

9 – 13 June 2024
Portorož | Slovenia

embec

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9th European
Medical and Biological
Engineering Conference

SCIENTIFIC PROGRAMME



SCIENTIFIC PROGRAMME AT A GLANCE:

Time	Sunday Jun-09	Monday Jun-10	Tuesday Jun-11	Wednesday Jun-12	Thursday Jun-13
08:15					
08:30		Registration (12th floor foyer)			
08:45		Opening ceremony (Lecture room A+B)	Applications of Artificial Intelligence in Clinical Diagnosis, Therapy, and Operations, Shankar M. Krishnan (Lecture room A+B)	History of irreversible electroporation and future clinical applications, Rafael Davalos (Lecture room A+B)	Biomedical Engineering for Sustainable Global Health, Leandro Pecchia (Lecture room A+B)
09:00					
09:15		New ablation method based on irreversible electroporation – a game changer in cardiac ablation, Atul Verma (Lecture room A+B)	Cybersecurity for connected medical devices, Dubravka Maljević (Lecture room A+B)	Deep Brain Stimulation - Data Analysis for Clinical Support, Karin Wårdell (Lecture room A+B)	Transferring scientific findings into medical devices: the power of simplicity, Zlatko Matijčić (Lecture room A+B)
09:30					
09:45					
10:00		Coffee break 12th floor foyer	Coffee break and Poster session 12th floor foyer	Coffee break and Poster session 12th floor foyer	Coffee break 12th floor foyer
10:15					
10:30		S21 - The role of Large-Language Models and Generative AI in Health Technology Management (Lecture room C)	S15 - Optimizing Healthcare: Patient-Centered Technology Innovations (Lecture room A+B)	S22 - Tools, technologies and computing for point-of-care person-centered health and care delivery (Lecture room C)	S11 – IFMBE Education in BME: Education in Biomedical Engineering for Students (Lecture room C)
10:45		S02 - Advances in BME in the Asia Pacific Region (Lecture room D)	S17: Regulatory Learning (Lecture room D)	S19 - IFMBE Industry Committee: Medical Technologies - From Concept to Commercialization (Lecture room D)	Meet the Editors (Lecture room A+B)
11:00					
11:15					
11:30					
11:45					
12:00					
12:15					
12:30		Lunch Hotel dining hall (10th floor)	Lunch Hotel dining hall (10th floor)	Lunch Hotel dining hall (10th floor)	
12:45					Closing ceremony (Lecture room C)
13:00					
13:15					
13:30		Cardiac regeneration: where we stand, Mauro Giacca (Lecture room A+B)	The Joy of Point-Based Visualizations, Blaž Zupan (Lecture room A+B)	Women in BME Coffee Break (Lecture room A+B)	
13:45				IFMBE Scientific Challenge (Lecture room C)	Cellular and Tissue Engineering (Lecture room D)
14:00					
14:15		S07 - Electrochemical Effects in Bioelectrical Therapies (Lecture room A+B)	S08-2: Electroporation meets cardiac treatment (Lecture room A+B)	S20 - System design for biomagnetic applications using optically pumped magnetometers (Lecture room A+B)	BME Miscellaneous topics (Lecture room D)
14:30		S26 - IFMBE Education in BME: Transformation of the BME Education in Asia Pacific Region (Lecture room C)	S27 - Perspectives of BME Education (Lecture room C)	S28 - BME Education in Europe (Lecture room C)	
14:45		S03 - Applications of Entropy in Health Care (Lecture room D)	S16 - Out-of-the-lab dry EEG (Lecture room D)		
15:00					
15:15					
15:30		Coffee break 12th floor foyer	Coffee break and Poster session 12th floor foyer	Coffee break and Poster session 12th floor foyer	
15:45					
16:00		S12 - Intelligent Health Monitoring for Precision Medicine: A Global Perspective (Lecture room C)	IFMBE Young Investigators Competition (Lecture room A+B)	S14 - Non-invasive methods for monitoring electrophysiological and hemodynamic brain activity (Lecture room A+B)	Artificial intelligence in healthcare (Lecture room D)
16:15					
16:30					
16:45					
17:00					
17:15					
17:30					
17:45					
18:00	Registration 11th floor				
18:15			IFMBE VIC stress release		
18:30					
18:45					
19:00					
19:15	Welcome reception				
19:30					
19:45				Congress dinner Hotel Histron, Restaurant "Arkade"	

