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Technical Schedule: Tuesday, May 21

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Room: Millennium Ballroom

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Room: Millennium Ballroom

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Mattia Butta (Czech Technical University in Prague, Czech Republic)

Michal Dressler (Czech Technical University in Prague, Czech Republic)

Elda Saunderson (South African National Space Agency, South Africa)

David Novotny (Czech Technical University in Prague, Czech Republic)

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Zheng Liu (University of British Columbia, Canada)

Hengli Song (China University of Geosciences, P.R. China)

Zhiwen Yuan (Science and Technology on Near-Surface Detection Laboratory, P.R. China)

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Lunch

Room: Atrium/Annexe

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IEEE Instrumentation and Measurement Society

J. Barry Oakes Advancement Award Recipient: Ali Foudazi

Development of Active Microwave Thermography (AMT) for Nondestructive Testing and Evaluation (NDT&E) Applications

Room: Millennium Ballroom
14:00 - 15:00
A Comprehensive Insight into Effective and Informed Archival Journal Publication Process by Prof. Reza Zoughi
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Giovanna Sansoni (University of Brescia, Italy)
Simone Pasinetti (University of Brescia, Italy)
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Room: Atrium/Annexe

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TIMPS: I&M TRANSACTIONS PAPERS @ I2MTC

Room: Atrium/Annexe

1: Wireless Indoor Positioning With Vertically Uniform Alternating Magnetic Fields

Lixin Ran (Zhejiang University, P.R. China)

Xiaokang Qi (Zhejiang University, P.R. China)

Chao Ma (Zhejiang University, P.R. China)

2: Detection of Third Heart Sound Using Variational Mode Decomposition

Madhusudhan Mishra (Indian Institute of Technology, Kharagpur & NERIST, India)

Sanmitra Banerjee (Indian Institute of Technology Kharagpur, India)

Dennis Thomas (Indian Institute of Technology Kharagpur, India)

Sagnik Dutta (Indian Institute of Engineering Science and Technology Shibpur, India)

Anirban Mukherjee (Indian Institute of Technology Kharagpur, India)

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Vincent Tseng (Chung Yuan Christian University, Taiwan)

4: In-Motion Filter-QUEST Alignment for Strapdown Inertial Navigation Systems

Xiang Xu (Soochow University, P.R. China)

5: Design and Characterization of a Fringing Field Capacitive Soil Moisture Sensor

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Babak Montazer (Gauhati University, India)

Utpal Sarma (Gauhati University, India)

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Gu-Young Kwon (Yonsei University, Korea)

Yong-June Shin (Yonsei University, Korea)

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Jimmy A Cortes (Universidad Tecnologica de Pereira & Universidad Nacional de Colombia, Sede Manizales, Colombia)

Juan Gomez-Mendoza (Universidad Nacional de Colombia - INSA de Lyon, Colombia)

Juan Riaño-Rojas (Universidad Nacional de Colombia sede Manizales & PCM Computational Applications, Colombia)

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Diange Yang (Tsinghua University, P.R. China)

Kun Jiang (Tsinghua University, P.R. China)

Yuanxin Zhong (University of Michigan, USA)

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Lee Streeter (University of Waikato, New Zealand)

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Jon Otegui Arruti (University of Deusto & DeustoTech, Spain)

Alfonso Bahillo (University of Deusto, Spain)

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Vincent Mosser (Issy Technology Center & Itron France, France)

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Jan-Philipp Kitzig (Hochschule Ruhr West, Germany)

Sven Schlaghecke (Hochschule Ruhr West, Germany)

Gerd Bumiller (Hochschule Ruhr West & University of Applied Sciences, Germany)

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Chandrika Sreekantan Anoop (Indian Institute of Space Science and Technology, India)

Pranab K. Dutta (IIT Kharagpur, India)

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Yin Jeh Ngui (National Chiao Tung University, Taiwan)

Chun-Hung Lin (National Sun Yat-sen University, Taiwan)

15: FOCUS: Detecting ADHD Patients by an EEG-Based Serious Game

Shervin Shirmohammadi (University of Ottawa, Canada)

Alaa Eddin Alchalabi (University of Ottawa & Q Network Inc., Canada)

Amer Nour Eddin (Istanbul Sehir University, Turkey)

Mohamed Elsharnouby (Istanbul Sehir University, Turkey)

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Tzung-Cheng Chen (Chang Jung Christian University, Taiwan)
Yi-Chun Chen (National Chiao Tung University, Taiwan)
Chi Cho Huang (Taiwan Agricultural Research Institute, Taiwan)
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Adam Swanson (Callaghan Innovation, New Zealand)

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Antonio Delle Femine (University of Campania Luigi Vanvitelli, Italy)

Daniele Gallo (University of Campania Luigi Vanvitelli, Italy)

Carmine Landi (University of Campania Luigi Vanvitelli, Italy)

Mario Luiso (University of Campania Luigi Vanvitelli, Italy)

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Gerd Bumiller (Hochschule Ruhr West & University of Applied Sciences, Germany)

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Michele Zanoni (Politecnico di Milano, Italy)

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Asja Derviskadic (École Polytechnique Fédérale de Lausanne (EPFL), Switzerland)

Paolo Attilio Pegoraro (University of Cagliari, Italy)

Carlo Muscas (University of Cagliari, Italy)

Mario Paolone (Swiss Federal Institute of Technology of Lausanne (EPFL), Switzerland)

8:00 – 10:00

WA5: Mini-symposium on SI for the 21st Century

Room: Millennium 2

The Avogadro Constant and the Mole Presenter

Dr Lindsey Mackay (National Measurement Institute, Australia)

The Planck Constant and the Kilogram

Dr Yin Hsien Fung (Research Scientist, Mass and Related Quantities Section of MSL)

The Elementary Charge and the Ampere

Dr Murray Early (Principle Research Scientist MSL)

The Boltzmann Constant and the Kelvin

Dr Rod White (Distinguished Scientist, Temperature and Light Section of MSL)

