PPS2-90: Temperature-Independent High-Speed Distributed Voltage Measurement Using Intensiometric FBG Interrogation**

*Grzegorz Fusiek (University of Strathclyde, United Kingdom)*

*Philip Orr (University of Strathclyde, United Kingdom)*

*Pawel Niewczas (University of Strathclyde, United Kingdom)*

**PPS2-91: Improving the Navigation of Indoor Mobile Robots Using Kalman Filter**

*Mazen Ghandour (University of Rostock, Germany)*

*Hui Liu (University of Rostock, Germany)*

*Norbert Stoll (University of Rostock, Germany)*

*Kerstin Thurow (University of Rostock, Germany)*

**PPS2-92: Illuminance Sensor for Error Correction of DC-DC Converter Tracking Using Perturb and Observe Algorithm**

*Jose Carlos de Oliveira Custodio (Federal University of Paraiba - UFPB, Brazil)*

*Cicero da Rocha Souto (Federal University of Paraiba - UFPB, Brazil)*

*Priscilla K. Pontes de Melo (Federal University of Paraiba - UFPB, Brazil)*

*Adriano N. Ramos (Federal University of Paraiba - UFPB, Brazil)*

## Wednesday, May 13<sup>th</sup>

### **PPS2-93: Detecting Soil Parameters From a Small Tracked Vehicle**

*Alexsandro Jose Virginio dos Santos (Federal University of Paraíba - UFPB, Brazil)*

*Cícero da Rocha Souto (Federal University of Paraíba – UFPB, Brazil)*

*Ana Maria Marques de Lima (Court of Justice of Paraíba, Brazil)*

*Simplicio Arnaud da Silva (Federal University of Paraíba - UFPB, Brazil)*

*Andre Fellipe Cavalcante Silva (Federal Institute of Education Science and Technology of Paraíba - IFPB, Brazil)*

### **PPS2-94: Detection of Level and Interface Position of Substances in Tanks by Radiofrequency Techniques**

*Alexander S. Sovlukov (V.A. Trapeznikov Institute of Control Sciences, Russia)*

*Alexander M. Prokhorenkov (Murmansk State Technical University, Russia)*

*Victor I. Tereshin (Technosensor Co., Russia)*

*Victoria V. Yatsenko (Murmansk State Technical University, Russia)*

### **PPS2-95: A Novel Design of Small Size DCT with a Double Tuned Sampling Circuit**

*Zhen Liu (Siemens Ltd. China, P.R. China)*

*Weigang Chen (Siemens Ltd. China, P.R. China)*

*Feng Du (Siemens Ltd. China, P.R. China)*

*Yue Zhuo (Siemens Ltd. China, P.R. China)*

*Michael Anheuser (Siemens AG, Germany)*

### **PPS2-96: Laser Fabrication of Biomedical Sensor for AC Impedance Analysis**

*Chien-Hung Chen (National Applied Research Laboratories, Taiwan)*

*Ming-Wei Huang (Taichung Veterans General Hospital, Taiwan)*

*Kuo-Cheng Huang (National Applied Research Laboratories, Taiwan)*

*Tai-Shan Liao (National Applied Research Laboratories, Taiwan)*

*Wen-Tse Hsiao (National Applied Research Laboratories, Taiwan)*

### **PPS2-97: Path Reconstruction Based on Gyroscope Bias Estimation Using GPS**

*István Engedy (Budapest University of Technology and Economics, Hungary)*

*Gábor Horváth (Budapest University of Technology and Economics, Hungary)*

### **PPS2-98: SPR Sensor for Tampering Detection in Biofuels**

*Leiva Casemiro Oliveira (Universidade Federal de Campina Grande & Universidade Federal Rural do Semi-árido, Brazil)*

*Eduardo G Pereira (Universidade Federal de Campina Grande, Brazil)*

*Ravena Casemiro Oliveira (Universidade Federal de Campina Grande & Universidade Federal Rural do Semi-árido, Brazil)*

*Marcos Morais (Universidade Federal de Campina Grande, Brazil)*

*Antonio Marcus Nogueira Lima (Universidade Federal de Campina Grande, Brazil)*

*Helmut Neff (Universidade Federal de Campina Grande, Brazil)*

### **PPS2-99: Investigation of Carbon Black Loaded Natural Rubber Piezoresistivity**

*Pietro Giannone (Eurotechnology, Italy)*

*Salvatore Graziani (Università degli Studi di Catania, Italy)*

*Elena Umana (Università degli Studi di Catania, Italy)*

### **PPS2-100: A Multiphysics Model of IPMC Actuators Dependence on Relative Humidity**

*Riccardo Caponetto (Università degli Studi di Catania, Italy)*

*Viviana De Luca (Università degli Studi di Catania, Italy)*

*Salvatore Graziani (Università degli Studi di Catania, Italy)*

**Wednesday, May 13<sup>th</sup>**

**PPS2-101: A Heuristic Reliable Model for Guarded Capacitive Sensors to Measure Displacement**

*Tommaso Addabbo (University of Siena, Italy)*

*Ada Fort (University of Siena, Italy)*

*Marco Mugnaini (University of Siena, Italy)*

*Santina Rocchi (University of Siena, Italy)*

*Valerio Vignoli (University of Siena, Italy)*

**PPS2-102: Chemical and Magnetic Properties Characterization of Magnetic Nanoparticles**

*Mirko Marracci (University of Pisa, Italy)*

*Bernardo Tellini (University of Pisa, Italy)*

*Elisa Bertolucci (University of Pisa, Italy)*

*Anna Maria Raspolli Galletti (University of Pisa, Italy)*

*Claudia Antonetti (University of Pisa, Italy)*

*Fabio Piccinelli (University of Verona, Italy)*

*Ciro Visone (University of Sannio, Italy)*

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**16:30 - 18:30**

**IMS General TC Meeting**

**Room:** Room A

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**16:50 - 18:30**

**T7: Measurement of Electric and Magnetic Quantities**

**Room:** Auditorium

**Chair:** Anna Maria Lucia Lanzolla (Polytechnic of Bari, Italy)

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**Inspection of Electrical Interconnections Within Power ICs Via Magneto-Optical Imaging**