SCIENTIFIC PROGRAMME

Sunday, Jun-09

17:00 - 19:00

REGISTRATION

[11th floor](#)

19:00

Welcome reception

Monday, Jun-10

08:15 - 09:00

Registration

[12th floor foyer](#)

09:00 - 09:15

Opening ceremony

[Lecture room A+B](#)

09:15 - 10:00

Plenary lecture: New ablation method based on irreversible electroporation – a game changer in cardiac ablation, Atul Verma

[Lecture room A+B](#)

10:00 - 10:30

Coffee break

[12th floor foyer](#)

10:30 - 12:00

Parallel sessions:

Technologies for assistive and preventive healthcare

[Lecture room A+B](#)

S21 - The role of Large-Language Models and Generative AI in Health Technology Management

[Lecture room C](#)

S02 - Advances in BME in the Asia Pacific Region

[Lecture room D](#)

12:00 - 13:30

Lunch

[Hotel dining hall \(10th floor\)](#)

13:30 - 14:15

Plenary lecture: Cardiac regeneration: where we stand, Mauro Giacca

[Lecture room A+B](#)

14:15 - 15:30

Parallel sessions:

S07 - Electrochemical Effects in Bioelectrical Therapies

[Lecture room A+B](#)

S26 - IFMBE Education in BME: Transformation of the BME Education in Asia Pacific Region

[Lecture room C](#)

S03 - Applications of Entropy in Health Care

[Lecture room D](#)

15:30 - 16:00

Coffee break

[12th floor foyer](#)

16:00 - 18:00

Parallel sessions:

S08-1: Electroporation meets cardiac treatment

[Lecture room A+B](#)

S12 - Intelligent Health Monitoring for Precision Medicine: A Global Perspective

[Lecture room C](#)

Biomedical instrumentation, signal processing and imaging

[Lecture room D](#)

Tuesday, Jun-11

08:30 - 09:15	Plenary lecture: Applications of Artificial Intelligence in Clinical Diagnosis, Therapy, and Operations, Shankar M. Krishnan Lecture room A+B
09:15 - 10:00	Plenary lecture: Cybersecurity for connected medical devices, Dubravka Maljević Lecture room A+B
10:00 - 10:30	Coffee break and Poster session 12th floor foyer
10:30 - 12:00	Parallel sessions: S15 - Optimizing Healthcare: Patient-Centered Technology Innovations Lecture room A+B Biomedical engineering in developing countries Lecture room C S17: Regulatory Learning Lecture room D
12:00 - 13:30	Lunch Hotel dining hall (10th floor)
13:30 - 14:15	Plenary lecture: The Joy of Point-Based Visualizations, Blaž Zupan Lecture room A+B
14:15 - 15:30	Parallel sessions: S08-2: Electroporation meets cardiac treatment Lecture room A+B S27 - Perspectives of BME Education Lecture room C S16 - Out-of-the-lab dry EEG Lecture room D
15:30 - 16:00	Coffee break and Poster session 12th floor foyer
16:00 - 18:00	Parallel sessions: IFMBE Young Investigators Competition Lecture room A+B Council of Societies meeting Lecture room C S24 - Wireless Wearable Networks for Physical Function Rehabilitation Monitoring Lecture room D
18:15 - 19:00	IFMBE YIC stress release

