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Welcome Message from the Chairpersons

On behalf of the organizing committee, we cordially welcome you to IEEE MeMeA 2019. MeMeA is a conference that provides leadership in the field of measurements for medicine and healthcare.

Since the first idea arose from a special session on medical measurements organized by the IMS TC-25 for the IEEE International Instrumentation and Measurement Technology Conference (I²MTC) and the *IEEE International Workshop on Medical Measurements and Applications* (MeMeA), this international series has now reached its 14th symposium.

Workshops

Benevento, Italy 2006
Warsaw, Poland 2007
Ottawa, Canada 2008
Cosenza, Italy 2009
Ottawa, Canada 2010

Symposiums

Bari (2011), Turin (2015), Benevento (2016), and Rome (2018), Italy
Budapest, Hungary 2012
Gatineau, Canada 2013
Lisbon, Portugal 2014
Rochester, Minnesota, USA, 2017

This year we meet in Istanbul, a city which served as the capital of three empires at the intersection of two continents, Europe and Asia. The city of Istanbul is renowned for its extensive and exceptional history, prestigious monuments, and a welcoming, cultural, and vibrant lifestyle. Istanbul is the forward-looking inheritor of 8,500 years of history - a cradle of faith, culture, and trade - and the heart of the Turkish economy. Istanbul is immortal. While cities will undergo erosion over time, according to Petrus Gyllius and Edmondo de Amicis, Istanbul has not changed with shifting empires. According to Napoleon Bonaparte, Istanbul would remain the capital, even if there was only one country in the world. Turkey's top universities are in Istanbul and Istanbul has 54 universities.

MeMeA 2019 will be held at Kadir Has University (KHU) which has seven faculties: Engineering and Natural Sciences, Economics Administrative and Social Sciences, Communication, Law, Art and Design, Management, and Applied Sciences. The main building was originally a tobacco factory erected in 1884 by the Istanbul-based Ottoman Armenian architect, Hovsep Aznavur. The factory was used for nearly seventy years by TEKEL, the state tobacco producer, then renovated as the university building in 1997. KHU won the Europa Nostra Award for its beautiful restoration of a historical place.

Interest in the MeMeA symposium continues to increase from a variety of disciplines, including our main participation in engineering and medicine. This year, we have an important contribution by metrologists from the National Metrology Institute of Turkey, TUBITAK UME, that supports the theme of the symposium entitled “*Metrological point of view in medical measurements*”.

After a rigorous paper review, more than 120 highly qualified papers by 585 authors from academia, industry, government, and NGO institutions from 26 different countries including Europe, Asia, Africa, and America, have been selected for presentation at this outstanding symposium.

Two keynote presentations will be given by experts in the field of medical measurements and applications. Tobias Schaeffter heads the Division 8 of Medical Physics and Metrological Information Technology at Physikalisch-Technische Bundesanstalt (PTB) in Berlin and will speak about *Quantitative Measurements in Medicine*. Zijad Džemić, General Director, Institute of Metrology of Bosnia and Herzegovina, will speak about *Conformity Assessment of Medical Devices in the Frame of Legal Metrology*. We are honored to have them as plenary speakers and thank them in advance for sharing their knowledge and experiences with us. Additionally, tutorials will be presented by Sandro Carrara from EPFL, Lausanne, Switzerland about *Ultrasensitive Memristive Biosensors* and İrfan Karagöz from Gazi University, Turkey, about *Imaging Systems and Effectiveness of Physiological Imaging Systems in Early Diagnostic Process*. In the light of our symposium theme, “*metrological point of view in medical measurements*,” our organized panel discussion will reflect contributions from experts and all participants.

We will continue our tradition of presenting a Best Paper Award, a Best Student Paper Award, a Best Women in Engineering Paper Award, and a Best Poster Award. Each paper will be evaluated by the Technical Program Committee and the award will be granted based on paper quality.

For the third year, MeMeA 2019 provided travel support grants to student authors who showcased high-quality papers. The recipients of these awards were selected by the Technical Program Chairs based on reviewers' evaluations.

The MeMeA 2019 Special Issue of *IEEE Transactions on Instrumentation and Measurement* has also been organized. It aims to promote the best results presented at the Symposium. The MeMeA 2019 Special Issue will contain technically extended papers selected based upon the results of regular peer review of the manuscripts submitted for consideration by the participants of the symposium. Also, extended versions of selected papers will be published in IEEE Instrumentation and Measurement Magazine.

We are sure that for MeMeA 2019, Istanbul will be a perfect setting for this prestigious conference. This conference allows attendees to reunite with old friends and make new connections with fellow attendees from all over the world. Most importantly, it is an opportunity to engage with fellow attendees on a continuous comparison directed to broadening the views on the technological progress of medical measurements and applications.

We would especially like to thank the symposium supporters (IEEE Instrumentation and Measurement Society, TÜBİTAK UME, and KHU), the Technical Program Committee Members and the Reviewers who contributed to making this outstanding conference edition possible. Finally, a special thanks goes to the Authors, whose research and development efforts are presented during MeMeA 2019.

The Organizing Committee invites you to participate in a variety of social functions at the conference. The Committee has organized a Whirling Dervish show (called the Mevlevî Semâ Ceremony), a symposium dinner, and boat tour for all participants and accompanying persons. Musical performances will be enjoyed throughout the conference.

Semâ is a ritual that invites all people in peace; "Come, come, whoever you are".

Welcome to MeMeA2019 in Istanbul, Turkey!

General Chairs



Baki Karaböce
TÜBİTAK UME, Turkey



Kevin Benet
Mayo Clinic Rochester, Minnesota, USA

Organizing Committee

General Chairs

Baki Karaböce, TÜBİTAK UME, Turkey
Kevin Benet, Mayo Clinic, Rochester, Minnesota, USA

Honorary Chair

Marco Parvis, Politecnico di Torino, Italy

Vice Chair

Konca Saher, Kadir Has Üniversitesi

Technical Program Chairs

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Hüseyin Okan Durmuş, TÜBİTAK UME, Turkey
Ruqiang Yan, Southeast University, China

Special Session Chair

Emel Çetin, TÜBİTAK UME, Turkey
Emanuele Piuze, La Sapienza University of Rome, Italy

Steering Committee

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Aime Lay Ekuakille, Università del Salento, Italy
Alessandro Ferrero, Politecnico di Milano, Italy
Rafik Goubran, Carleton University, Canada
Sabrina Grassini, Politecnico di Torino, Italy
Voicu Groza, University of Ottawa, Canada
Baki Karaböce, TÜBİTAK UME, Turkey
Marco Parvis, Politecnico di Torino, Italy
Emil Petriu, University of Ottawa, Canada
Octavian Postolache, Instituto Universitário de Lisboa and Instituto de Telecomunicações, Lisboa, Portugal
Sreeraman Rajan, Defence Research and Development Canada-Ottawa, Canada
Sergio Rapuano (Secretary), Università del Sannio, Italy
Mario Savino, Politecnico di Bari, Italy
Wendy van Moer, Vrije Universiteit Brussel, Belgium
Annamaria Varkony-Koczy, Obuda University, Hungary
Zaccaria Del Prete, La Sapienza University of Rome, Italy
Lorenzo Scalise, Università Politecnica delle Marche, Ancona, Italy

Conference Management

Conference Catalysts, LLC

MeMeA 2019 Reviewers

Mohamed Abdelazez
Mirian Agus
Aydin Akan
Emma Angelini
Luca Antognoli
Ludovica Apa
Marco Arnesano
Bhashyam Balaji
Kevin Bennet
Laura Burattini
Sara Casaccia
Graziano Cerri
Emel Çetin
Adrian Chan
Paolo Chiariotti
Marco Consales
Joseph M. Cortner
Gloria Cosoli
Ana-Maria Cretu
Hilmi Dajani
Anthony Damini
Pasquale Daponte
Zaccaria Del Prete
Luca De Vito
Francesco Di Nardo
Hüseyin Okan Durmuş
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Huazhu Fu
Sabrina Grassini
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Carlo Massaroni
Gianluca Mazzilli
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Mehmet Ozcoban
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Lorenzo Scalise
Andrea Scorza
Susanna Spinsante
Chao Tan
Eranga Ukwatta
Susheil Uthamaraj
Lorenzo Verdenelli
Mark Wehde
Ruqiang Yan

Student Travel Grant Award Recipients

Neslisah Akar
(Boğaziçi University, Turkey)

Lalitha Pratyusha Bheemavarapu
(Indian Institute of Technology, Madras, India)

Samet Ciklacandir
(Izmir Katip Celebi University, Turkey)

Sefa Erdogan
(Bogazici University, Turkey)

Sara Garcia de Villa
(University of Alcala, Spain)

Mithat Özdingiş
(TÜBİTAK UME, Turkey)

Mattia Ragolia
(Department of Electrical and Information Engineering, Polytechnic University of Bari, Italy)

Vincenzo Randazzo
(Politecnico di Torino, Italy)

Melissa Spence
(University of California, Merced, USA)

Semih Yurtseven
(TÜBİTAK UME, Turkey)

Keynote Speakers

Keynote Speaker – June 26, 10:00 – 11:00

Location: D Blok Grand Hall (2nd Floor)

Dr sc. Džemić Zijad, Dipl.-Ing, General Director, Institute of Metrology of Bosnia and Herzegovina

“Conformity Assessment of Medical Devices in the Frame of Legal Metrology”



Zijad Dzemic studied Mechanical Engineering at the University of Sarajevo, where he obtained his Master of Science degree in Technical Sciences. He obtained his Doctor of Science degree at the University of Ljubljana. Mr Dzemic's main occupation is metrology. He has devoted much of his working life in the field of flow of liquids other than water, where he got specialization in Low flow-rate, LSTM at the University of Nurnberg-Erlangen. He has permanent engagement on different subjects at the Faculty of Mechanical Engineering, Electrical Engineering and Civil Engineering at the University of Sarajevo. From 1998 to 2007 he worked at the Terminal Sarajevo, State Liquid Fuel Storage Co., where he was a Technical Director and later on from 2004 to 2007 General Director of the same institution. In 2010 Mr Dzemic became the President of Supervisory Board of Elektroprivreda Bosnia and Herzegovina (state Co. that owns hydro/thermo power plants, mines, transportation/distribution system of el. Energy). From 2007 he

works at the Institute of Metrology of Bosnia and Herzegovina (IMBiH), as an Executive Director for scientific metrology, and since 2010 he is appointed at the post of the General Director. He is responsible for the development of IMBiH and metrology system of Bosnia and Herzegovina over the last decade, where Bosnia and Herzegovina has gained its international recognition in the field of metrology, publishing the first calibration and measurement capabilities in 2012, and which have been nowadays extended covering in total 24 different fields of metrology. Under the management of Mr Dzemic, IMBiH has transposed all EU legislation related to the metrology area into the national legislation. Mr Dzemic has organized and managed participation of IMBiH in consortiums of NMIs/DIs (national and designated metrology institutes) in 25 research projects under EMRP and EMPiR. Mr Dzemic has helped development of metrology community by his contribution and engagement nationally and internationally. Mr Dzemic has been member of the EURAMET Board of Directors (The European Association of National Metrology Institutes) between 2013 till 2019 and he is member of WELMEC (European Cooperation in Legal Metrology) Chairperson's Group from 2013 till nowadays. Mr Dzemic is an Author or co-author of 2 books, 15 Peer-reviewed Papers.