*Florian Dietachmayr (Johannes Kepler University Linz, Austria)*

*Patrick Hölzl (Johannes Kepler University Linz, Austria)*

*Bernhard G. Zagar (Johannes Kepler University Linz, Austria)*

*Michael Nelhiebel (Infineon Technologies Austria AG, Austria)*

**Effect of Humidity on Dielectric Properties of Mortars with Alkali-Silica Reaction (ASR) Gel**

*Ashkan Hashemi (Missouri University of Science and Technology, USA)*

*Kristen M Donnell (Missouri University of Science and Technology, USA)*

*Reza Zoughi (Missouri University of Science and Technology, USA)*

*K.E. Kurtis (Georgia Institute of Technology, USA)*

**A System for Controllable Magnetic Measurements of Hysteresis and Barkhausen Noise**

*Alexandr Stupakov (Institute of Physics ASCR, Czech Republic)*

*Oleksiy Perevertov (Institute of Physics ASCR, Czech Republic)*

*Vitalii Zablotskii (Institute of Physics ASCR, Czech Republic)*

**Online Digital Offset Voltage Compensation Method for AMR Sensors**

*Andreina Zambrano (University of Twente, The Netherlands)*

*Hans Kerkhoff (University of Twente, The Netherlands)*

## Wednesday, May 13<sup>th</sup>

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**16:50 - 18:30**

**SS5: Special Session 5: Measurement fundamentals- challenges towards a unified body of Knowledge**

**Room:** Room C

**Chairs:** Luca Mari (Università Cattaneo - LIUC, Italy), Paolo Carbone (University of Perugia, Italy)

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**Toward a Unified Framework for Static and Dynamic Measurements**

*Giovanni Rossi (University of Genova, Italy)*

**PPS2-1: A Structural Framework Across Strongly and Weakly Defined Measurements**

*Luca Mari (Università Cattaneo - LIUC, Italy)*

*Mark Wilson (University of California, Berkeley, USA)*

**PPS2-1: Non-Parametric Estimation of Probability Density Functions Via a Simple Interpolation Filter**

*Paolo Carbone (University of Perugia, Italy)*

*Dario Petri (University of Trento, Italy)*

**PPS2-1: Metrological Characterization of an Ultra-low Noise Acquisition System for Fast Voltage Pulses Measurements**

*Pasquale Arpaia (University Federico II, Italy)*

*Carlo Baccigalupi (University of Calabria, Italy and CERN, Switzerland)*

*Michele Martino (CERN, Switzerland)*

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**16:50 - 18:30**

**T5-3: Measurement and Instrumentation for Industrial Applications and Processes**

**Room:** Room D

**Chair:** Alessandra Flammini (University of Brescia, Italy)

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**Transparent Clock Characterization Using IEEE 1588 PTP Timestamping Probe**

*Zdenek Chaloupka (Etisalat BT Innovation Centre, UAE)*

*Nayef Alsindi (Etisalat BT Innovation Centre, UAE)*

*James Aweya (Etisalat BT Innovation Centre and Khalifa University, UAE)*

**On the Use of Synchronous Ethernet Over Multiple Paths for Syntonization of Distributed Systems**

*Paolo Ferrari (University of Brescia, Italy)*

*Alessandra Flammini (University of Brescia, Italy)*

*Stefano Rinaldi (University of Brescia, Italy)*

*David Macii (University of Trento, Italy)*

*Daniele Fontanelli (University of Trento, Italy)*

**Assessment of Time Synchronization Quality in a Distributed PMU**

*Paolo Castello (University of Cagliari, Italy)*

*Paolo Ferrari (University of Brescia, Italy)*

*Alessandra Flammini (University of Brescia, Italy)*

*Carlo Muscas (University of Cagliari, Italy)*

*Paolo Attilio Pegoraro (University of Cagliari, Italy)*

*Stefano Rinaldi (University of Brescia, Italy)*



**Wednesday, May 13<sup>th</sup>**

**Preserving Synchronization Accuracy in Slow Update Wireless Sensor Network Perturbed by Plug-in of Multi-Nodes**

*Francesco Lamonaca (University of Calabria, Italy)*

*Domenico Luca Carni (University of Calabria, Italy)*

*Domenico Grimaldi (University of Calabria, Italy)*

*Maria Riccio (University of Sannio, Italy)*

*Alfonzo Nastro (University of Calabria, Italy)*

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**16:50 - 18:30**

**T6-1: Measurement Applications**

**Room:** Room E

**Chair:** Nicola Giaquinto (Politecnico di Bari, Italy)

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**Online Coupling System and Control Software for Reaction Monitoring Using Microreactors and ESI-MS**

*Heidi Fleischer (University of Rostock, Germany)*

*Dany Hoffmann (University of Rostock, Germany)*

*Nwar Almahaini (University of Rostock, Germany)*

*Vinh Quang Do (University of Rostock, Germany)*

*Kerstin Thurow (University of Rostock, Germany)*

**Real-Time Velocity Profile Measurement in Two-Phase oil/gas Flow by Twin Plane Segmented ECT System**

*Elmy Johana Mohamad (Universiti Tun Hussien Onn Malaysia, Malaysia)*

*Ruzairi Abdul Rahim (Universiti Teknologi Malaysia, Malaysia)*

*Hanis Liyana Mohamad Ameran (Universiti Tun Hussein Onn Malaysia, Malaysia)*

*Omar Mohd Faizan Marwah (Universiti Tun Hussien Onn Malaysia, Malaysia)*

**Measurement of Flow Parameters in a Bubbling Fluidized Bed Using Electrostatic Sensor Arrays**

*Wenbiao Zhang (North China Electric Power University, P.R. China)*

*Yong Yan (University of Kent, United Kingdom)*

*Yongrong Yang (Zhejiang University, P.R. China)*

*Jingdai Wang (Zhejiang University, P.R. China)*

**Direct FPGA-based Power Profiling for a RISC Processor**

*Cosmin Cernazanu (Politehnica University of Timisoara, Romania)*

*Marius Marcu (Politehnica University of Timisoara, Romania)*

*Zheng Wang (RWTH-Aachen University, Germany)*

*Anupam Chattopadhyay (RWTH-Aachen University, Germany)*

*Stefan Fedea (Politehnica University of Timisoara, Romania)*

*Madalin Ghenea (Politehnica University of Timisoara, Romania)*

*Jan H. Weinstock (RWTH-Aachen University, Germany)*

*Rainer Leupers (RWTH-Aachen University, Germany)*

*Alexandru Amaricai-Boncalo (Politehnica University of Timisoara, Romania)*

**Wednesday, May 13<sup>th</sup>**

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**16:50 - 18:30**

**T14: Software Development for Measurement and Instrumentation Support**

**Room:** Room B

**Chair:** Annamária R. Várkonyi-Kóczy (Óbuda University, Hungary)

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**A Common Platform for Bridging Pre- And Post-Silicon Verification in Mixed-Signal Designs**