10:00 - 10:30

Morning Tea

Room: Atrium/Annexe

10:30 - 11:30

Keynote Speaker: Dr. Michael de Podesta

Redefining the Kilogram, the Kelvin, the Ampere and the Mole: Why You Should Care Even Though You Won't Notice

Room: Millennium Ballroom

11:30 - 12:00

IEEE I2MTC 2019: Award Ceremony

Room: Millennium Ballroom

12:00 - 13:00

Lunch

Room: Atrium/Annexe

13:00 - 15:00

WPS: Late Result Poster Session

Room: Atrium/Annexe

1: Optofluidic Device for Urine pH Value Measurement

Chen-Hsun Weng (National Cheng Kung University, Taiwan)

Ming-Huang Chen (National Cheng Kung University, Taiwan)

2: Optimized SSLMS algorithm with PSO for rotor vibration signal de-noising

Rongzhen Zhao (Lanzhou University of Technology, P.R. China)

Chao Li (Lanzhou University of Technology, P.R. China)

3: A study of behavioral-based model for a simple tuned oscillator

Kia Hock Tan (Universiti Tunku Abdul Rahman, Malaysia)

4: Novel Measurement Device for Local Mechatronic Property of Biological Gel with Single Mechanically Micro-Vibrating Electrode

Shigehiro Hashimoto (Kogakuin University, Japan)

Kiyoshi Yoshinaka (National Institute of Advanced Industrial Science and Technology, Japan)

5: A Novel AI Sensing and Mobile Medical Fusion System for Synchronized Blood Glucose Measurement and Insulin Injection

Jiankang Bu (University of Chicago, Endeavor Microelectronics Technology, USA)

6: Impedance Measurement by Micro-electrodes of a Pair of Concentric Cylinders for Estimation of Local Cell Configuration in Biological Tissue

Shigehiro Hashimoto (Kogakuin University, Japan)

Kiyoshi Yoshinaka (National Institute of Advanced Industrial Science and Technology, Japan)

7: Development of Multi-channel Current-Voltage Analyzer for the On-Wafer Electrical Measurement

Po-Jui Chen (Taiwan Instrument Research Institute, National Applied Research Laboratories, Taiwan)

Yi-Hao Lin (Taiwan Instrument Research Institute, National Applied Research Laboratories, Taiwan)

Yu-Hsin Lin (Instrument Technology Research Center, National Applied Research Laboratories, Taiwan)

Chih-Wen Chen (Instrument Technology Research Center, NARLabs, Taiwan)

Ming-Fu Chen (Instrument Technology Research Center, NARLabs, Taiwan)

8: Amplitude Estimation of Noisy Signal in Power System by Three-Point Interpolated DFT

Chengcheng Li (Hunan University, P.R. China)

Junwei Zhang (Guizhou Electric Power Research Institute, P.R. China)

He Wen (Hunan University & College of Electrical and Information Engineering, P.R. China)

9: Alignment and Measurement for Injection System of Medical Heavy Ion Accelerator

Wenjun Chen (Institute of Modern Physics, Chinese Academy of Sciences, P.R. China)

10: Analysis of Vibration and Acoustic Signal for Noncontact Measurement of Engine Rotate Speed

Xuansheng Shan (Hunan University, P.R. China)

Lu Tang (Hunan University, P.R. China)

He Wen (Hunan University & College of Electrical and Information Engineering, P.R. China)

11: Monitoring of Orientation of Cells by Electric Impedance: Test on Oriented Cells Using Micro Striped Pattern by Photolithography

Shigehiro Hashimoto (Kogakuin University, Japan)

Kazuyuki Abe (Kogakuin University, Japan)

12: Hybrid Multi-frequency Attitude Estimation Based on Vision and Inertial Integrated Measurement System

Yu Zhang (North University of China, P.R. China)

Xiaoting Guo (North University of China, P.R. China)

Chong Shen (North University of China, P.R. China)

Jun Tang (North University of China, P.R. China)

Jun Liu (North University of China, P.R. China)

Donghua Zhao (North University of China, P.R. China)

13: Autonomous Data Acquisition System based on a Low-Power Microcontroller and Energy Harvesting

Jorge Marcos-Acevedo (University of Vigo - E.T.S.I.I., Spain)

Camilo Quintans-Graña (University of Vigo, Spain)

Carlos Peñalver-Freire (University of Vigo, Spain)

Alfonso Lago Ferreiro (University of Vigo, Spain)

Carmen Núñez-Estévez (Universidad de Vigo, Spain)

Andrés A. Nogueiras Meléndez (University of Vigo, Spain)

13:00 – 15:00

WPS: Wednesday Poster Session

Room: Atrium/Annexe

14: Finger-vein image segmentation based on KFCM and active contour model 718

Jianfeng Zhang (Tianjin University, P.R. China)

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Min Li (Tianjin University, P.R. China)

15: Research on Technologies of Computer Aided Diagnosis for Solitary Pulmonary Nodule Based on CT Images 724

Yanqiu Wang (Tianjin University, P.R. China)

Yue (Tianjin University, P.R. China)

Qi Li (Tianjin University, P.R. China)

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Jia Li (Tianjin University, P.R. China)

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

Zhuxu Zhou (Harbin Institute of Technology, P.R. China)

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

17: A GAN-Based Anomaly Detection Method for Isoelectric Line in High-Speed Railway 735

Yang Lyu (Southwest Jiaotong University, P.R. China)

Zhiwei Han (Southwest Jiaotong University, P.R. China)

Junping Zhong (Southwest Jiaotong University, P.R. China)

Changjiang Li (Southwest Jiaotong University, P.R. China)

Zhigang Liu (Southwest Jiaotong University, The Netherlands)

18: Phase extraction in digital speckle pattern interferometry using variational mode decomposition and high-order ambiguity function 741

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Hui Zhang (Tianjin University, P.R. China)

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Chang Ma (Tianjin University, P.R. China)

Hengrui Cui (Tianjin University, P.R. China)