Keynote Speaker – June 27, 9:00 – 10:00
Location: D Blok Grand Hall (2nd Floor)

Dr. Tobias Schaeffter, Division Director, Medical Physics and Metrological Information Technology, Physikalisch-Technische Bundesanstalt (PTB), Germany

“Quantitative Measurements in Medicine”



Tobias Schaeffter studied electrical engineering at TU-Berlin until 1993 and obtained his PhD degree in magnetic resonance (MR) spectroscopic imaging at University Bremen (Prof. Leibfritz) in 1996. From 1996-2006, he worked as a Principal Scientist at the Philips Research Laboratories in Hamburg (Germany), where he was responsible for the development of new MR-acquisition and reconstruction techniques. In April 2006, Professor Schaeffter took up the post as the Philip Harris Professor of Imaging Sciences at King's College London. A major aim of his research was the investigation of fast and quantitative imaging techniques for cardiovascular applications with a strong focus on translation of biomedical engineering into clinical practice. From 2012 to 2015, he was department head of biomedical engineering and the deputy head of the division in imaging sciences. He taught in the BSc and MSc programmes of Biomedical Engineering and was responsible for the EPSRC doctoral training centre in medical imaging between

King's and Imperial College London. Since 2015 Prof. Schaeffter heads the division of medical physics and metrological information technology at Physikalisch-Technische Bundesanstalt (PTB) in Berlin. He is responsible for the development of new quantitative measurement and reference techniques in medicine. Since January 2019 he is also a Professor in Biomedical Imaging at Technical University Berlin. Prof. Schaeffter has attracted over €10M in grants during the last 5 years and has published over 180 peer-reviewed papers, 10 book chapters, 400 conference abstracts and 30 international patents.

Tutorial Speakers

Tutorial Speaker – June 26, 14:30 – 16:00

Location: D Blok Grand Hall (2nd Floor)

**Sandro Carrara – EPFL, Lausanne, Switzerland
“Ultrasensitive Memristive Biosensors”**



Sandro Carrara is an IEEE Fellow for his outstanding record of accomplishments in the field of design of nanoscale biological CMOS sensors. He is also the recipient of the IEEE Sensors Council Technical Achievement Award in 2016 for his leadership in the emerging area of co-design in Bio/Nano/CMOS interfaces. He is a faculty member at the EPFL in Lausanne (Switzerland). He is former professor of optical and electrical biosensors at the Department of Electrical Engineering and Biophysics (DIBE) of the University of Genoa (Italy) and former professor of nanobiotechnology at the University of Bologna (Italy). He holds a PhD in Biochemistry & Biophysics from University of Padua (Italy), a Master degree in Physics from University of Genoa (Italy), and a diploma in Electronics from National Institute of Technology in Albenga (Italy). His scientific interests are on electrical phenomena of nano-bio-structured films, and include CMOS design of biochips based on proteins and DNA.

Along his carrier, he published 7 books, one as author with Springer on Bio/CMOS interfaces and, more recently, a Handbook of Bioelectronics with Cambridge University Press. He has more than 250 scientific publications and is author of 13 patents. He is now Editor-in-Chief of the IEEE Sensors Journal, the largest journal among 180 IEEE publications; he is also founder and Editor-in-Chief of the journal BioNanoScience by Springer, and Associate Editor of IEEE Transactions on Biomedical Circuits and Systems. He is a member of the IEEE Sensors Council and his Executive Committee. He was a member of the Board of Governors (BoG) of the IEEE Circuits And Systems Society (CASS). He has been appointed as IEEE Sensors Council Distinguished Lecturer for the years 2017-2019, and CASS Distinguished Lecturer for the years 2013-2014. His work received several international recognitions: several Top-25 Hottest-Articles (2004, 2005, 2008, 2009, and two times in 2012) published in highly ranked international journals such as Biosensors and Bioelectronics, Sensors and Actuators B, IEEE Sensors journal, and Thin Solid Films; a NATO Advanced Research Award in 1996 for the original contribution to the physics of single-electron conductivity in nano-particles; five Best Paper Awards at the Conferences IEEE NGCAS in 2017 (Genoa), MOBIHEALTH in 2016 (Milan), IEEE PRIME in 2015 (Glasgow), in 2010 (Berlin), and in 2009 (Cork); three Best Poster Awards at the EMBEC Conference in 2017 (Tampere, Finland), Nanotera workshop in 2011 (Bern), and NanoEurope Symposium in 2009 (Rapperswil). He also received the Best Referees Award from the journal Biosensor and Bioelectronics in 2006. From 1997 to 2000, he was a member of an international committee at the ELETTRA Synchrotron in Trieste. From 2000 to 2003, he was scientific leader of a National Research Program (PNR) in the filed of Nanobiotechnology. He was an internationally esteemed expert of the evaluation panel of the Academy of Finland in a research program for the years 2010-2013. He has been the General Chairman of the Conference IEEE BioCAS 2014, the premier worldwide international conference in the area of circuits and systems for biomedical applications.

Tutorial Speaker – June 26, 16:30 – 18:00

Location: D Blok Grand Hall (2nd Floor)

Irfan Karagöz - Gazi University

“Imaging Systems and Effectiveness of Physiological Imaging Systems in Early Diagnostic Process”



Dr. Irfan Karagöz received the B.S. and M.S. degrees from Boğaziçi University at İstanbul in 1983 and 1985 respectively, and the Ph.D. degree from Hacettepe University at Ankara in 1993, all in electrical and electronics engineering. He established the Gülhane Military Medical Academy Biomedical and Clinical Engineering Center in 1989. He worked as the founding chairman of this center between 1989-1999. In 2001, he started to work as Associate Professor in Gazi University Electrical and Electronics Engineering Department. In 2005, he established the Gazi University Biomedical Calibration and Research Center and since 2005 he is the founding director of this center. Currently, he continues his work in Electrical and Electronic Engineering Department in Gazi University as Professor. Dr. Karagoz's research activities are in the field of Biomedical Instrumentation, Biomedical Calibration, Medical Technology Management, and Biomedical Signal and Image Processing. Dr. Karagoz has written three books, namely “Medical Technology Management”, “Medical Imaging Systems”, and “Biological Signals and Medical Devices” published in Turkey.

Panel Discussion

Panel Discussion – June 27, 17:10 – 18:10

Location: D Blok Grand Hall (2nd Floor)

Please join us for the Panel Discussion based on the theme of our conference, "metrological point of view in medical measurements."

Conference Moderator

Sandro Carrara
EPFL, Lausanne, Switzerland

Panelist

Maria do Céu Ferreira
Portuguese Institute for Quality, Portugal

Marco Parvis
Politecnico di Torino, Italy

Dr. Tobias Schaeffter
Physikalisch-Technische Bundesanstalt (PTB), Germany

Ali Yekta Ülgen
Bahcesehir University Faculty of Engineering and Natural Sciences, Turkey

Social Events

Boat Tour and Symposium Dinner

Wednesday, June 26, 19:00 – 23:00

Enjoy a lovely dinner and spectacular views of the Bosphorus.



Whirling Dervish Show

Thursday, June 27, 18:10 – 19:00

Room: A Blok Foyer

Enjoy a cultural performance of music and dancing.