*Dominik Widhalm (University of Applied Sciences Technikum Wien, Austria)*

*Stefan Tauner (University of Applied Sciences Technikum Wien, Austria)*

*Martin Horauer (University of Applied Sciences Technikum Wien, Austria)*

*Achim Schumacher (Infineon Technologies Austria AG, Austria)*

*Alexander Haggemiller (Infineon Technologies Austria AG, Austria)*

**Constant-Rate Clock Recovery and Jitter Measurement on Deep Memory Waveforms Using Dataflow**

*Yanzhou Liu (University of Maryland, USA)*

*Lee Barford (Keysight Technologies, Inc., USA)*

*Shuvra Bhattacharyya (University of Maryland, USA)*

**A Secure Software Framework for Measuring Instruments in Legal Metrology**

*Daniel Peters (Physikalisch-Technische Bundesanstalt (PTB), Germany)*

*Florian Thiel (Physikalisch-Technische Bundesanstalt (PTB) Berlin, Germany)*

*Michael Peter (Technische Universität Berlin, Germany)*

*Jean-Pierre Seifert (Technische Universität Berlin, Germany)*

**Flexible Software Solution for Rapid Manual and Automated Data Evaluation in ICP-MS**

*Heidi Fleischer (University of Rostock, Germany)*

*Martin Adam (University of Rostock, Germany)*

*Kerstin Thurow (University of Rostock, Germany)*

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**17:00 - 18:30**

**IMS Publications Panel**

**Room:** Room G

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**20:00 - 23:00**

**Gala Dinner - Chioistro Del Carmine**

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Thursday, May 14<sup>th</sup>

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**08:15 - 09:00**

**Plenary Talk - Measurements for Certification of Railway Systems**

Carlo Carganico (Italcertifer S.p.A., Italy)

Room: Auditorium

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**09:00 - 10:30**

**I<sup>2</sup>MTC 2015 Wrap Up Meeting**

Room: Room A

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**09:05 - 10:50**

**SS7: Special Session 7: Instrumentation and measurements for Road Safety**

Room: Auditorium

Chairs: Luca De Vito (University of Sannio, Italy), Luigi Ferrigno (University of Cassino, Italy)

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**An Automated System for Accident Detection**

Asad Ali (New York University Abu Dhabi, UAE)

Mohamad Eid (New York University Abu Dhabi, UAE)

**Smartphone Instrumentation for Insurance Telematics**

Peter Händel (Royal Institute of Technology KTH, Sweden)

Isaac Skog (Royal Institute of Technology KTH, Sweden)

Martin Ohlsson (Royal Institute of Technology KTH, Sweden)

Jens Ohlsson (Moveo AB, Sweden)

**Selective Attentional Point-Tracking Through a Head-Mounted Stereo Gaze Tracker Based on Trinocular Epipolar Geometry**

Su Hyun Kwon (LG Display Co., Ltd., Korea)

Min Young Kim (Kyungpook National University, Korea)

**A Dual Step Energy Detection Based Spectrum Sensing Algorithm for Cognitive Vehicular Ad Hoc Networks**

Leopoldo Angrisani (University of Naples "Federico II", Italy)

Domenico Capriglione (University of Cassino and Southern Lazio, Italy)

Gianni Cerro (University of Cassino and Southern Lazio, Italy)

Luigi Ferrigno (University of Cassino and Southern Lazio, Italy)

Gianfranco Miele (University of Cassino and Southern Lazio, Italy)

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**09:05 - 10:50**

**T9-2: Measurement, Instrumentation, and Methodologies for Medical, Biomedical, and Healthcare Systems**

Room: Room C

Chair: Francesco Lamonaca (University of Calabria, Italy)

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**A Preliminary Study on a Method for Objective Uniformity Assessment in Diagnostic Ultrasound Imaging**

Andrea Scorza (Roma TRE University, Italy)

Giulia Lupi (Roma TRE University, Italy)

Salvatore Andrea Sciuto (Roma TRE University, Italy)

Luigi Battista (General Hospital "F. Miulli", Italy)

Jan Galo (IRCCS Children Hospital Bambino Gesù, Italy)

Thursday, May 14<sup>th</sup>

**Measurement of the Pupil Responses Induced by RGB Flickering Stimuli**

*Mario Bernabei (University of Modena and Reggio Emilia, Italy)*

*Luigi Rovati (University of Modena and Reggio Emilia, Italy)*

*Lorenzo Peretto (University of Bologna, Italy)*

*Roberto Tinarelli (University of Bologna, Italy)*

**Smart Transducer Interfaces Applied to Health Monitoring**

*Vítor Viegas (Polytechnic Institute of Setubal, Portugal)*

*Jose Costa Pereira (Polytechnic Institute of Setubal, Portugal)*

*Pedro Silva Girão (Instituto Superior Técnico, Portugal)*

*Gabriela Postolache (Instituto de Medicina Molecular, Portugal)*

*Octavian Adrian Postolache (Instituto de Telecomunicações & ISCTE-IUL, Portugal)*

**A Distributed Measurement System for Dermoscopic Analysis of Pigmented Skin Lesions**

*Giuseppe Di Leo (University of Salerno, Italy)*

*Alfredo Paolillo (University of Salerno, Italy)*

*Antonio Pietrosanto (University of Salerno, Italy)*

*Paolo Sommella (University of Salerno, Italy)*

*Gabriella Fabbrocini (University Federico II of Naples, Italy)*

*Sara Cacciapuoti (University Federico II of Naples, Italy)*

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**09:05 - 10:50**

**T1-1: Advances in Instrumentation and Measurement Developments and Techniques**

**Room:** Room D

**Chair:** Consolatina Liguori (University of Salerno, Italy)

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**Enhanced ADC Sine Wave Histogram Test**