Wednesday, Jun-12

08:30 - 09:15	Plenary lecture: History of irreversible electroporation and future clinical applications, Rafael Davalos Lecture room A+B
09:15 - 10:00	Plenary lecture: Deep Brain Stimulation - Data Analysis for Clinical Support, Karin Wårdell Lecture room A+B
10:00 - 10:30	Coffee break and Poster session 12th floor foyer
10:30 - 12:00	Parallel sessions: S09 - Health Technology Assessment of Medical Devices - Advances and Challenges Lecture room A+B S22 - Tools, technologies and computing for point-of-care person-centered health and care delivery Lecture room C S19 - IFMBE Industry Committee: Medical Technologies - From Concept to Commercialization Lecture room D
12:00 - 13:30	Lunch Hotel dining hall (10th floor)
13:30 - 14:15	Parallel sessions: Women in BME Coffee Break Lecture room A+B IFMBE Scientific Challenge Lecture room C Cellular and Tissue Engineering Lecture room D
14:15 - 15:30	Parallel sessions: S20 - System design for biomagnetic applications using optically pumped magnetometers Lecture room A+B S28 - BME Education in Europe Lecture room C BME Miscellaneous topics Lecture room D
15:30 - 16:00	Coffee break and Poster session 12th floor foyer
16:00 - 18:00	Parallel sessions: S14 - Non-invasive methods for monitoring electrophysiological and hemodynamic brain activity Lecture room A+B S25 - IFMBE Education in BME: BME Education in Latin America and BME in Africa Lecture room C Artificial intelligence in healthcare Lecture room D
19:00	Congress dinner Hotel Histrion, Restaurant "Arkade"

Thursday, Jun-13

08:30 - 09:15	Plenary lecture: Biomedical Engineering for Sustainable Global Health, Leandro Pecchia Lecture room A+B
09:15 - 10:00	Plenary lecture: Transferring scientific findings into medical devices: the power of simplicity, Zlatko Matjačić Lecture room A+B
10:00 - 10:30	Coffee break 12th floor foyer
10:30 - 12:00	Parallel sessions: Meet the Editors Lecture room A+B S11 – IFMBE Education in BME: Education in Biomedical Engineering for Students Lecture room C Clinical engineering Lecture room D
12:15 - 13:30	Closing ceremony Lecture room C

MEETINGS

Time	Saturday Jun-08	Sunday Jun-09	Monday Jun-10	Tuesday Jun-11	Wednesday Jun-12	Thursday Jun-13
08:15						
08:30			Registration 12th floor foyer			
08:45						
09:00			Opening ceremony L.R. A+B			
09:15						
09:30						
09:45						
10:00						
10:15						
10:30	Officers meeting		ERC Reincarnation project presentation meeting	Presentation of WHO project - Update of CMMS and Inventory publication Lejla Gurbeta Pokvić VIP Salon		Meet the Editors
10:45	Ratko Magjarević	IFMBE AdCom meeting				S.Krishnan, Z.Vidic Lecture Room A+B
11:00		Ratko Magjarević	Lea Rems VIP Salon			
11:15						
11:30						
11:45						
12:00				Publicity Committee Meeting and Networking		
12:15						
12:30			EAMBES Council meeting			
12:45				Kallirroi Stavrianou VIP Salon		Closing ceremony Lecture room C
13:00			Eleni Kaldoudi VIP Salon			
13:15						
13:30					Women in BME Lecture Room A+B	
13:45						
14:00						
14:15						
14:30				S27 - Perspectives of BME Education Lecture Room C		
14:45						
15:00		IFMBE AdCom meeting				
15:15		Ratko Magjarević				
15:30	IFMBE AdCom meeting			Coffee Break		
15:45	Ratko Magjarević					
16:00						
16:15			Digital Health Division Board meeting	CoS IFMBE meeting		
16:30				Ernesto Iadanza Lecture Room C		
16:45			Paulo Carvalho VIP Salon			
17:00						
17:15		Registration 11th floor				
17:30						
17:45						
18:00						
18:15						
18:30						
18:45						
19:00		Welcome reception				
19:15						
19:30				CoS Networking 19:30-22:00 (Delegates)	Congress dinner Hotel Histron, Restaurant "Arkade"	
19:45						
20:00						

**SCIENTIFIC
PRESENTATIONS
PROGRAMME**

Plenary Lectures

Monday morning Plenary, Monday, Jun 10 2024, 9:15–10:00

Location: Lecture room A+B

Session: **Plenary talks session**

9:15
PL-01 **New ablation method based on irreversible electroporation – a game changer in cardiac ablation**
Atul Verma

Monday afternoon Plenary, Monday, Jun 10 2024, 13:30–14:15

Location: Lecture room A+B

Session: **Plenary talks session**

13:30
PL-02 **Cardiac regeneration: where we stand**
Mauro Giacca

Tuesday morning Plenary, Tuesday, Jun 11 2024, 8:30–10:00

Location: Lecture room A+B

Session: **Plenary talks session**

8:30
PL-03 **Applications of Artificial Intelligence in Clinical Diagnosis, Therapy and Operations**
Shankar Krishnan