Program Schedule – Wednesday, June 26

8:00	Registration Opens – D Blok Entrance		
9:00 – 10:00	Welcome – D Blok Grand Hall (2nd Floor) Welcome Greeting from the General Chair – Baki Karaböce Welcome from KHU Rector: Prof. M. Sondan Durukanoğlu Feyiz Opening Concert – Elif Ensemble		
10:00 – 11:00	Keynote Speaker – D Blok Grand Hall (2nd Floor) Zijad Dzemic – General Director, Institute of Metrology of Bosnia and Herzegovina "Conformity Assessment of Medical Devices in the Frame of Legal Metrology"		
11:00 – 11:30	Coffee Break –D Blok 2nd Floor Foyer		
	D Blok Grand Hall (2nd Floor)	D-103 (Ground Floor)	D-104 (Ground Floor)
11:30 – 13:10	T1 – Imaging and Communication	SS2.1 - Medical Metrology and Medical Device Calibration (I)	SS1 – Novel Techniques in Medical Ultrasound
13:10 – 14:30	Buffet Lunch and Free Museum Tour – KHU Cafe (D Blok 2nd Floor)		
14:30 – 16:00	Tutorial – D Blok Grand Hall (2nd Floor) Sandro Carrara – EPFL, Lausanne, Switzerland "Ultrasensitive Memristive Biosensors"		
16:00 – 16:30	Coffee Break – D Blok 2nd Floor Foyer		
16:30 – 18:00	Tutorial – D Blok Grand Hall (2nd Floor) Irfan Karagöz - Gazi University "Imaging Systems and Effectiveness of Physiological Imaging Systems in Early Diagnostic Process"		
19:00 – 23:00	Boat Tour and Symposium Dinner		

Program Schedule – Thursday, June 27

8:00	Registration Opens – D Blok Entrance			
9:00 – 10:00	Keynote Speaker – D Blok Grand Hall (2nd Floor) Tobias Schaeffter – Physikalisch-Technische Bundesanstalt (PTB) “Quantitative Measurements in Medicine”			
10:00 – 10:30	Coffee Break – D Blok 2nd Floor Foyer			
	D Blok Grand Hall (2nd Floor)	D-103 (Ground Floor)	D-104 (Ground Floor)	D-107 (Ground Floor)
10:30 – 12:10	T2.1 - Sensors and Devices for Medical Measurements (I)	SS2.2 - Medical Metrology and Medical Device Calibration (II)	T3.1 - Bioengineering and Rehabilitation (I)	SS3.1 - Wearable and Unobtrusive Monitoring Systems for Medical Applications (I)
12:10 – 13:10	Buffet Lunch and Free Museum Tour – KHU Café (D Blok 2nd Floor)			
	Steering Committee Meeting – B522			
	D Blok Grand Hall (2nd Floor)	D-103 (Ground Floor)	D-104 (Ground Floor)	D-107 (Ground Floor)
13:10 – 14:50	T2.2 - Sensors and Devices for Medical Measurements (II)	SS2.3 - Medical Metrology and Medical Device Calibration (III)	T3.2 - Bioengineering and Rehabilitation (II)	SS3.2 - Wearable and Unobtrusive Monitoring Systems for Medical Applications (II)
14:50 – 15:30	Coffee Break – D Blok 2nd Floor Foyer			
	D Blok Grand Hall (2nd Floor)	D-103 (Ground Floor)	D-104 (Ground Floor)	D-107 (Ground Floor)
15:30 – 17:10	T2.3 - Sensors and Devices for Medical Measurements (III)	Vacant	T4 - Medical and Instrumentation Uncertainty and Calibrations	SS3.3 - Wearable and Unobtrusive Monitoring Systems for Medical Applications (III)
17:10 – 18:10	Panel Discussion – D Blok Grand Hall (2nd Floor)			
18:10 – 19:00	Whirling Dervish Show – A Blok Foyer			
19:00 – 21:00	Reception and Awards Ceremony – A Blok Foyer			

Program Schedule – Friday, June 28

8:00	Registration Opens – D Blok Entrance			
9:00 – 10:40	Poster Session – D Blok 2nd Floor Foyer			
10:40 – 11:10	Coffee Break – D Blok 2nd Floor Foyer			
	D Blok Grand Hall (2nd Floor)	D 103 (Ground Floor)	D 104 (Ground Floor)	D 107 (Ground Floor)
11:10 – 12:50	T2.4 - Sensors and Devices for Medical Measurements (IV)	SS4.1 - Measurement Systems and Sensors for Diagnostic and Therapeutic Procedures (I)	SS5.1 - IoT Devices & Systems for Biomedical Applications and Health Parameters Monitoring (I)	T5.1 – Biosignal Processing (I)
12:50 – 13:50	Buffet Lunch and Free Museum Tour – KHU Café (D Blok 2nd Floor)			
13:50 – 15:30	T2.5 - Sensors and Devices for Medical Measurements (V)	SS4.2 - Measurement Systems and Sensors for Diagnostic and Therapeutic Procedures (II)	SS5.2 - IoT Devices & Systems for Biomedical Applications and Health Parameters Monitoring (II)	T5.2 – Biosignal Processing (II)
15:30 – 16:30	Closing Ceremony and Reception – D Blok Grand Hall and Foyer (2nd Floor)			

Wednesday, June 26, 2019

8:00 – 18:00

Registration

Room: D Blok Entrance

9:00 – 10:00

Welcome – Opening Session

Room: D Blok Grand Hall (2nd Floor)

10:00 – 11:00

Plenary Lecture

Room: D Blok Grand Hall (2nd Floor)

“Conformity Assessment of Medical Devices in the Frame of Legal Metrology”

Zijad Dzemic, General Director, Institute of Metrology of Bosnia and Herzegovina

11:00 – 11:30

Break

Room: D Blok 2nd Floor Foyer

11:30 – 13:10

SS1: Novel Techniques in Medical Ultrasound

Room: D-104 (Ground Floor)

Session Chairs: Marco Parvis (Politecnico di Torino, Italy), Emel Çetin (TÜBİTAK UME, Turkey)

Investigation of Effect of Tungsten Used in Backing Materials of Ultrasound Probes on Acoustical Parameters

Hüseyin Okan Durmuş (TÜBİTAK UME, Turkey)

Baki Karaböce (TÜBİTAK UME, Turkey)

Emel Çetin (TÜBİTAK UME, Turkey)

Mithat Özdingiş (TÜBİTAK UME, Turkey)

Esra Toprak (Kocaeli University, Turkey)

Safiye Topşar (Kocaeli University, Turkey)

Şule Balcı (Kocaeli University, Turkey)

Determination of Thermal Lesions Formed by HIFU Using Polyacrylamide Based Phantom Containing Egg White

Emel Çetin (TÜBİTAK UME, Turkey)

Baki Karaböce (TÜBİTAK UME, Turkey)

Hüseyin Okan Durmuş (TÜBİTAK UME, Turkey)

Selcuk Altınay (Marmara University, Turkey)

Hakan Gurbuz (Marmara University, Turkey)

A New Ergonomic Cable For Medical Ultrasound

Yevgeniy Victor Mayevskiy (TE Connectivity Medical, USA)

Tom Medina and Paul Sprunger (TE Connectivity Medical, USA)

Paul Sprunger (TE Connectivity Medical, USA)

Wednesday, June 26, 2019

Analytic Phase Based Approach for Arterial Diameter Evaluation Using A-Mode Ultrasound Frames

Raj Kiran V (IIT Madras, India)

Jayaraj Joseph (Healthcare Technology Innovation Centre, IIT Madras, India)

Nabeel PM (Indian Institute of Technology Madras & HTIC-IIT Madras Research Park, India)

Hanna Frese (RWTH Aachen University, Germany)

Mohanasankar Sivaprakasam (IIT Madras, India)

Malay Ilesh Shah (Healthcare Technology Innovation Centre (HTIC) & Indian Institute of Technology (IIT) Madras, India)

11:30 – 13:10

SS2.1: Medical Metrology and Medical Device Calibration (I)

Room: D-103 (Grand Floor)

Session Chair: Enver Sadıkoğlu (TÜBİTAK UME, Turkey), Lorenzo Scalise, Università Politecnica delle Marche, Ancona, Italy

Load Cell Based Ultrasonic Wattmeter For Ultrasonic Probe Calibration

Baki Karaböce (TÜBİTAK UME, Turkey)

Mithat Özdingiş (TÜBİTAK UME, Turkey)

Hüseyin Okan Durmuş (TÜBİTAK UME, Turkey)

Emel Çetin (TÜBİTAK UME, Turkey)

Automatic Measurement Software Algorithm for Embedded System Used in Portable Ultrasonic Power Meter

Mithat Özdingiş (TÜBİTAK UME, Turkey)

Baki Karaböce (TÜBİTAK UME, Turkey)

Hüseyin Okan Durmuş (TÜBİTAK UME, Turkey)

Emel Çetin (TÜBİTAK UME, Turkey)

Biomedical Metrology Time Analysis and Digitalization

Mana Sezdi (Istanbul University-Cerrahpasa)

Nazif İlker Sezdi (Medibim Medical Informatics Calibration, Turkey)

Automatic psoriasis assessment methods: current scenario and perspectives from a metrologic point of view

Eulalia Balestrieri (University of Sannio, Italy)

Francesco Lamonaca (University of Sannio, Italy)

Serena Lembo (University of Salerno, Italy)

Gianfranco Miele (University of Cassino and Southern Lazio, Italy)

Francesco Cusano (AO Rummo, Italy)

Giuseppa Anna De Cristofaro (Zenit, Italy)

Wednesday, June 26, 2019

11:30 – 13:10

T1: Imaging and Communication

Room: D Blok Grand Hall (2nd Floor)

Session Chair: Pasquale Daponte (University of Sannio, Italy), Lorenzo Scalise (Università Politecnica delle Marche, Italy)

Towards Privacy-Preserving Deep Learning based Medical Imaging Applications

Anamaria Vizitiu (Transilvania University of Brasov, Romania)

Cosmin Ioan Niță (Transilvania University of Brasov, Romania)

Andrei Puiu (Transilvania University of Brasov, Romania)

Constantin Suci (Transilvania University of Brasov, Romania)

Lucian Itu (Transilvania University of Brasov & Siemens Corporate Technology, Romania)

Monte Carlo Modeling of Magnification Mode for Quantitative Assessment of Image Quality in Mammography Systems

Ali Safarzadehamiri (Sharif University of Technology, Iran)

Hamidreza Khodajou Chokami (Sharif University of Technology, Iran)

Naser Vosoughi (Sharif University of Technology, Iran)

Mahsa Noorvand (Islamic Azad University, Science and Research Branch, Iran)

An imaging approach to assess the antimicrobial behavior of Ag-doped organic coatings

Leonardo Iannucci (Politecnico di Torino, Italy)

Luca Lombardo (Politecnico di Torino, Italy)

Marco Parvis (Politecnico di Torino, Italy)

Emma Paola Angelini (Politecnico di Torino, Italy)

Marco Sangermano (Politecnico di Torino, Italy)

Sabrina Grassini (Politecnico di Torino, Italy)

MCNP-FBSM: Development of MCNP/MCNPX Source Model for Simulation of Multi-Slice Fan-Beam X-Ray CT Scanners

Hamidreza Khodajou Chokami (Sharif University of Technology, Iran)