*Solomon Max (LTX-Credence Corporation, USA)*

*Richard Liggiero (LTX-Credence Corporation, USA)*

**Self-compensating Networks for Four Terminal-Pair Impedance Definition in Current Comparator Bridges**

*Luca Callegaro (INRIM - Istituto Nazionale di Ricerca Metrologica, Italy)*

*Vincenzo D'Elia (INRIM - Istituto Nazionale di Ricerca Metrologica, Italy)*

*Faranak Pourdanesh (INRIM - Istituto Nazionale di Ricerca Metrologica, Italy)*

*Bruno Trinchera (INRIM - Istituto Nazionale di Ricerca Metrologica, Italy)*

*Jan Kucera (CMI - Czech Metrology Institute, Czech Republic)*

*Massimo Ortolano (Politecnico di Torino, Italy)*

**Analyzing Numerical Optimization Problems of Finite Resolution Sine Wave Fitting Algorithms**

*Balázs Renczes (Budapest University of Technology and Economics, Hungary)*

*István Kollár (Budapest University of Technology and Economics, Hungary)*

*Paolo Carbone (University of Perugia, Italy)*

*Antonio Moschitta (University of Perugia, Italy)*

*Vilmos Pálfi (Budapest University of Technology and Economics, Hungary)*

*Tamas Virosztek (Budapest University of Technology and Economics, Hungary)*

**High-Accuracy Frequency Estimation in Compressive Sensing-plus-DFT Spectral Analysis**

*Matteo Bertocco (University of Padova, Italy)*

*Guglielmo Frigo (University of Padova, Italy)*

*Claudio Narduzzi (University of Padova, Italy)*

**09:05 - 10:50**

**T6-2: Measurement Applications**

**Room:** Room E

**Chair:** Serge Demidenko (Massey University, New Zealand)

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**Forest Intrusion Detection System with Sensor Network**

*Bence Koszteczyk (University of Pannonia, Hungary)*

*Gergely Vakulya (University of Pannonia, Hungary)*

*Gyula Simon (University of Pannonia, Hungary)*

**Gesture-based Universal Optical Remote Control: Concept, Reconstruction Principle and Recognition Results**

*Heinrich Ruser (Bundeswehr University Munich, Germany)*

*Szymon Kosterski (Bundeswehr University Munich, Germany)*

*Christian Kargel (Bundeswehr University Munich, Germany)*

**SPICE-Based Dynamical Model of a NTC Thermoresistive Sensor for Anemometer Applications**

*Leonardo de Araujo (Federal University of Rio Grande do Norte, Brazil)*

*Sebastian Yuri Cavalcanti Catunda (Federal University of Rio Grande do Norte, Brazil)*

*Diomadson R Belfort (Federal University of Rio Grande do Norte, Brazil)*

*Matthieu Denoual (ENSICAEN, France)*

*Raimundo Freire (Universidade Federal de Campina Grande - PB, Brazil)*

**Tightly Coupled Integration of GPS and AC Magnetic Positioning Systems**

*Guido De Angelis (University of Perugia, Italy)*

*Alessio De Angelis (University of Perugia, Italy)*

*Valter Pasku (University of Perugia, Italy)*

*Antonio Moschitta (University of Perugia, Italy)*

*Paolo Carbone (University of Perugia, Italy)*

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**09:05 - 10:50**

**T3-2: Energy and Power Systems**

**Room:** Room B

**Chair:** Andrew Roscoe (University of Strathclyde, United Kingdom)

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**Asynchronous Harmonic Analysis Based on Out-of-sequence Measurement for Large-scale Residential Power Network**

*Youda Liu (Tsinghua University, P.R. China)*

*Xue Wang (Tsinghua University, P.R. China)*

*Yanchi Liu (Tsinghua University, P.R. China)*

**An Experimental Energy Set-Up for Wireless Battery Recharging**

*Leopoldo Angrisani (University of Naples Federico II, Italy)*

*Guido d'Alessandro (University of Naples Federico II, Italy)*

*Mauro D'Arco (University of Naples Federico II, Italy)*

**A Battery Equivalent-Circuit Model and an Advanced Technique for Parameter Estimation**

*Gianluca Aurilio (Second University of Naples, Italy)*

*Daniele Gallo (Second University of Naples, Italy)*

*Carmine Landi (Second University of Naples, Italy)*

*Mario Luiso (Second University of Naples, Italy)*

*Aniello Rosano (Second University of Naples, Italy)*

*Marco Landi (University of Salerno, Italy)*

*Vincenzo Paciello (University of Salerno, Italy)*

Thursday, May 14<sup>th</sup>

**Open-Circuit Voltage Measurement of Lithium-Iron-Phosphate Batteries**

*Federico Baronti (University of Pisa, Italy)*

*Walter Zamboni (University of Salerno, Italy)*

*Roberto Roncella (University of Pisa, Italy)*

*Roberto Saletti (University of Pisa, Italy)*

*Giovanni Spagnuolo (University of Salerno, Italy)*

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**10:50 - 11:10**

**Coffee Break**

**Room:** Ground Floor Gallery

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**11:00 - 12:30**

**I<sup>2</sup>MTC 2016 Planning Meeting**

**Room:** Room A

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**11:10 - 12:50**

**T8-1: Measurement Systems and Theory**

**Room:** Auditorium

**Chair:** Chi-Hung Hwang (Instrument Technology Research Center, Taiwan)

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**An Inverse Problem Approach to Approximating Sensor Data in Cyber Physical Systems**

*Paul O'Leary (University of Leoben, Austria)*

*Matthew Harker (University of Leoben, Austria)*

*Christoph Gugg (University of Leoben, Austria)*

**Uncertainty Propagation Through Non-Linear Measurement Functions by Means of Joint Random-Fuzzy Variables**

*Alessandro Ferrero (Politecnico di Milano, Italy)*

*Marco Prioli (Politecnico di Milano, Italy)*

*Simona Salicone (Politecnico di Milano, Italy)*

**Performance Comparison Between Expanded Uncertainty Evaluation Algorithms**

*Ye Chow Kuang (Monash University, Malaysia)*

*Melanie Po-Leen Ooi (Monash University, Malaysia)*

*Arvind Rajan (Monash University, Malaysia)*

*Serge Demidenko (Massey University, New Zealand)*

**Measurement Accuracy and Repeatability in Near-field Scanning Microwave Microscopy**

*Sijia Gu (IEMN - University of Lille, France)*

*Kamel Haddadi (IEMN - University of Lille, France)*

*Abdelhatif El Fellahi (IEMN - University of Lille, France)*

*Gilles Dambrine (IEMN - University of Lille, France)*

*Tuami Lasri (IEMN - University of Lille, France)*

**11:10 - 12:50**

**T9-3: Measurement, Instrumentation, and Methodologies for Medical, Biomedical, and Healthcare Systems**

**Room:** Room C

**Chair:** Marco Parvis (Politecnico di Torino, Italy)

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**Comprehensive Study of Spectrum Occupancy for 802.11b/g/n Homogeneous Networks**