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Xinxin Li (Harbin Institute of Technology & Control Science and Engineering, P.R. China)	
Shen Yi (Harbin Institute of Technology, P.R. China)	
Qiang Wang (Harbin Institute of Technology, P.R. China)	
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Yang Jiao (Huazhong University of Science and Technology, P.R. China)	
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Salvatore Guaiana (Università di Palermo, Italy)	
Dario Di Cara (National Research Council, Italy)	
Nicola Panzavecchia (National Research Council, Italy)	
Giovanni Tinè (National Research Council, Italy)	
Vincenzo Antonucci (National Council of Research (CNR) Nicola Giordano (ITAE), Italy)	
Marco Ferraro (National Council of Research (CNR) Nicola Giordano (ITAE), Italy)	
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Gabriella Crotti (Istituto Nazionale di Ricerca Metrologia, Italy)	
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Daniele Gallo (University of Campania Luigi Vanvitelli, Italy)	
Domenico Giordano (Istituto Nazionale di Ricerca Metrologica, Italy)	
Carmine Landi (University of Campania Luigi Vanvitelli, Italy)	
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Daniele Gallo (University of Campania Luigi Vanvitelli, Italy)	
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Vincenzo Paciello (University of Cassino and Southern Lazio, Italy)	
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Cleumar da Silva Moreira (Instituto Federal da Paraíba & Campus Joao Pessoa, Brazil)	
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Mauro Silva Pinto (Federal University of Maranhão', Brazil)	
Raimundo Freire (Universidade Federal de Campina Grande - PB, Brazil)	
Maciel Oliveira (UFCEG, Brazil)	
Paulo Silva (Federal Institute of Education, Science and Technology of Paraíba, Brazil)	
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Hongying Zhang (Harbin Engineering University, P.R. China)	
Chao Duan (Harbin Engineering University, P.R. China)	
Zhuoshu Li (Harbin Engineering University, P.R. China)	
Ye Tian (Harbin Engineering University, P.R. China)	
Quan Chai (Harbin Engineering University, P.R. China)	
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63: Analysis of Autoregressive Coefficients of Knock Sensor Signals for Misfire Detection in Internal Combustion Engines 988
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Riccardo Basso (Graz University of Technology, Austria)
Hannes Wegleiter (Graz University of Technology, Austria)
Georg Brasseur (Graz University of Technology, Austria)

13:00 – 15:00

SMSC: IEEE International Sensors and Measurement Student Contest

Room: Aucklander

15:00 - 15:30

Afternoon Tea

Room: Atrium/Annexe

15:30 – 17:30

WP1: Special Session 13: Recent Advances in Fiber Optic Sensing: Sensors, Instrumentation, Measurements and Applications

Room: Tasman 1

Fiber Optic Photodynamic Manipulating Tools

Prof. Libo Yuan (Guilin University of Electronic Technology, China)

High-Spatial Resolution Demodulation of Weak FBGs Based on Incoherent Optical Frequency Domain Reflectometry Using a Chaotic laser 994

Qian Yang (Wuhan University of Technology, P.R. China)

Xuelel Fu (Wuhan University of Technology, P.R. China)

Honghai Wang (Wuhan University of Technology, P.R. China)

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Linfeng Li (Wuhan University of Technology, P.R. China)

Zhengying Li (Wuhan University of Technology, P.R. China)

Simultaneous detection of deepsea earthquake and magnetic field using three-axis fiber optic accelerometer-magnetometer 1004

Wentao Zhang (Institute of Semiconductors, Chinese Academy of Sciences, P.R. China)

Wenzhu Huang (Institute of Semiconductors, Chinese Academy of Sciences, P.R. China)

Fang Li (Institute of Semiconductors, Chinese Academy of Sciences, P.R. China)

Yingbo Luo (Institute of Semiconductors, Chinese Academy of Sciences, P.R. China)

Monitoring of buoyancy material curing based on FBG sensors 1009

Wentao Zhang (Institute of Semiconductors, Chinese Academy of Sciences, P.R. China)
Shuaijie Miao (Institute of Semiconductors, Chinese Academy of Sciences, P.R. China)
Wenzhu Huang (Institute of Semiconductors, Chinese Academy of Sciences, P.R. China)
Fang Li (Institute of Semiconductors, Chinese Academy of Sciences, P.R. China)
Ying Song (Shijiazhuang Tiedao University, P.R. China)

Thin-film Thickness Absolute Measurement by Differential Optic-fiber White Light Interferometry 1014

Xu Lu (Harbin Engineering University, P.R. China)
Zhangjun Yu (Harbin Engineering University, P.R. China)
Jun Yang (Harbin Engineering University, P.R. China)
Yonggui Yuan (Harbin Engineering University, P.R. China)
Hanyang Li (Harbin Engineering University, P.R. China)
Libo Yuan (Harbin Engineering University, P.R. China)

15:30 – 17:30

WP2: Networks and measurements - 1

Room: Tasman 2

Wireline channel estimation by compressive sampling for physical layer testing 1019

Luca De Vito (University of Sannio, Italy)
Francesco Picariello (University of Sannio, Italy)
Sergio Rapuano (University of Sannio, Italy)
Ioan Tudosa (University of Sannio, Italy)
Lee A Barford (Keysight Laboratories, Keysight Technologies, Inc. & University of Nevada, USA)

Evaluation of the Performance of a Wireless Mesh Network Built with Sub-GHz Transceivers 1024

Kaique de Azevedo Albuquerque (Universidade Federal da Paraíba, Brazil)
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Celso Padilha (Federal University of Paraíba, Brazil)
Jose Custodio (Federal University of Paraíba - UFPB, Brazil)
Juan Moises Mauricio Villanueva (Federal University of Paraíba & UFPB, Brazil)
Euler Tavares Macedo (Federal University of Paraíba, Brazil)
Jonathan Moura (Universidade Federal da Paraíba, Brazil)
Sebastian Yuri Cavalcanti Catunda (Federal University of Rio Grande do Norte, Brazil)

Development of low power consumption manhole cover monitoring device using LoRa.. 1030