Seyed Abolfazl Hosseini (Sharif University of Technology, Iran)

Mohammad Reza AY (Tehran University of Medical Sciences, Iran)

Habib Zaidi (Geneva University Hospital, Switzerland)

13:10 – 14:30

Buffet Lunch and Free Museum Tour

Room: KHU Cafe (D Blok 2nd Floor)

14:30 – 16:00

Tutorial 1: "Ultrasensitive Memristive Biosensors"

Sandro Carrara, EPFL Lausanne (CH)

Room: D Blok Grand Hall (2nd Floor)

16:00 – 16:30

Break

Room: D Blok 2nd Floor Foyer

Wednesday, June 26, 2019

16:30 – 18:00

Tutorial 2: "Imaging Systems and Effectiveness of Physiological Imaging Systems in Early Diagnostic Process"

Irfan Karagöz, Gazi University

Room: D Blok Grand Hall (2nd Floor)

19:00 – 23:00

Boat Tour and Symposium Dinner

Off-site

Thursday, June 27, 2019

8:00 – 18:00

Registration

Room: D Blok Entrance

9:00 – 10:00

Plenary Lecture

Room: D Blok Grand Hall (2nd Floor)

Quantitative Measurements in Medicine

Dr. Tobias Schaeffter, *Physikalisch-Technische Bundesanstalt (PTB)*

10:00 – 10:30

Break

Room: D Blok 2nd Floor Foyer

10:30 – 12:10

SS2.2: Medical Metrology and Medical Device Calibration (II)

Room: Room: D-103

Session Chairs: Humbet Nasibli (TÜBİTAK UME, Turkey), Giovanni Durando (Istituto Nazionale di Ricerca Metrologica, Italy)

New EMPIR project - Metrology for Drug Delivery, the role of IPQ

Maria do Céu Ferreira (Portuguese Institute for Quality, Portugal)

RaChy -Radiotherapy Coupled with Hyperthermia- 18HLT06 EURAMET EMPIR Project

Giovanni Durando (Istituto Nazionale di Ricerca Metrologica, Italy)

Piero Miloro (National Physical Laboratory, United Kingdom (Great Britain))

Volker Wilkens (PTB Braunschweig & Berlin, Germany)

Baki Karaböce (TÜBİTAK UME, Turkey)

Jacco de Pooter (VSL Dutch National Metrology Institute, The Netherlands)

Gerard C. van Rhoon (Erasmus MC Cancer Institute, The Netherlands)

Gail R ter Haar (Institute of Cancer Research, United Kingdom (Great Britain))

Barbara Caccia (ISS Istituto Superiore di Sanità, Italy)

Antonello Spinelli (S.Orsola-Malpighi Hospital, Italy)

Antonia Denkova (Delft University of Technology, The Netherlands)

Roeland Dijkema (VSParticle, The Netherlands)

Towards the Harmonization of Medical Metrology Traceability in Europe: An Impact Case Study Through Activities in Turkey & EMPIR Project inTENSE

Ekrem Sınır (TÜBİTAK UME, Turkey)

Yasin Durgut (TÜBİTAK UME, Turkey)

Dana Rosu (National Metrology Institute PTB, Germany)

Dominik Pražák (Czech Metrology Institute CMI, Czech Republic)

Characterization measurements of new family of ear simulators at TÜBİTAK UME

Enver Sadıkoğlu (TÜBİTAK UME, Turkey)

Eyüp Bilgiç (TÜBİTAK UME, Turkey)

Thursday, June 27, 2019

10:30 – 12:10

SS3.1: Wearable and Unobtrusive Monitoring Systems for Medical Applications (I)

Room: D-107 (Ground Floor)

Session Chairs: Carlo Massaroni (Università Campus Bio-Medico di Roma, Italy), Toshiyo Tamura (Waseda University & Future Robotics Organization, Japan)

Fall Detection Using Kinematic Features from a Wrist-Worn Inertial Sensor

Dhinesh R (Indian Institute of Technology Madras, India)

Minhas Naheem (Healthcare Technology Innovation Centre, India)

Shubham Khandelwal (Physiotherapist, Healthcare Technology Innovation Centre, IIT Madras, Chennai, India)

Preejith Sp (HTIC-IIT Madras, India)

Mohanasankar Sivaprakasam (IIT Madras, India)

Jayaraj Joseph (Healthcare Technology Innovation Centre, IIT Madras, India)

Connected healthcare system to monitor the blood pressure of clients with an unobtrusive device

Toshiyo Tamura (Waseda University & Future Robotics Organization, Japan)

Ballistocardiographic Coupling of Triboelectric Charges into Capacitive ECG

Durmus Umutcan Uguz (RWTH Aachen University, Germany)

Paul Weidener (RWTH Aachen University, Germany)

Can Deniz Bezek (RWTH Aachen University, Germany)

Tianyun Wang (RWTH Aachen University, Germany)

Steffen Leonhardt (RWTH Aachen, Germany)

Christoph Hoog Antink (RWTH Aachen University & Chair for Medical Information Technology, Germany)

Comparison of two methods for estimating respiratory waveforms from videos without contact

Carlo Massaroni (University Campus Bio-Medico of Rome, Italy)

Soumyajyoti Maji (Trinity College Dublin, Ireland)

Emiliano Schena (University Campus Bio-Medico of Rome, Italy)

Sergio Silvestri (University Campus Bio-Medico of Rome, Italy)

10:30 – 12:10

T2.1: Sensors and Devices for Medical Measurements (I)

Room: D Blok Grand Hall (2nd Floor)

Session Chair: Andrea Scorza (Roma TRE University, Italy), Ali Yekta Ülgen (Bahcesehir University, Faculty of Engineering and Natural Sciences)

Heart Rate Detection Using a Miniaturized Multimodal Tactile Sensor

Bruno Monteiro Rocha Lima (University of Ottawa, Canada)

Thiago Eustaquio Alves de Oliveira (University of Ottawa, Canada)

Vinicius Prado da Fonseca (University of Ottawa, Canada)

Qi Zhu (University of Ottawa, Canada)

Miriam Goubran (University of Ottawa, Canada)

Voicu Groza (University of Ottawa, Canada)

Emil M. Petriu (University of Ottawa, Canada)

Thursday, June 27, 2019

Dielectric Measurements of Brain Tissues with Alzheimer's Disease Pathology in the Microwave Region

Imran Saied (University of Edinburgh, United Kingdom (Great Britain))
Mohd. Saiful Riza Bashri (University of Edinburgh, United Kingdom (Great Britain))
Tughrul Arslan (The University of Edinburgh, United Kingdom (Great Britain))
Colin Smith (University of Edinburgh, United Kingdom (Great Britain))
Siddharthan Chandran (University of Edinburgh, United Kingdom (Great Britain))

Performance analysis of an electromagnetic tracking system for surgical navigation

Anna Maria Lucia Lanzolla (Polytechnic of Bari, Italy)
Attilio Di Nisio (Politecnico di Bari, Italy)
Filippo Attivissimo (Polytechnic of Bari, Italy)
Pietro Larizza (Masmec Biomed Spa, Italy)
Mattia Alessandro Ragolia (Politecnico di Bari, Italy)
Maurizio Spadavecchia (Polytechnic University of Bari, Italy)
Giacchino Brunetti (Masmec Biomed Spa, Italy)
Gregorio Andria (Politecnico di Bari, Italy)

Enhanced non-contact heart rate and respiratory rate evaluation: comparison with standard multiparameter clinical monitor on newborn patients

Lorenzo Scalise (Università Politecnica delle Marche, Italy)
Luca Antognoli (Università Politecnica delle Marche, Italy)
Susanna Spinsante (Università Politecnica delle Marche, Italy)
Stefano Nobile (Azienda Ospedaliero-Universitaria Ospedali Riuniti, Italy)
Paolo Marchionni (Polytechnic University of Marche, Italy)
Virgilio Carnielli (Polytechnic University of Marche, Italy)

Microwave Noncontact Vital Sign Measurements for Medical Applications

Sefa Erdogan (Bogazici University, Turkey)
Sener Yilmaz (Miltek ARGE Ltd. Co., Turkey)
Ahmet Oncu (Bogazici University, Turkey)

10:30 – 12:10

T3.1: Bioengineering and Rehabilitation (I)

Room: Room: D-104 (Ground Floor)

Session Chair: Alberto Vallan (Politecnico di Torino, Italy), Lorenzo Scalise (Università Politecnica delle Marche, Italy)

Using Inertial Sensors to Evaluate Exercise Correctness in Electromyography-based Home Rehabilitation Systems

Ana Pereira (Fraunhofer Portugal AICOS, Portugal)
Duarte Folgado (Fraunhofer Portugal AICOS, Portugal)
Francisco Nunes (Fraunhofer Portugal AICOS, Portugal)
João Almeida (Fraunhofer Portugal AICOS, Portugal)
Ines Sousa (Fraunhofer Portugal AICOS, Portugal)

Design of a new device to measure skeletal muscle engineered tissues' contractile force by using an optical tracking technique

Ludovica Apa (Sapienza, University of Rome, Italy)
Francesca Martelli (Sapienza University of Rome, Italy)
Emanuele Rizzuto (Sapienza University of Rome, Italy)
Zaccaria Del Prete (Sapienza University of Rome, Italy)

Thursday, June 27, 2019

MSI Caterpillar: An Effective Multisensory System to Evaluate Spatial Body Representation

Monica Gori (Italian Institute of Technology, Italy)
Maria Bianca Amadeo (Italian Institute of Technology, Italy)
Alice Bollini (Italian Institute of Technology, Italy)
Alessia Tonelli (Italian Institute of Technology, Italy)
Claudio Campus (Italian Institute of Technology, Italy)
Antonio Maviglia (Italian Institute of Technology, Italy)
Marco Crepaldi (Italian Institute of Technology, Italy)