*Samer Rajab (Oklahoma University, USA)*

*Walid Balid (Oklahoma University, USA)*

*Hazem Refai (Oklahoma University, USA)*

**Reputation-driven Multimodal Emotion Recognition in Wearable Biosensor Network**

*Yixiang Dai (Tsinghua University, P.R. China)*

*Xue Wang (Tsinghua University, P.R. China)*

*Xuanping Li (Tsinghua University, P.R. China)*

*Pengbo Zhang (Tsinghua University, P.R. China)*

**Modeling of the Test Fixtures to Improve the HBC Channel Interpretation**

*Maicon Pereira (Federal University of Santa Catarina, Brazil)*

*Germán Álvarez-Botero (Federal University of Santa Catarina, Brazil)*

*Fernando Rangel de Sousa (Federal University of Santa Catarina, Brazil)*

**Energy Harvesting Wireless Sensors for Smart Home Applications**

*Péter Györke (Budapest University of Technology and Economics, Hungary)*

*Béla Pataki (Budapest University of Technology and Economics, Hungary)*

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**11:10 - 12:50**

**T12-1: Sensors, Actuators, Transducers, and Sensor Fusion**

**Room:** Room D

**Chair:** Gourab Sen Gupta (Massey University, New Zealand)

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**MEMS Gyro Vibration Immunity and its Measurement with TIRA Shaker**

*Yakov A. Nekrasov (ITMO University & Concern CSRI Elektropribor, Russia)*

*Svetlana V. Pavlova (ITMO University & Concern CSRI Elektropribor, Russia)*

*Nikolay V. Moiseev (State Research Center of the Russian Federation Concern CSRI Elektropribor, JSC, Russia)*

**Signal Conditioning of a Resistive Potentiometric Displacement Sensor with a Floating Slide**

*Srinivas Rana (Indian Institute of Technology Madras, India)*

*Boby George (Indian Institute of Technology Madras, India)*

*Jagadeesh Kumar V (Indian Institute of Technology Madras, India)*

**A Low-Power Interface Circuit for Piezoresistive Transducers**

*Achille Donida (University of Applied Sciences of Southern Switzerland (SUPSI), Switzerland)*

*Diego Barrettino (University of Applied Sciences of Southern Switzerland (SUPSI), Switzerland)*

**"Vibration Driven" Mechanical Switches: a Novel Transduction Methodology with Applications to DC-DC "diode-Less" Voltage Multipliers**

*Bruno Andò (University of Catania, Italy)*

*Salvatore Baglio (University of Catania, Italy)*

*Angela Beninato (University of Catania, Italy)*

*Felice Maiorca (University of Catania, Italy)*

*Carlo Trigona (University of Catania, Italy)*

Thursday, May 14<sup>th</sup>

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11:10 - 12:50

**T13-2: Signal Processing Techniques**

Room: Room E

Chair: Sergio Rapuano (University of Sannio, Italy)

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**Robust Recovery of Wideband Block-Sparse Spectrum Based on MAP and MMSE Estimator**

*Jia Li (Harbin Institute of Technology, P.R. China)*

*Qiang Wang (Harbin Institute of Technology, P.R. China)*

*Jiayan Qiu (Australian National University, Australia)*

*Cong Dong (Australian National University, Australia)*

**Compressed Sensing and Mobile Agent Based Sparse Data Collection in Wireless Sensor Networks**

*Qiang Wang (Harbin Institute of Technology, P.R. China)*

*Cuicui Lv (Harbin Institute of Technology, P.R. China)*

*Shen Yi (Harbin Institute of Technology, P.R. China)*

*Jinming Chen (Beijing Institute of Spacecraft Environment Engineering, P.R. China)*

**Accuracy of Sine-wave Frequency Estimation by an Iterative Interpolated DFT Algorithm**

*Daniel Belega (University of Timisoara, Romania)*

*Dario Petri (University of Trento, Italy)*

*Dominique Dallet (University Bordeaux, France)*

**Enhanced Optimization of the Wideband Excitation Signal for a Bioimpedance Measurement**

*Jaan Ojarand (ELIKO Competence Centre, Estonia)*

*Marek Rist (Tallinn University of Technology, Estonia)*

*Mart Min (Tallinn University of Technology, Estonia)*

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11:10 - 12:50

**T3-3: Energy and Power Systems**

Room: Room B

Chair: Carlo Muscas (University of Cagliari, Italy)

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**Remote Monitoring of Wind Direction on Overhead Transmission Lines Based on Fiber Bragg Grating**

*Guo-ming Ma (North China Electric Power University, P.R. China)*

*Jun Jiang (North China Electric Power University, P.R. China)*

*Qing Zheng (North China Electric Power University, P.R. China)*

*Cheng-Rong Li (North China Electric Power University, P.R. China)*

*Noel Nathan (North China Electric Power University, P.R. China)*

*Rui-duo Mu (Tianjin Electric Power Company, SGCC, P.R. China)*

*Kai Zhou (Beijing Electric Power Research Institute, P.R. China)*

*Kuan Ye (Beijing Electric Power Research Institute, P.R. China)*

**On the Use of Spectral Power Ratios for Partial Discharge and Noise Separation in Radiofrequency Measurements**

*Jorge Artila-Rey (University Carlos III, Spain)*

*Ricardo Albarracín (University Carlos III, Spain)*

*Juan Manuel Martínez-Tarifa (University Carlos III, Spain)*

*Guillermo Robles (University Carlos III, Spain)*



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**Introducing the Measurement virtual-eGateway for Domestic Energy Management**

*Stefano Rinaldi (University of Brescia, Italy)*

*Paolo Ferrari (University of Brescia, Italy)*

*Alessandra Flammini (University of Brescia, Italy)*

*Angelo Vezzoli (University of Brescia, Italy)*

**Comparison Between Electrical and Pressure Measurements to Detect PEM Fuel Cell Flooding**

*Roberto Ferrero (University of Liverpool, United Kingdom)*

*Giovanni Dotelli (Politecnico di Milano, Italy)*

*Paola Gallo Stampino (Politecnico di Milano, Italy)*

*Saverio Latorrata (Politecnico di Milano, Italy)*

*Sergio Toscani (Politecnico di Milano, Italy)*

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**12:50 - 13:50**

**Lunch**

**Room:** Ground Floor Gallery

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**13:00 - 16:00**

**I<sup>2</sup>MTC Board Meeting**

**Room:** Room A

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**13:50 - 16:00**

**TS1-2: Track Event 1: Measurements in Railway Systems**

**Room:** Auditorium

**Chair:** Romano Giannetti (Universidad Pontificia Comillas, Spain)

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**Fast and Efficient Determination of Eigenfrequencies of Railway Systems**