Lei Li (Beijing Jiaotong University, P.R. China)
Hesheng Zhang (Beijing Jiaotong University, P.R. China)

Cell Capacity Evaluation of Downlink 2x2 and 4x4 MIMO with Respect to 2R and 4R CPEs 1036

Jianquan Liang (Huawei Technologies New Zealand, New Zealand)
Shudong Fang (The University of Auckland, New Zealand)

Smart meters communication using Gas pipelines as channel: feasibility study 1042

Francesco Abate (University of Salerno, Italy)
Domenico Di Caro (University of Salerno, Italy)
Giuseppe Di Leo (University of Salerno, Italy)
Vincenzo Paciello (University of Cassino and Southern Lazio, Italy)
Antonio Pietrosanto (University of Salerno & CEO of SPRING OFF srl, Italy)

Distributed Sampling of Multiple Sinusoids with Finite Rate of Innovation 1048

Zhiliang Wei (Harbin Institute of Technology, P.R. China)
Ning Fu (Harbin Institute of Technology, P.R. China)
Liyang Qiao (Harbin Institute of Technology, P.R. China)

15:30 - 17:30

WP3: Special Session 2: Advanced Measurement and Instrumentation for NDT&E - 2

Room: Aucklander

Experimental investigation on acoustic characteristics of small leakages in metal water pipe for in-pipe inspections 1053

Tianshu Xu (Tianjin University, P.R. China)
Zhoumo Zeng (Tianjin University, P.R. China)
Xinjing Huang (Tianjin University, P.R. China)
Jian Li (Tianjin University, P.R. China)
Shili Chen (Tianjin University, P.R. China)
Xiaobo Rui (Tianjin University, P.R. China)

Excitation structure design and magnetic field analysis of a new electromagnetic flowmeter based on magnetically permeable material 1058

Hongyu Yang (University of Electronic Science and Technology of China & School of Automation Engineering, P.R. China)
Yan Chen (University of Electronic Science and Technology of China, P.R. China)
Guangming Qing (China Railway Rolling Stock Corporation ZhuZhou Institute Co., Ltd, P.R. China)
Hui Zhao (University of Electronic Science and Technology of China, P.R. China)

A fast baseline and trigger level calibration method in digital oscilloscope 1064

Kuojun Yang (University of Electronic Science and Technology of China, P.R. China)
Zhixiang Pan (University of Electronic Science and Technology of China, P.R. China)
Jiali Shi (SiChuan College of Architectural Technology, P.R. China)
Peng Ye (University of Electronic Science and Technology of China, P.R. China)

An algorithm for Implementing Large-point DFT 1070

Yijiao Zhang (University of Electronic Science and Technology of China, P.R. China)
Shulin Tian (University of Electronic Science and Technology of China, P.R. China)
Huiqing Pan (University of Electronic Science and Technology of China, P.R. China)
Lianping Guo (University of Electronic Science and Technology of China, P.R. China)
Kuojun Yang (University of Electronic Science and Technology of China, P.R. China)

Quantification of complex defects in magnetic flux leakage (MFL) testing using gradient gray level analysis based on least square approximation 1076

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

Yuhua Cheng (University of Electronic Science and Technology of China & School of Automation Engineering, P.R. China)

Fred John Alimey (University of Electronic Science and Technology of China (UESTC), P.R. China)

Haichao Yu (University of Electronic Science and Technology of China, P.R. China)

Jinhua Mi (University of Electronic Science and Technology of China, P.R. China)

Yonggang Wang (University of Electronic Science and Technology of China, P.R. China)

Lithium-ion battery state of health monitoring based on ensemble learning 1082

Yuanyuan Li (University of Electronic Science and Technology of China, P.R. China)

Hanmin Sheng (University of Electronic Science and Technology of China, P.R. China)

Yuhua Cheng (University of Electronic Science and Technology of China & School of Automation Engineering, P.R. China)

Hongjun Kuang (University of Electronic Science and Technology of China, P.R. China)

15:30 – 17:30

WP4: Energy and Power - 3

Room: Millennium 1

Experimenting Non-Contact Power Measurement for 3-Phase Residential Applications... 1088

Ferdinanda Ponci (RWTH Aachen University, Germany)

Carlo Guarnieri Calò Carducci (RWTH Aachen University, Germany)

Antonello Monti (RWTH Aachen University & Institute for Automation of Complex Power Systems, Germany)

A Design Approach for a Low Cost Phasor Measurement Unit 1094

Antonio Delle Femine (University of Campania Luigi Vanvitelli, Italy)

Daniele Gallo (University of Campania Luigi Vanvitelli, Italy)

Carmine Landi (University of Campania Luigi Vanvitelli, Italy)

Mario Luiso (University of Campania Luigi Vanvitelli, Italy)

A Space Vector Phase-Locked-Loop approach to synchrophasor, frequency and ROCOF estimation 1100

Roberto Ferrero (University of Liverpool, United Kingdom (Great Britain))

Paolo Attilio Pegoraro (University of Cagliari, Italy)

Sergio Toscani (Politecnico di Milano, Italy)

A Review on the Application of the Time Reversal Theory to Wire Network and Power System Diagnosis 1106

Moussa Kafal (CEA, LIST, France)

Reza Razzaghi (Monash University, Australia)

Andrea Cozza (CentraleSupélec - CNRS - Université Paris Sud & GeePs Laboratory, France)

Fabrice Auzanneau (CEA LIST, France)

Wafa Ben Hassen (CEA LIST, France)

Measurement of transient flow structures of horizontal gas-liquid two-phase flows using wire-mesh sensor 1112

Lusheng Zhai (Tianjin University, P.R. China)

Jie Yang (Tianjin University, P.R. China)

Hailin Xie (Tianjin University, P.R. China)

Ziqiang Cui (Tianjin University, P.R. China)

Moving Photovoltaic (PV) Installations: Impacts of the Solar Radiation Level on the Output Power 1117

Christian Schuss (University of Oulu & Faculty of Information Technology and Electrical Engineering, Finland)