Bioimpedance Spectroscopy in Subjects with Auricular Vagus Nerve Stimulation

Ali Yekta Ülgen (Bahcesehir University, Faculty of Engineering and Natural Sciences, Turkey)
Bora Buyuksarac (Bahcesehir University, Faculty of Engineering and Natural Sciences, Turkey)
Burcu Tunc (Bahcesehir University, Faculty of Engineering and Natural Sciences, Turkey)
Hakan Solmaz (Bahcesehir University, Faculty of Engineering and Natural Sciences, Turkey)

A novel device to understand audio-spatial representation in individuals with scotoma

Hafsah Ahmad (Italian Institute of Technology & University of Genova, Italy)
Walter Setti (University of Genoa, Italy)
Antonio Maviglia (Italian Institute of Technology, Italy)
Elisabetta Capris (David Chiossone Onlus, Italy)
Claudio Campus (Italian Institute of Technology, Italy)
Monica Gori (Italian Institute of Technology, Italy)

12:10 – 13:10

Buffet Lunch and Free Museum Tour

Room: KHU Cafe (D Blok 2nd Floor)

13:10 – 14:50

SS2.3: Medical Metrology and Medical Device Calibration (III)

Room: Room: D-103 (Ground Floor)

Session Chairs: Maria do Céu Ferreira (Portuguese Institute for Quality, Portugal), Hüseyin Okan Durmuş (TÜBİTAK UME, Turkey)

Oscillometric blood pressure waveform analysis: challenges and developments

Eulalia Balestrieri (University of Sannio, Italy)
Pasquale Daponte (University of Sannio, Italy)
Luca De Vito (University of Sannio, Italy)
Francesco Picariello (University of Sannio, Italy)
Sergio Rapuano (University of Sannio, Italy)

Metrological point of view in adipocytes measurement

Natalia Igorevna Khramtsova (E. A. Vagner Perm State Medical University, Russia)
Sergei Aleksandrovich Plaksin (E. A. Vagner Perm State Medical University, Russia)
Artem Sotskov (E. A. Vagner Perm State Medical University, Russia)

Investigation of Enviromental Effects on the Normalized Spectral Responsivity of an InGaAs Detector

Semih Yurtseven (TÜBİTAK UME, Turkey)
Mevlüt Karabulut (Gebze Technical University, Turkey)
Seda Oğuz Aytekin (TÜBİTAK UME, Turkey)
Humbet Nasibli (TÜBİTAK UME, Turkey)

Thursday, June 27, 2019

Bilateral Intercomparison of Ultrasound Power Standards Used for Calibrations in Medical Field

Baki Karaböce (TÜBİTAK UME, Turkey)
Hüseyin Okan Durmuş (TÜBİTAK UME, Turkey)
Emel Çetin (TÜBİTAK UME, Turkey)
Mithat Özdingiş (TÜBİTAK UME, Turkey)
Francisco Chinchurreta (CSIC, Spain)

13:10 – 14:50

SS3.2: Wearable and Unobtrusive Monitoring Systems for Medical Applications (II)

Room: Room: D-107 (Ground Floor)

Session Chairs: Carlo Massaroni (Università Campus Bio-Medico di Roma, Italy), Toshiyo Tamura (Waseda University & Future Robotics Organization, Japan)

Influence of motion artifacts on a smart garment for monitoring respiratory rate

Carlo Massaroni (University Campus Bio-Medico of Rome, Italy)
Joshua Di Tocco (University Campus Bio-Medico of Rome, Italy)
Daniela Lo Presti (University Campus Bio-Medico of Rome, Italy)
Federica Bressi (University Campus Bio-Medico of Rome, Italy)
Marco Bravi (University Campus Bio-Medico of Rome, Italy)
Sandra Miccinilli (University Campus Bio-Medico of Rome, Italy)
Alessandra Berton (University Campus Bio-Medico of Rome, Italy)
Arianna Carnevale (University Campus Bio-Medico of Rome, Italy)
Pasquale Terracina (University Campus Bio-Medico of Rome, Italy)
Vincenzo Denaro (University Campus Bio-Medico of Rome, Italy)
Domenico Formica (University Campus Bio-Medico of Rome, Italy)
Umile Saccomandi (Politecnico di Milano, Italy)
Umile Giuseppe Longo (University Campus Bio-Medico of Rome, Italy)
Silvia Sterzi (University Campus Bio-Medico of Rome, Italy)
Emiliano Schena (University Campus Bio-Medico of Rome, Italy)

Functional characterization of MEMS Microgripper prototype for biomedical application: preliminary results

Federica Vurchio (Roma Tre University, Italy)
Francesco Orsini (Roma Tre University, Italy)
Andrea Scorza (Roma Tre University, Italy)
Salvatore Andrea Sciuto (Roma Tre University, Italy)

Measuring changes in gait kinematics due to walking-related fatigue in patients with Multiple Sclerosis

Juri Taborri (University of Tuscia, Viterbo, Italy)
Valeria Studer (IRCCS Fondazione Neurological Institute Carlo Besta, Italy)
Paola Grossi (ASST Crema, Italy)
Laura Brambilla (IRCCS Fondazione Neurological Institute Carlo Besta, Italy)
Maria Teresa Ferrò (ASST Crema, Italy)
Renato Mantegazza (IRCCS Fondazione Neurological Institute Carlo Besta, Italy)
Stefano Rossi (University of Tuscia, Italy)

Thursday, June 27, 2019

Parkinson's disease and Levodopa effects on muscle synergies in postural perturbation

Ilaria Mileti (Sapienza University of Rome, Italy)
Alessandro Zampogna (Sapienza University of Rome, Italy)
Juri Taborri (University of Tuscia, Viterbo, Italy)
Francesca Martelli (Sapienza University of Rome, Italy)
Stefano Rossi (University of Tuscia, Italy)
Zaccaria Del Prete (Sapienza University of Rome, Italy)
Marco Paoloni (Sapienza University of Rome, Italy)
Antonio Suppa (Sapienza University of Rome, Italy)
Eduardo Palermo (Sapienza University of Rome, Italy)

13:10 – 14:50

T2.2: Sensors and Devices for Medical Measurements (II)

Room: D Blok Grand Hall (2nd Floor)

Session Chair: Voicu Groza (University of Ottawa, Canada), Susanna Spinsante (Università Politecnica delle Marche, Italy)

Preliminary Results from Longitudinal Balance Assessment for Older Adults with Cognitive Decline

Laura Ault (Carleton University & Bruyere Research Institute, Canada)
Bruce Wallace (Carleton University, Canada)
Rafik Goubiran (Carleton University, Canada)
Sarah Fraser (University of Ottawa, Canada)
Eleni Stroulia (University of Alberta, Canada)
Frank Knoefel (Bruyere Continuing Care, Canada)

Long-term, Ambulatory Respiratory Monitoring of COPD Patients using Garment-Adhered Sensors

Neema Moraveji (Spire Health, USA)
Mark Holt (Spire Health, USA)
Richard Murray (Spire Health, USA)
Phil Golz (Spire Health, USA)
Joanne Hollenbach (Spire Health, USA)

Development of a wireless system able to track barbell kinematics during bench-press, deadlift and squat movements

Lorenzo Scalise (Università Politecnica delle Marche, Italy)
Leonardo Ricciardi (Università Politecnica delle Marche, Italy)
Susanna Spinsante (Università Politecnica delle Marche, Italy)
Bernardo Innocenti (Université Libre de Bruxelles, Italy)

Continuous Weight Monitoring System for ICU Beds using Air-filled Mattresses/Pads: A Proof of Concept

Rahul Manoj (Indian Institute of Technology Madras, India)
Ramdayalan Kumarasami (Healthcare Technology Innovation Centre, IIT Madras, India)
Jayaraj Joseph (Healthcare Technology Innovation Centre, IIT Madras, India)
Boby George (Indian Institute of Technology Madras, India)
Mohanaskar Sivaprakasam (IIT Madras, India)

Thursday, June 27, 2019

13:10 – 14:50

T3.2: Bioengineering and Rehabilitation (II)

Room: D-104 (Ground Floor)

Session Chair: Zaccaria Del Prete (Sapienza University of Rome, Italy), Baki Karaböce (TÜBİTAK ÜME, Turkey)

Parkinson disease voice features for rehabilitation therapy and screening purposes

Alessio Atzori (Politecnico di Torino, Italy)

Alessio Carullo (Politecnico di Torino, Italy)

Alberto Vallan (Politecnico di Torino, Italy)

Arianna Astolfi (Politecnico di Torino, Italy)

Viviana Cennamo (Politecnico di Torino, Italy)

ARENA: a novel device to evaluate spatial and imagery skills through sounds

Walter Setti (University of Genoa, Italy)

Luigi F. Cuturi (Italian Institute of Technology, Italy)

Antonio Maviglia (Italian Institute of Technology, Italy)

Giulio Sandini (Italian Institute of Technology, Italy)

Monica Gori (Italian Institute of Technology, Italy)

Investigation of Wearable Motion Capture System Towards Biomechanical Modelling

Senay Mihcin (Izmir Katip Celebi University, Turkey)

Hakki Kose (Izmir Katip Celebi University, Turkey)

Serkan Cizmeciogullari (Istanbul University, Turkey)

Mertcan Kocak (Izmir Katip Celebi University, Turkey)

Samet Ciklacandir (Izmir Katip Celebi University, Turkey)

Aliye Tosun (Izmir Katip Celebi University, Turkey)

Aydin Akan (Izmir Katip Celebi University, Turkey)

In-Hand Telemanipulation Using a Robotic Hand and Biology-Inspired Haptic Sensing

Vinicius Prado da Fonseca (University of Ottawa, Canada)

Bruno Monteiro Rocha Lima (University of Ottawa, Canada)

Thiago Eustaquio Alves de Oliveira (University of Ottawa, Canada)

Qi Zhu (University of Ottawa, Canada)

Voicu Groza (University of Ottawa, Canada)

Emil M. Petriu (University of Ottawa, Canada)

A Simple sEMG-Based Measure of Muscular Recruitment Variability During Pediatric Walking

Susanna Spinsante (Università Politecnica delle Marche, Italy)