*Hendriekus Smulders (Movares Netherlands, The Netherlands)*

*Harald Prins (Movares Netherlands, The Netherlands)*

**Analysis on the Effect of Return Current Harmonics According to the Properties of UM71 and TI21 Track Circuit**

*Jonghyen Baek (Korea Railroad Research Institute, Korea)*

*Hyeon Yeong Choi (Korea Railroad Research Institute, Korea)*

*Gonyop Kim (Korea Railroad Research Institute, Korea)*

*Chul Hong Park (Sungkyunkwan University, Korea)*

**Development of New HIL Architecture to Study High Speed Trains Dynamics on Full-Scale Test-Rigs**

*Benedetto Allotta (University of Florence, Italy)*

*Roberto Conti (Florence University, Italy)*

*Enrico Meli (Florence University, Italy)*

*Luca Pugi (University of Florence, Italy)*

*Alessandro Ridolfi (University of Florence, Italy)*

**Weigh in Motion Systems for Railway Vehicles: Performance and Robustness Analysis**

*Benedetto Allotta (University of Florence, Italy)*

*PierLuca D'Adamio (University of Florence, Italy)*

*Alice Innocenti (University of Florence, Italy)*

*G. Gaburri (University of Florence, Italy)*

*Lorenzo Marini (University of Florence, Italy)*

*Enrico Meli (University of Florence, Italy)*

*Luca Pugi (University of Florence, Italy)*

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**Measurement and Simulation of a Ferroresonance Occurred in a Single-phase 25kV Electric Railway Feeding Network**

*Mingli Wu (Beijing Jiaotong University, P.R. China)*

*Shaobing Yang (Beijing Jiaotong University, P.R. China)*

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**13:50 - 16:00**

**T6-3: Measurement Applications**

**Room:** Room C

**Chair:** Marco Faifer (Politecnico di Milano, Italy)

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**M2M Communication Delay Challenges: Application and Measurement Perspectives**

*Joachim Fabini (Vienna University of Technology, Austria)*

*Tanja Zseby (Vienna University of Technology, Austria)*

**Ultrasound Based Positioning Using Time of Flight Measurements and Crosstalk Mitigation**

*Guido De Angelis (University of Perugia, Italy)*

*Alessio De Angelis (University of Perugia, Italy)*

*Antonio Moschitta (University of Perugia, Italy)*

*Paolo Carbone (University of Perugia, Italy)*

**A Simple and Effective Testbench for Quartz Tuning Fork Characterization and Sensing Applications**

*Graziella Scandurra (University of Messina, Italy)*

*Gianluca Cannatà (University of Messina, Italy)*

*Gino Giusi (University of Messina, Italy)*

*Carmine Ciofi (University of Messina, Italy)*

**Analysis of the Sensitivity of AC Magnetic Ranging Systems to Environmental Configurations**

*Valter Pasku (University of Perugia, Italy)*

*Alessio De Angelis (University of Perugia, Italy)*

*Marco Dionigi (University of Perugia, Italy)*

*Antonio Moschitta (University of Perugia, Italy)*

*Guido De Angelis (University of Perugia, Italy)*

*Paolo Carbone (University of Perugia, Italy)*

**Electrical Characterization of Inkjet Printed Conductive Traces Using LinuxCNC**

*Christoph Beisteiner (Johannes Kepler University Linz, Austria)*

*Robert Wallner (Johannes Kepler University Linz, Austria)*

*Bernhard G. Zagar (Johannes Kepler University Linz, Austria)*

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**13:50 - 16:00**

**T8-2: Measurement Systems and Theory**

**Room:** Room D

**Chair:** Aime' Lay-Ekuakille (University of Salento, Italy)

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**Measurement System for Thermoelectric Module**

*Tri Ayodha Ajiwiguna (Telkom University, Indonesia)*

*Abrar Ismardi (Telkom University, Indonesia)*

*Seo Kim (KIST, Korea)*

Thursday, May 14<sup>th</sup>

**Design, Calibration and Measurement Uncertainty Analysis of a Tension Measurement Test System**

*Hasan Goksenin Cetin (ASELSAN Inc., Turkey)*

*Gokhan Ozturk (ASELSAN Inc., Turkey)*

*Yanki Celebi (ASELSAN Inc., Turkey)*

*Ahmet Dindar (ASELSAN Inc., Turkey)*

**Building a Gonireflectometer - a Geometrical Evaluation**

*Andreas Winkler (Johannes Kepler University Linz, Austria)*

*Bernhard G. Zagar (Johannes Kepler University Linz, Austria)*

**Flow Velocity Measurement by Cross-correlation with Tailored Modulation**

*Ziqiang Cui (Tianjin University, P.R. China)*

*Huaxiang Wang (Tianjin University, P.R. China)*

*Wuliang Yin (The University of Manchester, United Kingdom)*

*Wuqiang Yang (The University of Manchester, United Kingdom)*

**Microphone Calibration for the Measurement of Acoustic Transfer Functions**

*Thomas Wiesner (Johannes Kepler University Linz, Austria)*

*Bernhard G. Zagar (Johannes Kepler University Linz, Austria)*

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**13:50 - 16:00**

**T2: Data Acquisition Systems and Real-Time Measurements**

**Room:** Room E

**Chair:** Jacob Scharcanski (UFRGS, Brazil)

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**Phase Difference Measurement of Radio-Interference Signals with Low-Cost Devices**

*Gergely Zachár (University of Pannonia, Hungary)*

*Gyula Simon (University of Pannonia, Hungary)*

**Two-Stage Processing System for the Detection and On-Site Localization of Acoustic Emissions**

*Iago Búa Núñez (Universidad Carlos III de Madrid, Spain)*

*Julio E. Posada Roman (Universidad Carlos III de Madrid, Spain)*

*Jose A. Garcia-Souto (Universidad Carlos III de Madrid, Spain)*

**Internet-of-Things Infrastructure as a Platform for Distributed Measurement Applications**

*Elisa Spanò (University of Pisa, Italy)*

*Stefano Di Pascoli (University of Pisa, Italy)*

*Giuseppe Iannaccone (University of Pisa, Italy)*

**An Extension to IEEE Std. 1241 Sine Fit for Analog-to-Information Converters Testing**

*Pasquale Daponte (University of Sannio, Italy)*

*Luca De Vito (University of Sannio, Italy)*

*Sergio Rapuano (University of Sannio, Italy)*

**A Comparison Between FFT and MCT for Period Measurement with an ARM Microcontroller**

*Sabrina Guia (University of Beira Interior, Portugal)*

*António Espírito Santo (University of Beira Interior, Portugal)*

*Vincenzo Paciello (University of Salerno, Italy)*

*Francesco Abate (University of Salerno, Italy)*

*Antonio Pietrosanto (University of Salerno, Italy)*

13:50 - 16:00

**T1-2: Advances in Instrumentation and Measurement Developments and Techniques**

Room: Room B

Chair: Claudio Narduzzi (Universita' di Padova, Italy)