Tapio Fabritius (University of Oulu, Finland)

Bernd Eichberger (Graz University of Technology, Austria)

Timo Rahkonen (University of Oulu, Finland)

15:30 – 17:30

WP5: Graduate/Student Panel

Room: Millennium 2

17:30 - 22:30

Gala Dinner: Auckland War Memorial Museum

Technical Schedule: Thursday, May 23

7:00 - 17:30
Registration

8:00 – 10:00
HA1: Robotics
Room: Tasman 1

Performance Assessment of a People Tracker for Social Robots..... 1123

Alessandro Antonucci (University of Trento, Italy)
Valerio Magnago (University of Trento, Italy)
Luigi Palopoli (Universita` di Trento, Italy)
Daniele Fontanelli (University of Trento, Italy)

Analysis of Measurement Process Design for a Dual-Arm Robot Using Graphical User Interface 1129

Shalaka Joshi (University of Rostock, Germany)
Heidi Fleischer (University of Rostock, Germany)
Thomas Roddelkopf (Center for Life Science Automation - CELISCA, Germany)
Michael Klos (Yaskawa Europe GmbH, Germany)
Kerstin Thurow (Center for Life Science Automation - CELISCA, Germany)

Robot Localisation based on Phase Measures of backscattered UHF-RFID Signals 1135

Valerio Magnago (University of Trento, Italy)
Luigi Palopoli (Universita` di Trento, Italy)
Daniele Fontanelli (University of Trento, Italy)
David Macii (University of Trento, Italy)
Andrea Motroni
Paolo Nepa (University of Pisa, Italy)
Alice Buffi (University of Pisa, Italy)
Bernardo Tellini (University of Pisa, Italy)

Constrained Kalman Filter for Adaptive Prediction in Minidrone Flight..... 1141

Marco Andreetto (University of Trento, Italy)
Luigi Palopoli (Universita` di Trento, Italy)
Daniele Fontanelli (University of Trento, Italy)

Development and evaluation of a low-cost delta robot system for weed control applications in organic farming 1147

Stephan Hussmann (West Coast University of Applied Sciences, Germany)
Tim Holtorf (West Coast University of Applied Sciences, Germany)
Florian Johannes Knoll (West Coast University, Germany)
Vitali Czymmek (West Coast University of Applied Sciences, Germany)
André Meissner (West Coast University of Applied Sciences, Germany)

A Novel Underactuated Soft Humanoid Hand For Hand Sign Language..... 1152

Mohamed Salem (Harbin Institute of Technology & Benha Faculty Of Engineering, P.R. China)
Ruoshi Wen (Harbin Institute of Technology, P.R. China)
Ma Xu (Harbin Institute of Technology, P.R. China)
Yan Liu (Harbin University of science and Technology)
Xiang Ma (Harbin Institute of Technology, P.R. China)
Qiang Wang (Harbin Institute of Technology, P.R. China)

8:00 – 10:00

HA2: Non-invasive Measurements - 1

Room: Tasman 2

A cost-effective method to assess the fiber content and orientation in steel fiber reinforced concrete 1158

Ting Lei (Politecnico di Milano, Italy)
Marco Faifer (Politecnico di Milano, Italy)
Liberato Ferrara (Politecnico di Milano, Italy)
Roberto Ottoboni (Politecnico di Milano, Italy)
Sergio Toscani (Politecnico di Milano, Italy)

A Method for Absolute Electrical Impedance Tomography without Measuring Reference Voltages 1164

Zeying Wang (Tianjin University, P.R. China)
Yue (Tianjin University, P.R. China)
Xiaoyuan Liu (Tianjin University, P.R. China)
Benyuan Sun (Tianjin University, P.R. China)
Huaxiang Wang (Tianjin University, P.R. China)

Research on Low Water Volume Fraction Measurement of Two-Phase Flow Based on TM010 Mode Microwave Cavity Sensor 1170

Yi-Guang Yang (Tianjin University, P.R. China)
Ying Xu (Tianjin University, P.R. China)
Tao Zhang (TianJin University, P.R. China)

On the Inspection of Glass Reinforced Epoxy Pipes using Microwave NDT 1175

Mohammed Saif ur Rahman (Khalifa University-The Petroleum Institute, United Arab Emirates)
Andri Haryono (Khalifa University of Science and Technology, United Arab Emirates)
Zubair Akhter (Khalifa University of Science and Technology, Abu Dhabi, United Arab Emirates)
Mohamed A Abou-Khousa (Khalifa University of Science and Technology & Petroleum Institute, United Arab Emirates)

Excitation Patterns in 3D Electrical Impedance Tomography for Breast Imaging 1180

Shijie Sun (Beihang University, P.R. China)
Lijun Xu (Beihang University, P.R. China)
Zhang Cao (Beihang University, P.R. China)
Jiangtao Sun (Beihang University, P.R. China)
Wenbin Tian (Beihang University, P.R. China)
Duan Li (Beihang University, P.R. China)

Bearing fault diagnosis under different operating conditions based on cross domain feature projection and domain adaptation 1185
Shuzhi Dong (Xi'anJiaotong University, P.R. China)
Guangrui Wen (Xi'anJiaotong University, P.R. China)
Zhifen Zhang (Xi'an Jiaotong University, P.R. China)

8:00 - 10:00

HA3: Sensors and Transducers - 1

Room: Aucklander

Design of Accurate Rogowski Coil for High Transient Currents 1191
Mirko Marracci (University of Pisa, Italy)
Bernardo Tellini (University of Pisa, Italy)

Dynamic Spatial Measurements based on a Bimorph Artificial Whisker and RTD-Fluxgate Magnetometer 1197
Carlo Trigona (University of Catania, Italy)
Valentina Sinatra (University of Catania, Italy)
Salvatore Puglisi (University of Catania, Italy)
Antonio Riccardo Fallico (University of Catania, Italy)
Bruno Andò (University of Catania, Italy)
Salvatore Baglio (University of Catania, Italy)