Francesco Di Nardo (Università Politecnica delle Marche, Italy)

Annachiara Strazza (Università Politecnica delle Marche, Italy)

Federica Verdini (Università Politecnica delle Marche, Italy)

Angelica Poli (Università Politecnica delle Marche, Italy)

14:50 – 15:30

Break

Room: D Blok 2nd Floor Foyer

Thursday, June 27, 2019

15:30 – 17:10

SS3.3: Wearable and Unobtrusive Monitoring Systems for Medical Applications (III)

Room: D-107 (Ground Floor)

Session Chairs: Carlo Massaroni (Università Campus Bio-Medico di Roma, Italy), Toshiyo Tamura (Waseda University & Future Robotics Organization, Japan)

Position-independent Physical Activity Monitoring: Development and Comparison with Market Devices

Joana Silva (Fraunhofer Portugal AICOS, Portugal)
Diana Gomes (Fraunhofer Portugal AICOS, Portugal)
Francisco Nunes (Fraunhofer Portugal AICOS, Portugal)
Dinis Moreira (Fraunhofer Portugal AICOS, Portugal)
José Alves (Fraunhofer Portugal AICOS, Portugal)
Ana Pereira (Fraunhofer Portugal AICOS, Portugal)
Ines Sousa (Fraunhofer Portugal AICOS, Portugal)

Accuracy of Heart Rate Measurements by a Smartwatch in Low Intensity Activities

Susanna Spinsante (Università Politecnica delle Marche, Italy)
Sara Porfiri (Università Politecnica delle Marche, Italy)
Lorenzo Scalise (Università Politecnica delle Marche, Italy)

Gait stability indicators as extracted by a single wearable inertial sensor in young adolescents during smartphone use

Carlotta Caramia (Roma Tre University, Italy)
Carmen D'Anna (Roma Tre University, Italy)
Simone Ranaldi (Roma Tre University, Italy)
Andrea Scorza (Roma Tre University, Italy)
Salvatore Andrea Sciuto (Roma Tre University, Italy)
Maurizio Schmid (Roma Tre University, Italy)
Silvia Conforto (Roma Tre University, Italy)

Prevalent Approach of Learning Based Cuffless Blood Pressure Measurement System for Continuous Health-care Monitoring

Nishigandha Dnyaneshwar Agham (College of Engineering, Pune, India)
Uttam Chaskar (College of Engineering, Pune, India)

Apnea Event Detection Methodology using Pressure Sensors

Hilda Azimi (University of Ottawa, Canada)
Martin Bouchard (University of Ottawa, Canada)
Rafik Goubran (Carleton University, Canada)
Frank Knoefel (Bruyere Continuing Care, Canada)

Thursday, June 27, 2019

15:30 – 17:10

T2.3: Sensors and Devices for Medical Measurements (III)

Room: D Blok Grand Hall (2nd Floor)

Session Chairs: Anna Maria Lucia Lanzolla (Polytechnic of Bari, Italy), Lorenzo Scalise (Università Politecnica delle Marche, Italy)

Experimental characterization and Monte Carlo simulation of radiation dose in mammography by AGMS-DM+ and OSL nanoDot™ detectors

Imane Fathi (Univ Hassan 1 & High Institute of Health Sciences, Morocco)

Mkimel Mounir (High Institut of Health Sciences, Morocco)

Halimi Abdellah (High Institut of Health, Morocco)

Redouane El baydaoui (Univ Hassan 1, Morocco)

Mesradi Mohamed Reda (High Institut of Health, Morocco)

Mustapha Krim (Univ Hassan 1, Morocco)

Omar El rhazouani (Univ Hassan 1, Morocco)

Saad Elmadani (Institut Supérieur des Science de la Santé, Morocco)

Abderrouf Hilali (Institut Supérieur des Sciences de la Santé, Morocco)

Emotions Assessment on Simulated Flights

Válber Roza (Universidade Federal do Rio Grande do Norte, ISCTE-IUL, Brazil)

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

Voicu Groza (University of Ottawa, Canada)

Jose Costa Pereira (ESTSetúbal, Portugal)

Methodological and Measurement Concerns of Local Pulse Wave Velocity Assessment

Raj Kiran V (IIT Madras, India)

Nabeel PM (Indian Institute of Technology Madras & HTIC-IIT Madras Research Park, India)

Jayaraj Joseph (Healthcare Technology Innovation Centre, IIT Madras, India)

Mohanasankar Sivaprakasam (IIT Madras, India)

Cuffless Evaluation of Arterial Pressure Waveform using Flexible Force Sensor: A Proof of Principle

Rahul Manoj (Indian Institute of Technology Madras, India)

Nabeel PM (Indian Institute of Technology Madras & HTIC-IIT Madras Research Park, India)

Raj Kiran V (IIT Madras, India)

Jayaraj Joseph (Healthcare Technology Innovation Centre, IIT Madras, India)

Mohanasankar Sivaprakasam (IIT Madras, India)

Deep Learning for Blood Pressure Estimation: an Approach using Local Measure of Arterial Dual Diameter Waveforms

Nabeel PM (Indian Institute of Technology Madras & HTIC-IIT Madras Research Park, India)

Vinay Chilaka (Indian Institute of Technology Madras & HTIC IITM Research Park, India)

Raj Kiran V (IIT Madras, India)

Jayaraj Joseph (Healthcare Technology Innovation Centre, IIT Madras, India)

Mohanasankar Sivaprakasam (IIT Madras, India)

Thursday, June 27, 2019

15:30 – 17:10

T4: Medical and Instrumentation Uncertainty and Calibrations

Room: D-104 (Ground Floor)

Session Chairs: Irfan Karagöz (Gazi University, Turkey), Marco Parvis (Politecnico di Torino, Italy)

Accuracy Enhancement of Total Force by Capacitive Insoles

Teja P Kakarla (IIT Madras & Healthcare Technology Innovation Centre, India)

Akhil Varma Kolukuluri (Indian Institute of Technology Madras, India)

Preejith Sp (HTIC-IITMadras, India)

Jayaraj Joseph (Healthcare Technology Innovation Centre, IIT Madras, India)

Mohanasankar Sivaprakasam (IIT Madras, India)

**A Practical Approach to ISO 15189 and Measurement Uncertainty in Clinical Chemistry:
Analytic Bias is Still an Important Challenge**

Ali Yekta Ülgen (Bahcesehir University Faculty of Engineering and Natural Sciences, Turkey)

**Triple Point of Water Cell Based Reference Radiation Source for Medical Thermography
Applications**

Yasin Topal (Ege University, Turkey)

Ahmet Yilanci (Ege University, Turkey)

Semih Yurtseven (TÜBİTAK UME, Turkey)

Ali Uytun (TÜBİTAK UME, Turkey)

Humbet Nasibli (TÜBİTAK UME, Turkey)

**Measurement and Comparison of the Amount of Extruded Debris and Irrigation Solution with
Different Instrumentation Techniques**

Umut Emir (Istanbul University, Turkey)

Sevda Kaçmaz (TÜBİTAK UME, Turkey)

Cengiz Yılmaz (TÜBİTAK UME, Turkey)

Lenara Kangı (TÜBİTAK UME, Turkey)

A Novel Method for Measuring the MTF of CT Scanners: A Phantom Study

Hamidreza Khodajou Chokami (Sharif University of Technology, Iran)

Seyed Abolfazl Hosseini (Sharif University of Technology, Iran)

Mohammad Reza AY (Tehran University of Medical Sciences, Iran)

Ali Safarzadehamiri (Sharif University of Technology, Iran)

Pardis Ghafarian (Shahid Beheshti University of Medical Sciences, Iran)

Habib Zaidi (Geneva University Hospital, Switzerland)

17:10 – 18:10

Panel Discussion

Room: D Blok Grand Hall (2nd Floor)

18:10 – 19:00

Whirling Dervish Show

Room: A Blok Foyer

19:00 – 21:00

Reception and Awards Ceremony

Room: A Blok Foyer

Friday, June 28, 2019

8:00 – 15:30

Registration

Room: D Blok Entrance

9:00 – 10:40

Poster Session

Room: D Blok 2nd Floor Foyer

Chairs: Hüseyin Okan Durmuş (TÜBİTAK UME, Turkey), Lorenzo Scalise, Università Politecnica delle Marche, Ancona, Italy

1: Implementation of a lower-limb model for monitoring exercises in rehabilitation

Sara García de Villa (University of Alcalá, Spain)

Ana Jiménez Martín (University of Alcalá, Spain)

J. Jesús García (University of Alcalá, Spain)

2: Electrocardiogram-based detection of central sleep apnea: a full-record signal processing approach

Miguel Ángel Herrero Ramiro (University of Alcalá, Spain)

J. Jesús García (University of Alcalá, Spain)

Ana Jiménez Martín (University of Alcalá, Spain)

3: An Evaluation of Performance Tests of In-Ear Hearing Aids

Hüseyin Okan Durmuş (TÜBİTAK UME, Turkey)

Emel Çetin (TÜBİTAK UME, Turkey)

Baki Karaböce (TÜBİTAK UME, Turkey)

4: Acoustical Characterization of Tissue - Mimicking Materials

Emel Çetin (TÜBİTAK UME, Turkey)

Baki Karaböce (TÜBİTAK UME, Turkey)

Hüseyin Okan Durmuş (TÜBİTAK UME, Turkey)

Nuran Kavaklı (Pamukkale University, Turkey)

5: A Comprehensive Medical Equipment Management Software System for Increased Patient Safety

Neslisah Akar (Boğaziçi University, Turkey)

Yekta Ülgen (Bahçeşehir University, Turkey)

Esin Öztürk Işık (Boğaziçi University, Turkey)

6: Automated Pressure Calibration of Blood Pressure Measuring Device Calibrator To Realize Its Traceability

Ahmet Türk (TÜBİTAK UME, Turkey)

Abdullah Hamarat (TÜBİTAK UME, Turkey)