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**Extended Performance Measurements of Scalable 6LoWPAN Networks in an Automated Physical Testbed**

Artem Yushev (Offenburg University of Applied Sciences, Germany)

Peter Lehmann (Offenburg University of Applied Sciences, Germany)

Axel Sikora (Offenburg University of Applied Sciences, Germany)

Voicu Groza (University of Ottawa, Canada)

**An Automatic Thermal Cycling Based Test Platform for Thermoelectric Generator Testing**

Júlio Vêras (Federal Institute of Pernambuco, Brazil)

Bruno Willian de Souza Arruda (Federal University of Campina Grande, Brazil)

Débora Vieira (Federal University of Paraíba, Brazil)

Ewerton Melo (Federal University of Paraíba, Brazil)

Cleonilson Protasio Souza (Federal University of Paraíba, Brazil)

**Implementation of a Wireless Battery Management System (WBMS)**

Cody Shell (University of Oklahoma, USA)

Jacob Henderson (University of Oklahoma, USA)

Huibert A Verra (University of Oklahoma, USA)

John Dyer (University of Oklahoma, USA)

**On-Wafer Probe Station for Microwave Metrology At the Nanoscale**

Abdelhatif El Fellahi (IEMN - University of Lille, France)

Kamel Haddadi (IEMN - University of Lille, France)

Jaouad Marzouk (IEMN - University of Lille, France)

Steve Arscott (IEMN - University of Lille, France)

Christophe Boyaval (IEMN - University of Lille, France)

Tuami Lasri (IEMN - University of Lille, France)

Gilles Dambrine (IEMN - University of Lille, France)

**Application of a Testing Platform to Characterize Dynamic Monitoring Systems for Distribution Grids**

Abhinav Sadu (RWTH Aachen University, Germany)

Andrea Angioni (RWTH Aachen University, Germany)

Ferdinanda Ponci (RWTH Aachen University, Germany)

Antonello Monti (RWTH Aachen University, Germany)

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16:00 - 16:20

**Coffee Break**

Room: Ground Floor Gallery

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**16:20 - 18:30**

**T9-4: Measurement, Instrumentation, and Methodologies for Medical, Biomedical, and Healthcare Systems**

**Room:** Auditorium

**Chair:** Octavian Adrian Postolache (Instituto de Telecomunicações, Lisboa/IT & Instituto Universitario de Lisboa, ISCTE-IUL, Portugal)

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**Digital Pathology: Identifying Spongiosis in Unstained Histopathology Specimen**

*Sanush Abeysekera (Monash University, Malaysia)*

*Nicholas Kar Wei Siew (Monash University, Malaysia)*

*Melanie Po-Leen Ooi (Monash University, Malaysia)*

*Sharifah Syed Hassan (Monash University, Australia)*

*Ye Chow Kuang (Monash University, Malaysia)*

*Serge Demidenko (Massey University, New Zealand)*

**ECG Monitoring Using Android Mobile Phone and Bluetooth**

*Samuel E. de Lucena (Unesp - Sao Paulo State University, Brazil)*

*Daniel Sampaio (Unesp - Sao Paulo State University, Brazil)*

*Benjamin Mall (Karlsruhe University of Applied Science, Germany)*

*Michael Meyer (Karlsruhe University of Applied Science, Germany)*

*Martin Burkart (Karlsruhe University of Applied Science, Germany)*

*Frieder Keller (Karlsruhe University of Applied Science, Germany)*

**Measurement of Photoplethysmography Signal for Heart Rate Variability and Comparison of Two Different Age Groups**

*Mansoor Hussain Shah (Inetrnational Islamic University Malaysia, Malaysia)*

*Syed Absar Kazmi (Inetrnational Islamic University Malaysia, Malaysia)*

*Khairul Azami Sidek (Inetrnational Islamic University Malaysia, Malaysia)*

*Sheroz Khan (Inetrnational Islamic University Malaysia, Malaysia)*

**Accuracy Improvement in Gait Analysis Measurements: Kinematic Modeling**

*Patrizia Vergallo (University of Salento, Italy)*

*Aime' Lay-Ekuakille (University of Salento, Italy)*

*Francesco Angelillo (IRCCS Eugenia Medea, Italy)*

*Ivana Gallo (IRCCS Eugenia Medea, Italy)*

*Antonio Trabacca (IRCCS Eugenia Medea, Italy)*

**A Low Cost Measurement System to Extract Kinematic Parameters From Walker Devices**

*Jose Costa Pereira (ESTSetúbal, Portugal)*

*Octavian Adrian Postolache (Instituto de Telecomunicações, ISCTE-IUL, Portugal)*

*Vitor Viegas (ESTSetúbal, Portugal)*

*Pedro M. B. Silva Girão (Instituto Superior Técnico, Portugal)*

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**16:20 - 18:30**

**T12-2: Sensors, Actuators, Transducers, and Sensor Fusion**

**Room:** Room C

**Chair:** Salvatore Graziani (University of Catania, Italy)

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**Identification of the Spatial Impulse Response of Inductive Loop Detectors**

*Janusz Gajda (AGH University of Science and Technology, Poland)*

*Piotr Burnos (AGH University of Science and Technology, Poland)*

**Radio Interferometric Tracking Using Redundant Phase Measurements**

*Gergely Zachár (University of Pannonia, Hungary)*

*Gyula Simon (University of Pannonia, Hungary)*

Thursday, May 14<sup>th</sup>

**Target Registration Assignment in the Presence of Uncertainty**

*Stephen C Stubberud (Oakridge Technology, USA)*

*Kathleen A Kramer (University of San Diego, USA)*

**Time Domain Characterization of Avalanche Photo Detectors for Sub-ns Optical Pulses**

*Mikko Hintikka (University of Oulu, Finland)*

*Juha Kostamovaara (University of Oulu, Finland)*

**Kalman Filtering for Wearable Fitness Monitoring**

*Khuong Tran (RMIT International University, New Zealand)*

*Moi Tin Chew (Massey University, New Zealand)*

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**16:20 - 18:30**

**T4: Image Processing and Computational Intelligence Techniques**

**Room:** Room D

**Chair:** Ruqiang Yan (Southeast University, P.R. China)

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**Lung Nodule Volume Measurement Using Digital Chest Tomosynthesis**