9:15
PL-04 **Cybersecurity for connected medical devices**
Dubravka Maljević

Tuesday afternoon Plenary, Tuesday, Jun 11 2024, 13:30–14:15

Location: Lecture room A+B

Session: **Plenary talks session**

13:30
PL-05 **The Joy of Point-Based Visualizations**
Blaž Zupan

Wednesday morning Plenary, Wednesday, Jun 12 2024, 8:30–10:00

Location: Lecture room A+B

Session: **Plenary talks session**

8:30
PL-06 **History of irreversible electroporation and future clinical applications**
Rafael V. Davalos

9:15
PL-07 **Deep Brain Stimulation – Data Analysis for Clinical Support**
Karin Wårdell, Teresa Nordin, Dorian Vogel, Simone Hemm

Thursday morning Plenary, Thursday, Jun 13 2024, 8:30-10:00

Location: Lecture room A+B

Session: **Plenary talks session**

8:30

PL-08

Transferring scientific findings into medical devices: the power of simplicity

Zlatko Matjačić

9:15

PL-09

Biomedical Engineering for Sustainable Global Health

Leandro Pecchia

Oral Presentations

Monday morning Track A, Monday, Jun 10 2024, 10:30-12:15

Location: Lecture room A+B

Session: **Technologies for assistive and preventive healthcare**

Chairs: Zhivko Bliznakov and Lenka Lhotska

- 10:30
OR-001 **Digitalization of elderly care delivery**
Lenka Lhotska, Petr Novak, Jaroslav Cibulka, Vitezslav Mergl
- 10:45
OR-002 **Design and development of an optical prototype system: Preliminary results**
Teodor Minev, Kristina Bliznakova, Nikolay Dukov, Zhivko Bliznakov
- 11:00
OR-003 **Screening prediabetes using 1 hour glucose. A simulation model to estimate the lifetime health and economic outcomes**
Martina Andellini, Melania Manco, Matteo Ritrovato
- 11:15
OR-004 **Quantifying static and dynamic balance for the sit to stand movement assessment**
Athia Haron, Glen Cooper, Helen Dawes, Maedeh Mansoubi, Andrew Weightman
- 11:30
OR-005 **Design of a Surgical Device for Performing Percutaneous Dilatational Tracheostomy**
Yuan Tang, Glen Cooper, Bruno Adorno, Brendan McGrath, Andrew Weightman
- 11:45
OR-006 **Telemedicine system for prehabilitation in urogynecology**
Petra Sládková, Marie Tichá, Radim Kliment, Jan Mužík, Marek Doksanský, Karel Hána, Pavel Smrčka
- 12:00
OR-007 **Current Challenges and Future Outlook for Extended Reality as Cutting-edge Assistive Technology shaping Caring Personnel**
Fabiano Bini, Michela Franzò, Alessia Finti, Franco Marinozzi

Monday morning Track B, Monday, Jun 10 2024, 10:30-12:00

Location: Lecture room C

Session: **S21 - The role of Large-Language Models and Generative AI in Health Technology Management**

Chairs: Alessio Luschi and Ernesto Iadanza

Organizers/Conveners: Alessio Luschi and Ernesto Iadanza

- 10:30
OR-008 **Proposal of an XML standard protocol for Evidence-Based Medical Equipment Maintenance**
Alessio Luschi, Fabio Crapanzano, Francesca Satta, Lorenzo Sani, Ernesto Iadanza
- 10:45
OR-009 **Advancing Clinical Decision Support with Large Language Models: A Framework for Guideline-Compatible Hepatitis C Management**
Simone Kresevic, Mauro Giuffrè, Milos Ajcevic, Lory Croce, Dennis Shung, Agostino Accardo
- 11:00
OR-010 **Unveiling a New Resource for Crossing Linguistic Frontiers in Biomedicine: A Preliminary Study on English-Italian Translation**
Luca Bacco, Mario Merone, Leandro Pecchia