7: Determination of Vitamin D Metabolites in Human Serum by LC-MS/MS

Mine Bilsel (TÜBİTAK UME, Turkey)

Hasibe Yılmaz (TÜBİTAK UME, Turkey)

Gökhan Bilsel (TÜBİTAK UME, Turkey)

Ahmet Ceyhan Gören (TÜBİTAK UME, Turkey)

8: Metrological Traceability in Measurements of Clinically Significant Peptide/Proteins

Merve Oztug (TÜBİTAK UME, Turkey)

Müslüm Akgöz (TÜBİTAK UME, Turkey)

Friday, June 28, 2019

9: PRODUCTION and CERTIFICATION OF HEMOGLOBIN A1c REFERENCE MATERIAL

Gonca Altin Yilmazer (TÜBİTAK UME, Turkey)

Bilgin Vatansever (Swiss Bioquant AG, Turkey)

Merve Oztug (TÜBİTAK UME, Turkey)

Müslüm Akgöz (TÜBİTAK UME, Turkey)

10: Patient Specific Mortality Prediction in Intensive Care Units

Erdem Yanar (Middle East Technical University ANKARA & ASELSAN INC, Turkey)

11: Development of a Wearable and Wireless Sensor for Monitoring Knee Posture based on Fiber Bragg Grating and Flexible Polymer

Taesung Kim (Sungkyunkwan University, Korea)

Dongjoo Shin (Sungkyunkwan University, Korea)

Gunhoo Woo (SKKU Advanced Institute of Nanotechnology (SAINT), Sungkyunkwan University, Korea)

12: Two New Certified Reference Materials for Newborn Screening for the Diagnosis of Metabolic Disorders

Seda Damla Hatipoglu (TÜBİTAK UME, Turkey)

10:40 – 11:10

Break

Room: D Blok 2nd Floor Foyer

11:10 – 12:50

SS4.1: Measurement Systems and Sensors for Diagnostic and Therapeutic Procedures (I)

Room: D-103 (Ground Floor)

Session Chairs: Voicu Groza (University of Ottawa, Canada), Paola Saccomandi (Politecnico di Milano, Italy)

Rapid Identification of Pathogens based on MIE Light Scattering and Machine Learning Approach

Mubashir Hussain (Southeast University, P.R. China)

Mu Lv (Nanjing Medical University, P.R. China)

Jingyi Xu (Nanjing Medical University, P.R. China)

Xiaohan Dong (Nanjing Medical University, P.R. China)

Tianying Wang (Nanjing Medical University, P.R. China)

Zhifei Wang (Southeast University, P.R. China)

Wei Wang (Shanghai Institute of Optics and Fine Mechanics, P.R. China)

Nongyue He (Southeast University, P.R. China)

Zhiyang Li (The Affiliated Drum Tower Hospital of Nanjing University Medical School, P.R. China)

Bin Liu (Nanjing Medical University, P.R. China)

Magnetometric Sensitivity and Spin Relaxation of Buffered Gas Cell for Cardiomagnetometer

Isa Araz (TÜBİTAK UME, Turkey)

İsmail Yorulmaz (TÜBİTAK UME, Turkey)

Adil Meraki (TÜBİTAK UME & Bilecik Şeyh Edebali University, Turkey)

Birgül Kaçar (TÜBİTAK UME, Turkey)

Bakmurat Kubanaliev (TÜBİTAK UME, Turkey)

Friday, June 28, 2019

A wearable system based on fiber Bragg grating for monitoring respiratory and heart activity of archers

Daniela Lo Presti (Università Campus Bio-Medico di Roma, Italy)
Carlo Massaroni (Università Campus Bio-Medico di Roma, Italy)
Chiara Romano (Università Campus Bio-Medico di Roma, Italy)
Domenico Formica (Università Campus Bio-Medico di Roma, Italy)
Umile Giuseppe Longo (Università Campus Bio-Medico di Roma, Italy)
Alessandra Berton (Università Campus Bio-Medico di Roma, Italy)
Luca Massari (Scuola Superiore Sant'Anna, Italy)
Jessica D'Abbraccio (Scuola Superiore Sant'Anna, Italy)
Michele Arturo Caponero (ENEA Frascati Research Centre, Italy)
Calogero Maria Oddo (Scuola Superiore Sant'Anna, Italy)
Emiliano Schena (University Campus Bio-Medico of Rome, Italy)

Cardiac monitoring with a smart textile based on polymer-encapsulated FBG: influence of sensor positioning

Daniela Lo Presti (Università Campus Bio-Medico di Roma, Italy)
Carlo Massaroni (Università Campus Bio-Medico di Roma, Italy)
Jessica D'Abbraccio (Scuola Superiore Sant'Anna, Italy)
Luca Massari (Scuola Superiore Sant'Anna, Italy)
Arianna Carnevale (Università Campus Bio-Medico di Roma, Italy)
Joshua Di Tocco (Università Campus Bio-Medico di Roma, Italy)
Umile Giuseppe Longo (Università Campus Bio-Medico di Roma, Italy)
Domenico Formica (Università Campus Bio-Medico di Roma, Italy)
Michele Arturo Caponero (ENEA Frascati Research Centre, Italy)
Calogero Maria Oddo (Scuola Superiore Sant'Anna, Italy)
Emiliano Schena (University Campus Bio-Medico of Rome, Italy)

11:10 – 12:50

SS5.1: IoT Devices & Systems for Biomedical Applications and Health Parameters Monitoring (I)

Room: D-104 (Ground Floor)

Session Chairs: Domenico Luca Carni (University of Calabria, Italy), Francesco Lamonaca (University of Sannio, Italy)

A Novel Method for Compressed Sensing based Sampling of ECG Signals in Medical-IoT era

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)

Enhanced Methods for Extracting Characteristic Features from ECG

Aime' Lay-Ekuakille (University of Salento, Italy)
Moise Avoci Ugwiri (University of Salerno, Italy)
Consolatina Liguori (University of Salerno, Italy)
Patrick Kapita (University of Siena, Italy)

Friday, June 28, 2019

The architecture of an innovative smart T-shirt based on the Internet of Medical Things paradigm

Eulalia Balestrieri (University of Sannio, Italy)
Franco Boldi (XEOS., Italy)
Angela Rita Colavita (ASREM Regione Molise, Italy)
Luca De Vito (University of Sannio, Italy)
Gennaro Laudato (University of Molise, Italy)
Rocco Oliveto (University of Molise, Italy)
Francesco Picariello (University of Sannio, Italy)
Simone Rivaldi (XEOS., Italy)
Simone Scalabrino (University of Molise, Italy)
Paolo Torchitti (XEOS., Italy)
Ioan Tudosa (University of Sannio, Italy)

ECG WATCH: a real time wireless wearable ECG

Vincenzo Randazzo (Politecnico di Torino, Italy)
Jacopo Ferretti (Politecnico di Torino, Italy)
Eros G Pasero (Politecnico di Torino, Italy)

11:10 – 12:50

T2.4: Sensors and Devices for Medical Measurements (IV)

Room: D Blok Grand Hall (2nd Floor)

Session Chair: Sabrina Grassini (Politecnico di Torino, Italy), Lorenzo Scalise (Università Politecnica delle Marche, Italy)

Image-based Tracking Of Immunoassay Reaction Progress In Quantitative Lateral Flow Kits

Lalitha Pratyusha Bheemavarapu (Indian Institute of Technology, Madras, India)
Malay Ilesh Shah (Healthcare Technology Innovation Centre (HTIC) & Indian Institute of Technology (IIT) Madras, India)
Jayaraj Joseph (Healthcare Technology Innovation Centre, IIT Madras, India)
Mohanaskar Sivaprakasam (IIT Madras, India)

Temperature influence on viscosity measurements in a rheometer prototype for medical applications: a case study

Francesco Orsini (Roma Tre University, Italy)
Fabio Fuiano (U Roma Tre University, Italy)
Giorgia Fiori (Roma Tre University, Italy)
Andrea Scorza (Roma Tre University, Italy)
Salvatore Andrea Sciuto (U Roma Tre University, Italy)

DC-DC Boost Converter Design with Maximum Power Point Tracker (MPPT) used in RF- Energy Harvester

Omiya Hassan (University of Missouri-Columbia, USA)
Samira Shamsir (University of Missouri-Columbia, USA)
Syed Islam (University of Missouri-Columbia, USA)
Taeho Oh (University of Tennessee, USA)

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Highly Linear Amperometric Glucose Detection System Realized in Deep Submicron CMOS Technology

Samira Shamsir (University of Missouri-Columbia, USA)
Hanfeng Wang (University of Tennessee, Knoxville, USA)
Ifana Mahbub (The University of North Texas, USA)
Syed Islam (University of Missouri-Columbia, USA)
Allen Legassey (University of Connecticut, USA)
Raja Gudlavelleti (University of Connecticut, USA)
Fotios Papadimitrakopoulos (University of Connecticut, USA)
Faquir Jain (University of Connecticut, USA)

11:10 – 12:50

T5.1: Biosignal Processing (I)

Room: D-107 (Ground Floor)

Session Chair: Adam G. Polak (Wrocław University of Science and Technology, Poland), Baki Karaböce (TÜBİTAK ÜME, Turkey)

Performance Analysis of Oscillometric Blood Pressure Estimation Techniques in Cardiac Patients

Ekambir Sidhu (University of Ottawa, Canada)
Masayoshi Yoshida (University of Ottawa, Canada)
Voicu Groza (University of Ottawa, Canada)
Hilmi R Dajani (University of Ottawa, Canada)
Miodrag Bolic (University of Ottawa, Canada)

Bioinspired Electric Stimulation: Comparison of ECoG Spectrum in the Main Auditory Structures

Maria Giovanna Bianco (University Magna Graecia of Catanzaro, Italy)
Daniela Menniti (University Magna Graecia of Catanzaro, Italy)
Costantino Davide Critello (University Magna Graecia of Catanzaro, Italy)
Rita Citraro (University Magna Graecia of Catanzaro, Italy)
Emilio Russo (University Magna Graecia of Catanzaro, Italy)
Giovambattista De Sarro (University Magna Graecia of Catanzaro, Italy)
Salvatore Andrea Pullano (University Magna Graecia of Catanzaro, Italy)
Antonino S. Fiorillo (University of Magna Graecia, Italy)