Differential Inductive Sensor-to-Microcontroller Interface Circuit 1202
Zhivko Kokolanski (Assistant, Macedonia, the former Yugoslav Republic of)
Manel Gasulla (Universitat Politècnica de Catalunya, Spain)
Ferran Reverter (Universitat Politècnica de Catalunya, Spain)

Low-Cost Eye Gesture Communication System for People with Motor Disabilities 1207
Moi Tin Chew (Massey University, New Zealand)

Impact of Data Model on Performance of Time Series Database for Internet of Things Applications 1212
Stefano Rinaldi (University of Brescia, Italy)
Federico Bonafini (University of Brescia, Italy)
Paolo Ferrari (University of Brescia, Italy)
Alessandra Flammini (University of Brescia, Italy)
Emiliano Sisinni (University of Brescia, Italy)
Devis Bianchini (University of Brescia, Italy)

Signal analysis of vortex flow field in mist flow using transient pressure sensor array..... 1218
Hongjun Sun (Tianjin University, P.R. China)
Xiaoliang Li (Tianjin University, P.R. China)
Hongbing Ding (Tianjin Uiversity, P.R. China)
Jinxia Li (Tianjin University, P.R. China)

8:00 – 10:00

HA4: Signal Processing - 1

Room: Millennium 1

Accurate measurement of Kinetic Friction Coefficient by using two types of tribometer .. 1224

Domenico Russo (University of Salerno, Italy)

Giuseppe Di Leo (University of Salerno, Italy)

Consolatina Liguori (University of Salerno, Italy)

Alessandro Ruggiero (University of Salerno, Italy)

Paolo Sommella (University of Salerno, Italy)

Amplitude and phase estimations in the shortened measurement time using average values of signal..... 1230

Dušan Agrež (University of Ljubljana, Slovenia)

Accuracy Analysis of an Enhanced Frequency-Domain Linear Least-Squares Algorithm. 1236

Daniel Belega (University of Timisoara, Romania)

Dario Petri (University of Trento, Italy)

Localization of radio emitters by wideband compressive sampling..... 1241

Eulalia Balestrieri (University of Sannio, Italy)

Luca De Vito (University of Sannio, Italy)

Francesco Picariello (University of Sannio, Italy)

Ioan Tudosa (University of Sannio, Italy)

Best Linear Approximation revisited: Random Gain Approach 1247

Kurt Barbé (Vrije Universiteit Brussel & Faculty of Sciences, Belgium)

Choosing number of basis functions in weighted least-squares method for fusion of measurement data used for persons' monitoring 1253

Pawel Mazurek (Warsaw University of Technology, Poland)

Jakub Wagner (Warsaw University of Technology, Poland)

Roman Morawski (Warsaw University of Technology, Poland)

8:00 – 10:00

HA5: Measurement for Medical, Biomedical and Healthcare - 1

Room: Millennium 2

Amplitude Modulation Method for Acoustic Radiation Force Impulse Excitation 1259

Xuyang Bao (School of Electrical and Information Engineering, Tianjin University, P.R. China)

Yanbin Xu (Tianjin University, P.R. China)

Shengnan Zhang (Tianjin University, P.R. China)

Dongdong Zheng (School of Electrical and Information Engineering, Tianjin University, P.R. China)

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

Detection of Heart Murmurs for Imbalanced Dataset Using Adaptive Synthetic Sampling Approach 1265

Madhusudhan Mishra (Indian Institute of Technology, Kharagpur & NERIST, India)

Anirban Mukherjee (Indian Institute of Technology Kharagpur, India)

Development of a Wirelessly-Powered Wearable System for Finger Tracking 1270

Alessio De Angelis (University of Perugia, Italy)
Marco Dionigi (University of Perugia, Italy)
Antonio Moschitta (University of Perugia, Italy)
Paolo Carbone (University of Perugia, Italy)
Paolo Bellitti (Università degli Studi di Brescia, Italy)
Mauro Serpelloni (University of Brescia, Italy)
Emilio Sardini (University of Brescia, Italy)

A measurement strategy to assess performances of Fall Detector paradigms 1275

Ruben Crispino (DIEEI-University of Catania, Italy)
Bruno Andò (University of Catania, Italy)
Vincenzo Marletta (University of Catania, Italy)
Salvatore Baglio (University of Catania, Italy)

Developments in non-contact eye tonometer calibration..... 1281

Peter Pavlasek (Slovak University of Technology & Slovak Institute of Metrology, Slovakia)
Jan Rybar (Slovak University of Technology, Slovakia)
Stanislav Duris (Slovak University of Technology, Slovakia)
Branislav Hucko (Slovak University of Technology, Slovakia)
Jakub Palencar (Slovak University of Technology, Slovakia)
Miroslav Chytil (Slovak Institute of Metrology, Slovakia)

Metrological performance of a single-channel Brain-Computer Interface based on Motor Imagery 1286

Leopoldo Angrisani (University of Naples Federico II, Italy)
Pasquale Arpaia (University of Naples Federico II, Italy)
Francesco Donnarumma (National Research Council, Italy)
Antonio Esposito (Politecnico di Torino & Instrumentation and Measurement for Particle Accelerators Lab (IMPALab), Italy)
Nicola Moccaldi (University of Naples Federico II, Italy)
Marco Parvis (Politecnico di Torino, Italy)

10:00 - 10:30

Morning Tea

Room: Atrium/Annexe

10:30 - 11:30

Keynote Speaker: Prof. Cather Simpson

Photonics Transforming 21 st Century Sensing

Room: Millennium Ballroom

11:30 - 12:00

I2MTC 2020: Presentations

Room: Millennium Ballroom

12:00 - 13:00

Lunch

Room: Atrium/Annexe

13:00 – 15:00

HP1: Industry 4.0 - 1

Room: Tasman 1

Flexible Electronics Non-Destructive Uniformity Characterization by Synchronized Thermography 1291

Kari Remes (University of Oulu, Finland)

Antti Latomäki (University of Oulu, Finland)