- 11:15 **Prompt Engineering for Consistent Healthcare Responses in LLMs**
OR-011 *Ali Salman*
- 11:30 **Natural language processing in dermatology: an overview**
OR-012 *Alessandra Cartocci, Alessio Luschi, Linda Tognetti, Pietro Rubegni, Gabriele Cevenini, Ernesto Iadanza*

Monday morning Track C, Monday, Jun 10 2024, 10:30–12:00

Location: Lecture room D

Session: **S02 - Advances in BME in the Asia Pacific Region**

Chairs: James Goh and Ichiro Sakuma

Organizers/Conveners: James Goh, Ichiro Sakuma

- 10:30 **Smart Wearable Haptics for AI Healthcare and the Health Metaverse**
OR-013 *Chwee Teck Lim*
- 10:45 **Silk-based Enthesis Regeneration in Anterior Cruciate Ligament Reconstruction**
OR-014 *James Goh*
- 11:00 **Advances in BME in Japan: JSMBE leads bio-resilience research to create new scientific principles**
OR-015 *Yasuyuki Shiraishi, Yumie Ono, Takeo Matsumoto, Ichiro Sakuma, Ryo Haraguchi, Tomohiro Kuroda*
- 11:15 **Automatic ROI Delineation for Semi quantitative Analysis of Brain SPECT Imaging at Striatum**
OR-016 *Kang-Ping Lin*
- 11:30 **Soft Robotics for Healthcare**
OR-017 *Raye Chen-Hua Yeow*
- 11:45 **A Novel Direct Left-Ventricular Puncture Cannulation Extracorporeal Continuous Flow Blood Pump for Emergency Cardiac Support**
OR-018 *Francis Chikweto, Yasuyuki Shiraishi, Hanako Suzuki, Aoi Fukaya, Kazushi Ishiyama, Tashihiko Kijima, Tomoyuki Yambe*

Monday afternoon Track A, Monday, Jun 10 2024, 14:15–15:30

Location: Lecture room A+B

Session: **S07 - Electrochemical Effects in Bioelectrical Therapies**

Chairs: Antoni Ivorra and Samo Mahnič-Kalamiza

Organizers/Conveners: Antoni Ivorra and Samo Mahnič-Kalamiza

- 14:15 **Unwired bipolar electrodes in neural systems. Main aspects of wireless electrochemistry in biological systems**
OR-019 *Nieves Casan-Pastor*
- 14:30 **Electrochemistry of neural stimulation**
OR-020 *Jiří Ehlich*
- 14:45 **Electrolytic Electroporation for Tissue Ablation**
OR-021 *Mary Ho*
- 15:00 **Leveraging the Electrochemical Reactions from Electroporation to Promote Anti-Tumor Phenotypes in Immune Cells**
OR-022 *Zaid Salameh, Manali Patwardhan, Alana Hay, Joanne Tuohy, Rafael Davalos*

15:15 **Beyond the rainbow: A validated mechanistic model of electrochemically produced pH changes in tissue**
OR-023
Rok Šmerc, Damijan Miklavčič, Samo Mahnič-Kalamiza

Monday afternoon Track B, Monday, Jun 10 2024, 14:15-15:30

Location: Lecture room C

Session: **S26 - IFMBE Education in BME: Transformation of the BME Education in Asia Pacific Region**

Chairs: Martha Zequera and James Goh

Organizers/Conveners: Martha Zequera Diaz and James Goh

14:15 **A new framework of BME education with medical focus at CYCU, NYCU and NCKU in Asia-pacific region**
OR-024
Kang-Ping Lin, Tse-Ying Liu, Ying-Hui Lai, Wen-Tai Chiu, Ming Chen Wang

14:30 **Creating an Authentic Learning Environment in the NUS-BME program**
OR-025
Raye Yeow, James Goh

14:45 **Current status and features of BME education in China**
OR-026
Hairong Zheng

15:00 **Bioengineering education through the promotion of research collaboration of school of medicine and school of engineering at The University of Tokyo**
OR-027
Ichiro Sakuma

Monday afternoon Track C, Monday, Jun 10 2024, 14:15-15:30

Location: Lecture room D

Session: **S03 - Applications of Entropy in Health Care**

Chair: Alexander Martynenko

Organizers/Conveners: Alexander Martynenko

14:15 **Entropy-Based Analysis of DNA Sequences and IGHV Mutational Status in Chronic Lymphocytic Leukemia: Predicting Patient Survival**
OR-028
Alexander Martynenko, Xavier Pastor