Predicting Novel and Inherited Variants in Parent-Child Trios

Melissa Spence (University of California, Merced, USA)
Mario Banuelos (California State University, Fresno, USA)
Roummel Marcia (University of California, Merced, USA)
Suzanne Sindi (University of California, Merced, USA)

Deep Network for Capacitive ECG Denoising

Vignesh Ravichandran (Healthcare Technology Innovation Centre, Mandras, India)
Balamurali Murugesan (Healthcare Technology Innovation Centre, Mandras, India)
Sharath M Shankaranarayana (Indian Institute of Technology Madras, India)
Keerthi Ram (HTIC, Mandras, India)
Preejith Sp (HTIC-IIT Madras, India)
Jayaraj Joseph (Healthcare Technology Innovation Centre, IIT Madras, India)
Mohanankar Sivaprakasam (IIT Madras, India)

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12:50 – 13:50

Buffet Lunch and Free Museum Tour

Room: KHU Cafe (D Blok 2nd Floor)

13:50 – 15:30

SS4.2: Measurement Systems and Sensors for Diagnostic and Therapeutic Procedures (II)

Room: D-103 (Ground Floor)

Session Chairs: Taesung Kim (Sungkyunkwan University, Korea), Emiliano Schena (University Campus Bio-Medico of Rome, Italy)

Temperature map of kidneys undergoing microwave ablation using computed tomography-thermometry: ex-vivo experiments and numerical simulations

Paola Saccomandi (Politecnico di Milano, Italy)

Martina De Landro (Politecnico di Milano & ENEA, Italy)

Carlo Massaroni (Università Campus Bio-Medico of Roma, Italy)

Yuman Fong (City of Hope Medical Center, Italy)

Jinha M Park (University of Iowa Hospitals and Clinics, Italy)

John Park (City of Hope Medical Center, Italy)

Emiliano Schena (University Campus Bio-Medico of Rome, Italy)

FT-IR Saliva Profiling in Patients with Obesity and Obesity-Related Insulin Resistance

Salvatore Andrea Pullano (University Magna Graecia of Catanzaro, Italy)

Marta Greco (University Magna Graecia of Catanzaro, Italy)

Maria Giovanna Bianco (University Magna Graecia of Catanzaro, Italy)

Daniela P. Foti (University Magna Graecia of Catanzaro, Italy)

Antonio Brunetti (University Magna Graecia of Catanzaro, Italy)

Antonino S. Fiorillo (University of Magna of Catanzaro Graecia, Italy)

Fabrication and Characterization of Miniature Glass-blown Cs Vapor Cells

Isa Araz (TÜBİTAK UME, Turkey)

Adil Meraki (TÜBİTAK UME & Bilecik Şeyh Edebalı University, Turkey)

Bakmurat Kubanaliev (TÜBİTAK UME, Turkey)

Birgül Kaçar (TÜBİTAK UME, Turkey)

İsmail Yorulmaz (TÜBİTAK UME, Turkey)

Kevser Topal (TÜBİTAK UME, Turkey)

Energy-Efficient SMPS-Based Pulse Generator for Neurostimulators

Sinduja Seshadri (University of Waikato & Saluda Medical, New Zealand)

Jonathan Scott (University of Waikato, New Zealand)

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13:50 – 15:30

SS5.2: IoT Devices & Systems for Biomedical Applications and Health Parameters Monitoring (II)

Room: D-104 (Ground Floor)

Session Chairs: Domenico Luca Carni (University of Calabria, Italy), Francesco Lamonaca (University of Sannio, Italy)

Streaming Pressure Sensor Data for Cloud Processing

Bruce Wallace (Carleton University, Canada)

Haoyang Liu (Carleton University, Canada)

Rafik Goubran (Carleton University, Canada)

Martin Bilodeau (University of Ottawa, Canada)

Frank Knoefel (Bruyere Continuing Care, Canada)

Cardio Twin: A digital twin of the human heart running on the edge

Roberto Martinez-Velazquez (University of Ottawa, Canada)

Rogelio Gamez Diaz (University of Ottawa, Canada)

Abdulmotaleb El Saddik (University of Ottawa, Canada)

An Overview on Internet of Medical Things in Blood Pressure Monitoring

Francesco Lamonaca (University of Sannio, Italy)

Eulalia Balestrieri (University of Sannio, Italy)

Ioan Tudosa (University of Sannio, Italy)

Francesco Picariello (University of Sannio, Italy)

Domenico Luca Carni (University of Calabria, Italy)

Carmelo Scuro (University of Calabria, Italy)

Francesco Bonavolontà (Università di Napoli Federico II, Italy)

Vitaliano Spagnuolo (Unit of Internal Medicine - AO of Cosenza, Belgium)

Gioconda Grimaldi (Annunziata Hospital of Cosenza, Italy)

Antonio Colaprico (University of Miami Health System (UHealth), Italy)

WiFi Channel State Information-Based Recognition of Sitting-Down and Standing-Up Activities

Itaf O. Joudeh (Carleton University, Canada)

Ana-Maria Cretu (Carleton University, Canada)

Bruce Wallace (Carleton University, Canada)

Rafik Goubran (Carleton University, Canada)

Abdulaziz Alkhalid (Carleton University, Canada)

Michel Allegue (Aerial, Canada)

Frank Knoefel (Bruyere Continuing Care, Canada)

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13:50 – 15:30

T2.5: Sensors and Devices for Medical Measurements (V)

Room: D Blok Grand Hall (2nd Floor)

Session Chair: Sreeraman Rajan (Carleton University, Canada), Baki Karaböce (TÜBİTAK UME, Turkey)

Nb2O5 thin film-based conductometric sensor for acetone monitoring

Luca Lombardo (Politecnico di Torino, Italy)

Nicola Donato (University of Messina, Italy)

Alessio Gullino (Politecnico di Torino, Italy)

Sabrina Grassini (Politecnico di Torino, Italy)

Kaveh Moulaei (University of Messina, Italy)

Giovanni Neri (University of Messina, Italy)

Marco Parvis (Politecnico di Torino, Italy)

Arterial Stiffness in Elastic and Muscular Arteries: Measurement using ARTSENS Pen

Raj Kiran V (IIT Madras, India)

Abhidev Venu Vadakkedath (Healthcare Technology Innovation Centre, IIT Madras, India)

Nabeel PM (Indian Institute of Technology Madras & HTIC-IIT Madras Research Park, India)

Jayaraj Joseph (Healthcare Technology Innovation Centre, IIT Madras, India)

Mohanasankar Sivaprakasam (IIT Madras, India)

Malay Illesh Shah (Healthcare Technology Innovation Centre & Indian Institute of Technology Madras, India)

TL-Fall: Contactless Indoor Fall Detection Using Transfer Learning From a Pretrained Model

Hamidreza Sadreazami (McGill University, Canada)

Miodrag Bolic (University of Ottawa, Canada)

Sreeraman Rajan (Carleton University, Canada)

Ride Profiling for a Single Speed Bicycle Using an Inertial Sensor

Preejith Sp (Healthcare Technology Innovation Centre, IIT Madras, India)

Dhinesh R (Indian Institute of Technology Madras, India)

Mohanasankar Sivaprakasam (IIT Madras, India)

Jayaraj Joseph (Healthcare Technology Innovation Centre, IIT Madras, India)

13:50 – 15:30

T5.2: Biosignal Processing (II)

Room: D-107 (Ground Floor)

Session Chair: Sergio Rapuano (University of Sannio, Italy), Lorenzo Scalise, Università Politecnica delle Marche, Ancona, Italy

Rectus Femoris and Vastus Medialis Muscles Exhibit Different Dynamics in Processing of Isometric Voluntary Contractions: A Fractal Analysis Study

Necia Ozturk (Maltepe University, Turkey)

Haris Begovic (The Hong Kong Polytechnic University, P.R. China)

Pinar Demir (Piri Reis University, Tuzla, Istanbul, Turkey)

Suha Yagcioglu (Hacettepe University, Turkey)

Filiz Can (Hacettepe University, Turkey)

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Solving the Inverse Problem in Spirometry with the Methods of Global and Local Estimation

Adam G. Polak (Wrocław University of Science and Technology, Poland)
Dariusz Wysoczański (Wrocław University of Science and Technology, Poland)
Janusz Mroczka (Wrocław University of Science and Technology, Poland)

A Unified Deep Learning Framework for Multi-Modal Multi-Dimensional Data

Pengcheng Xi (National Research Council, Canada)
Rafik Goubran (Carleton University, Canada)
Chang Shu (National Research Council of Canada, Canada)

Pilot Workload Prediction from ECG Using Deep Convolutional Neural Networks

Pengcheng Xi (National Research Council, Canada)
Andrew Law (National Research Council, Canada)
Rafik Goubran (Carleton University, Canada)
Chang Shu (National Research Council of Canada, Canada)

Classification of Patients with Bipolar Disorder and Their Healthy Siblings from Healthy Controls Using MRI

Ozkan Cigdem (Ozhak Engineering Ltd. Co., Turkey)
Erencan Horuz (Izmir University of Economics, Turkey)
Refik Soyak (Izmir University of Economics, Turkey)
Burhan Aydeniz (Izmir University of Economics, Turkey)
Aysu Sulucay (Izmir University of Economics, Turkey)
Kaya Oguz (Izmir University of Economics, Turkey)
Hasan Demirel (Eastern Mediterranean University, Turkey)
Omer Kitis (Ege University, Turkey)
Cagdas Eker (Ege University, Turkey)
Ali Saffet Gonul (Ege University, Turkey)
Devrim Unay (Izmir University of Economics, Turkey)

15:30 – 16:30

Closing Ceremony and Reception

Room: D Blok Grand Hall and Foyer