Tapio Fabritius (University of Oulu, Finland)

In-situ Quality Monitoring of Amine in Natural Gas Sweetening Units Using UHF Probe... 1296

Zubair Akhter (Khalifa University of Science and Technology, Abu Dhabi, United Arab Emirates)

Mohamed A Abou-Khousa (Khalifa University of Science and Technology & Petroleum Institute, United Arab Emirates)

Fawzi Banat (Khalifa University of Science and Technology, Abu Dhabi, United Arab Emirates)

Operation Status Tracking for Legacy Manufacturing Systems via Vibration Analysis 1301

Boon Yaik Ooi (UTAR, Malaysia)

Woan Lin Beh (Universiti Tunku Abdul Rahman, Malaysia)

Wai Kong Lee (Universiti Tunku Abdul Rahman, Malaysia)

Shervin Shirmohammadi (University of Ottawa, Canada)

A TDR-Based Method for Pre-bond Testing of the Silicon Interposer in 2.5D ICs..... 1307

Deng Libao (Harbin Institute of Technology at Weihai, P.R. China)

Ning Sun (Harbin Institute of Technology, P.R. China)

Ning Fu (Harbin Institute of Technology, P.R. China)

Liyang Qiao (Harbin Institute of Technology, P.R. China)

Friction torque study on double-row tapered roller bearing 1313

Tengfei Xu (Xi'an Jiaotong University, P.R. China)

Method and Device for Large Rotor Bearing Force Measurement..... 1319

Risto Viitala (Aalto University, Finland)

Raine Viitala (Aalto University, Finland)

Petri Kuosmanen (Aalto University, Finland)

13:00 – 15:00

HP2: Special Session 4: Capacitive Sensing in Harsh Environments

Room: Tasman 2

Distributed Passive Sensor for Moisture Sensing in Structures 1325

Markus Neumayer (Graz University of Technology, Austria)

Thomas Suppan (Graz University of Technology, Austria)

Matthias Flatscher (Graz University of Technology, Austria)

Thomas Bretterklieber (Graz University of Technology, Austria)

Piezocapacitive Sensing for Structural Health Monitoring in Adhesive Joints..... 1331

Christian Stetco (Alpen-Adria Universität, Austria)
Omid Sam-Daliri (University of Tehran, Iran)
Lisa-Marie Faller (Alpen-Adria-Universität Klagenfurt, Austria)
Hubert Zangl (Alpen-Adria Universität, Austria)

A Kalman Filter Approach for the Application of Electrical Capacitance Tomography in Dynamic Processes using a State Reduction 1336

Thomas Suppan (Graz University of Technology, Austria)
Markus Neumayer (Graz University of Technology, Austria)
Thomas Bretterkieber (Graz University of Technology, Austria)
Stefan Puttinger (Johannes Kepler University Linz, Austria)

Investigation of pressurized gas-liquid two-phase flow with electrical capacitance tomography 1342

Shiguo Liang (Institute of Engineering Thermophysics, Chinese Academy of Sciences, P.R. China)
Ruican Wang (Institute of Engineering Thermophysics, Chinese Academy of Sciences, P.R. China)
Haigang Wang (University of Manchester, United Kingdom (Great Britain))
Jiamin Ye (Institute of Engineering Thermophysics Chinese Academy of Sciences, P.R. China)
Wuqiang Yang (The University of Manchester, United Kingdom (Great Britain))

Application of electrical capacitance tomography in pharmaceutical manufacturing processes 1348

Wuqiang Yang (The University of Manchester, United Kingdom (Great Britain))
Haigang Wang (University of Manchester, United Kingdom (Great Britain))

Multiphase Flow Measurement by Electrical Capacitance Tomography and Microwave Cavity Resonant Sensor 1354

Mimi Faisyalini Ramli (Universiti Tun Hussein Onn, Malaysia)
Wenbin Tian (Beihang University, P.R. China)
Heron Eduardo de Lima Ávila (Federal University of Santa Catarina, Brazil)
Fernando Rangel de Sousa (Federal University of Santa Catarina, Brazil)
Wuqiang Yang (The University of Manchester, United Kingdom (Great Britain))

13:00 - 15:00

HP3: Sensors and Transducers - 2

Room: Aucklander

High Performance Flame-Made Ultraporous ZnO-Based QCM Sensor For Acetaldehyde.. 1360

Nicola Donato (University of Messina, Italy)
Salvatore Gianluca Leonardi (University of Messina, Italy)
Giovanni Neri (University of Messina, Italy)
Antonio Tricoli (Australian National University, Italy)
Zelio Fusco (Australian National University, Italy)

"Paper"Based Sensor for Deformation Measurements 1365

Carlo Trigona (University of Catania, Italy)
Salvatore Graziani (University of Catania, Italy)
Giovanna Di Pasquale (University of Catania, Italy)
Antonino Pollicino (Univesrità di Catania, Italy)

Optimization of Turbine Flow Sensor Structure based on the Velocity Distribution Inlet .. 1370

Suna Guo (Hebei University, P.R. China)
Song Wang (He Bei University, P.R. China)
Xin Zheng (Hebei University, P.R. China)
Ning Zhao (Tianjin University, P.R. China)
Lide Fang (Hebei University, P.R. China)
Xiaoting Li (Hebei University, P.R. China)

Irradiation of Experimental Temperature Sensors in the MIT Research Reactor..... N/A

Joshua E Daw (Idaho National Laboratory, USA)
Lance Hone (Idaho National Laboratory, USA)
Kevin Chen (Pittsburgh University, USA)
Mohamed Zaghoul (The University of Pittsburgh, USA)
David Carpenter (The Massachusetts Institute of Technology, USA)
Simon Nehr (CEA, France)
Guillaume Laffont (CEA, France)
Romain Cotillard (CEA, France)
Jean-Francois Villard (CEA, France)
Christophe Destouches (CEA, France)