*Daniel Hadhazi (Budapest University of Technology and Economics, Hungary)*

*Benjamin Czétényi (Budapest University of Technology and Economics, Hungary)*

*Áron Horváth (Budapest University of Technology and Economics, Hungary)*

*Gergely Orbán (Budapest University of Technology and Economics, Hungary)*

*Gábor Horváth (Budapest University of Technology and Economics, Hungary)*

*Ákos Horváth (Innomed Medical Co., Hungary)*

**Sparse 3D Reconstruction on a Mobile Phone with Stereo Camera for Close-Range Optical Tracking**

*Adrian Goral (AGH University of Science and Technology, Poland)*

**Automated Robust Metric Calibration of Multi-Focus Plenoptic Cameras**

*Christian Heinze (Raytrix GmbH, Germany)*

*Stefano Spyropoulos (Raytrix GmbH, Germany)*

*Stephan Hussmann (West Coast University of Applied Sciences, Germany)*

*Christian Perwass (Raytrix GmbH, Germany)*

**Reconstruction of EIT Images Via Patch Based Sparse Representation Over Learned Dictionaries**

*Qi Wang (Tianjin Polytechnic University, P.R. China)*

*Kongjun Sun (Tianjin Polytechnic University, P.R. China)*

*Jianming Wang (Tianjin Polytechnic University, P.R. China)*

*Ronghua Zhang (Tianjin Polytechnic University, P.R. China)*

*Huaxiang Wang (Tianjin University, P.R. China)*

**Determining the Composition of Bronze Alloys by Means of High-dimensional Feature Selection and Artificial Neural Networks**

*Eleonora D'Andrea (University of Pisa, Italy)*

*Beatrice Lazerini (University of Pisa, Italy)*

*Vincenzo Palleschi (Research Area of CNR, Italy)*

*Stefano Pagnotta (Research Area of CNR, Italy)*

Thursday, May 14<sup>th</sup>

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**16:20 - 18:30**

**T10-2: Non-invasive Measurement Techniques and Instrumentation**

**Room:** Room E

**Chair:** Kathleen A Kramer (University of San Diego, USA)

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**Quantitative Microwave Imaging in Lp Banach Spaces: A Numerical Assessment**

*Alessandro Fedeli (University of Genoa, Italy)*

*Matteo Pastorino (University of Genoa, Italy)*

*Andrea Randazzo (University of Genoa, Italy)*

**A New Dual-modality ECT/ERT Technique Based on C<sup>4</sup>D Principle**

*Baoliang Wang (Zhejiang University, P.R. China)*

*Zhongbao Gui (Zhejiang University, P.R. China)*

*Wuhao Tan (Zhejiang University, P.R. China)*

*Zhiyao Huang (Zhejiang University, P.R. China)*

*Haifeng Ji (Zhejiang University, P.R. China)*

*Haiqing Li (Zhejiang University, P.R. China)*

**Vision-based Probabilistic Absolute Position Sensor**

*René Paris (Vienna University of Technology, Austria)*

*Martin Melik-Merkumians (Vienna University of Technology, Austria)*

*Georg Schitter (Vienna University of Technology, Austria)*

**Wavelet Image Decomposition for Characterization of Freeze-Dried Pharmaceutical Product Structures**

*Sabrina Grassini (Politecnico di Torino, Italy)*

*Emma Paola Angelini (Politecnico di Torino, Italy)*

*Roberto Pisano (Politecnico di Torino, Italy)*

*Antonello Barresi (Politecnico di Torino, Italy)*

*Marco Parvis (Politecnico di Torino, Italy)*

**Low-Noise Instrument for Non-Invasive Monitoring of Photonic Integrated Circuits**

*Marco Carminati (Politecnico di Milano, Italy)*

*Giorgio Ferrari (Politecnico di Milano, Italy)*

*Pietro Ciccarella (Politecnico di Milano, Italy)*

*Stefano Sala (Politecnico di Milano, Italy)*

*Stefano Grillanda (Politecnico di Milano, Italy)*

*Francesco Morichetti (Politecnico di Milano, Italy)*

*Andrea Melloni (Politecnico di Milano, Italy)*

*Marco Sampietro (Politecnico di Milano, Italy)*

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**16:20 - 18:30**

**T5-4: Measurement and Instrumentation for Industrial Applications and Processes**

**Room:** Room B

**Chair:** Dušan Agrež (University of Ljubljana, Slovenia)

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**Non-contact Measurement of Stationary Characteristics of Shrouded Steam Turbine Blades Under Rotation**

*Pavel Procházka (Institute of Thermomechanics AS CR, v. v. i., Czech Republic)*

*František Vaněk (Institute of Thermomechanics AS CR, v. v. i., Czech Republic)*

**Investigations Into Force Sensor Characteristics for Food Texture Measurements**

*Zakaria Al-Battashi (Massey University, New Zealand)*

*John Bronlund (Massey University, New Zealand)*

*Gourab Sen Gupta (Massey University, New Zealand)*

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**Automatic Measurement System for the DC and Low-F Noise Characterization of FETs at Wafer Level**

*Gino Giusi (University of Messina, Italy)*

*Orazio Giordano (University of Messina, Italy)*

*Graziella Scandurra (University of Messina, Italy)*

*Matteo Rapisarda and Sabrina Calvi (IMM-CNR, Italy)*

*Carmine Ciofi (IMM-CNR, Italy)*

**Active Guarding of a Four-point Impedance Probe with One Common Guard Electrode for Maximum Readout Bandwidth**

*Reinoud Wolffenbuttel (Delft University of Technology, The Netherlands)*

*Ger De Graaf (Delft University of Technology, The Netherlands)*

**Simple Interference Detection and Classification for Industrial Wireless Sensor Networks**

*Emiliano Sisinni (University of Brescia, Italy)*

*Stefano Caiola (University of Brescia, Italy)*

*Alessandra Flammini (University of Brescia, Italy)*

*Mikael Gidlund (Mid Sweden University, Sweden)*

*Filip Barac (Mid Sweden University, Sweden)*