An improved Richardson-Lucy algorithm for star image deblurring..... 1382

Di Liu (School of Instrument Science and Engineering, Southeast University, P.R. China)
Xiyuan Chen (Southeast University, P.R. China)
Xiao Liu (School of Instrument Science and Engineering, Southeast University, P.R. China)

A Nonlinear Harvester to Scavenge Energy from Rotational Motion..... 1387

Vincenzo Marletta (University of Catania, Italy)
Bruno Andò (University of Catania, Italy)
Salvatore Baglio (University of Catania, Italy)
Adi R. Bulsara (Space and Naval Warfare Center (San Diego), USA)
Roberto La Rosa (STMicroelectronics, Italy)

13:00 – 15:00

HP4: Signal Processing - 2

Room: Millennium 1

Convolutional neural networks for robust angular measurement with xMR sensor arrays 1393

Phil Meier (Ostfalia University of Applied Sciences, Germany)
Kris Rohrmann (Ostfalia University of Applied Sciences, Germany)
Marvin Sandner (Ostfalia Hochschule für Angewandte Wissenschaften, Germany)
Martin Streitenberger (University of Applied Science of Hannover, Germany)
Marcus Prochaska (Ostfalia University of Applied Sciences, Germany)

Behavioral Modeling of an Inductive Voltage Transformer: Comparison Between X-Parameters and Simplified Volterra Approaches 1399

Marco Faifer (Politecnico di Milano, Italy)
Christian Laurano (Politecnico di Milano, Italy)
Roberto Ottoboni (Politecnico di Milano, Italy)
Sergio Toscani (Politecnico di Milano, Italy)
Michele Zanoni (Politecnico di Milano, Italy)

Adaptive Rate Signal Acquisition and Denoising For Efficient Mobile Systems 1405

Saeed Mian Qaisar (Effat University, Jeddah, KSA & INPG, ENSEIRB, France)
Dominique Dallet (IMS Laboratory - Bordeaux INP - University Bordeaux, France)
Sarah Niyazi (Effat University, Saudi Arabia)

Ultrasound TDoA positioning using the Best Linear Unbiased Estimator 1410

Antonella Comuniello (University of Perugia, Italy)
Alessio De Angelis (University of Perugia, Italy)
Antonio Moschitta (University of Perugia, Italy)

Noise Variance and Signal-to-Noise Ratio Estimation from Spectral Data 1416

Stefan Schuster (Voestalpine Stahl Gmbh & Institute for Communications and Information Engineering, Austria)
Dominik Exel (Johannes Kepler University Linz, Austria)
Stefan Scheiblhofer (Voestalpine Stahl GmbH, Austria)
Dominik Zankl (Voestalpine Stahl GmbH, Austria)
Vera Ganglberger (Voestalpine Stahl Gmbh, Austria)
Johann Reisinger (Voestalpine Stahl Gmbh, Austria)
Bernhard G. Zagar (University of Linz, Austria)

13:00 – 15:00

HP5: Special Session 6/7: Medical/Biological Instrumentation and measurements for ambient intelligence applications

Room: Millennium 2

Signal Classification Algorithm in Motor Imagery Based on Asynchronous Brain-Computer Interface 1422

Yu Jiang (Harbin Institute of Technology, P.R. China)
Jingyan He (Harbin Institute of Technology, P.R. China)
Dandan Li (Harbin Institute of Technology & None, P.R. China)
Jing Jin (Harbin institute of Technology, P.R. China)
Shen Yi (Harbin Institute of Technology, P.R. China)

An imaging system for microbial corrosion analysis 1427

Leonardo Iannucci (Politecnico di Torino, Italy)
Luca Lombardo (Politecnico di Torino, Italy)
Marco Parvis (Politecnico di Torino, Italy)
Pierangela Cristiani (Ricerca sul Sistema Energetico - RSE SpA, Italy)
Régine Basséguy (Université de Toulouse, CNRS, INPT, UPS, France)
Emma Paola Angelini (Politecnico di Torino, Italy)
Sabrina Grassini (Politecnico di Torino, Italy)

A wearable system for noise assessment in workplaces 1433

Luca Lombardo (Politecnico di Torino, Italy)
Leonardo Iannucci (Politecnico di Torino, Italy)
Marco Parvis (Politecnico di Torino, Italy)
Sabrina Grassini (Politecnico di Torino, Italy)
Simone Corbellini (Politecnico di Torino, Italy)

Smart meters and water leakage detection: a preliminary study 1439

Consolatina Liguori (University of Salerno, Italy)

Francesco Abate (University of Salerno, Italy)

Marco Carratu' (University of Salerno, Italy)

Antonio Pietrosanto (University of Salerno & CEO of SPRING OFF srl, Italy)

IoT-based Architectures for Sensing and Local Data Processing in Ambient Intelligence: Research and Industrial Trends 1445

Yang Cai (Carnegie Mellon University, USA)

Angelo Genovese (Università degli Studi di Milano, Italy)

Vincenzo Piuri (Università degli Studi di Milano, Italy)

Fabio Scotti (Università degli Studi di Milano, Italy)

Mel Siegel (Carnegie Mellon University, USA)

Architecture for the interconnection of prototypical medical instrument via cloud services 1451

Dhiego Fernandes Carvalho (University of Brescia, Italy)

Paolo Bellagente (University of Brescia, Italy)

Alessandro Depari (University of Brescia, Italy)

Paolo Ferrari (University of Brescia, Italy)

Alessandra Flammini (University of Brescia, Italy)

Stefano Rinaldi (University of Brescia, Italy)

Emiliano Sisinni (University of Brescia, Italy)

15:00 – 15:30

Afternoon Tea

Room: Atrium/Annexe

15:30 – 17:30

Thursday Poster Session

Room: Atrium/Annexe

1: Utilizing run-out measurements in developing the production of large welded tube rolls 1457

Tuukka Mustapää (Aalto University, Finland)

Raine Viitala (Aalto University, Finland)

Petri Kuosmanen (Aalto University, Finland)

2: Measurement of Relative Position and Orientation using UWB 1463

Ernst Theussl (University of Leoben, Austria)

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