14:30 **Evaluating Mental Workload Through Cross-Entropy Analysis of Two Pre-frontal EEG Channels**
OR-029
Matin Beiramvand, Mohammad Shahbakhti, Tarmo Lipping

14:45 **Bayesian Shannon Entropy for assessing patient's data interrelation in medical applications**
OR-030
Alexander Martynenko, Xavier Pastor

15:00 **Relationship of the Correlation between EEG and Heart Rate Variability with Cardiovascular Indicators**
OR-031
Merilin Vihmaru, Laura Päske, Hiie Hinrikus, Jaanus Lass, Toomas Pöld, Maie Bachmann

15:15 **Detecting Heart Failure Relations: A Preliminary Study Integrating HRV, LVEF, and GLS in Patients with Ischemic Heart Disease and Dilated Cardiomyopathy**
OR-032
Katerina Iskra, Laura Munaretto, Aleksandar Miladinovic, Jacopo Giulio Rizzi, Marco Merlo, Agostino Accardo, Milos Ajcevic

Monday late afternoon Track A, Monday, Jun 10 2024, 16:00–18:15

Location: Lecture room A+B

Session: **S08 - Electroporation meets cardiac treatment**

Chairs: Lea Rems and Bojan Vrtovec

Organizers/Conveners: Lea Rems

- 16:00 **What do we (think we) know about electroporation**
OR-033 *Damijan Miklavčič*
- 16:15 **Initial single centre experience with pulsed field ablation for treatment of cardiac arrhythmias**
OR-034 *Matevž Jan, Tine Prolič Kalinšek, Jernej Iršič, Damijan Miklavčič, Jernej Štublar*
- 16:30 **Numerical modelling in pulsed field ablation**
OR-035 *Bor Kos*
- 16:45 **Machine Learning Models for Predicting Electroporation-Dependent Tissue Properties and Temperature Distributions from Pulsed Electric Fields**
OR-036 *Edward Jacobs, Pedro Santos, Rafael Davalos*
- 17:00 **In Vivo Cardioporation Enhanced Myocardial Gene Delivery**
OR-037 *Richard Heller, Mark Jaroszeski, Carly Boye, Michael Francis, Jacob Hensley, Alex Otten, Sezgi Arpag-McIntosh, Anna Bulysheva*
- 17:30 **Gene electrotransfer – the role of electrical and biological parameters in in vitro experiments**
OR-038 *Alenka Maček Lebar*
- 17:45 **Precision medicine approach to cell therapy in heart failure**
OR-039 *Bojan Vrtovec*
- 18:00 **The LVAD-CD34+ Stem Cell Combination Therapy in Non-ischemic Dilated Cardiomyopathy Patients**
OR-040 *Gregor Poglajen, Sabina Frljak, Gregor Zemljič, Andraž Cerar, Bojan Vrtovec*

Monday late afternoon Track B, Monday, Jun 10 2024, 16:00–18:00

Location: Lecture room C

Session: **S12 - Intelligent Health Monitoring for Precision Medicine: A Global Perspective**

Chairs: Li Li and Hairong Zheng

Organizers/Conveners: Li Li

- 16:00 **Multimodal Biomedical Imaging for the Advance Precision Medicine: Past, Present and Future**
OR-041 *Hairong Zheng*
- 16:15 **United States Perspective on Intelligent Health Monitoring in Precision Medicine**
OR-042 *Shankar Krishnan*
- 16:30 **Precision medicine and AI for personalised estimation of glucose levels via ECG**
OR-043 *Leandro Pecchia*
- 16:45 **Precision medicine in Latin America: Universalizing the promise of innovation**
OR-044 *Virginia Laura Ballarin*

- 17:00
OR-045 **Comparative study of machine learning methods for the early prediction of adherence to treatment**
Miguel Rujas, *Beatriz Merino*, Peña Arroyo, Jim Ingebretsen, Jaime Barrio Cortes, Ana Isabel Villimar Rodriguez, Andrés Castillo, Ana Roca-Umbert, Francisco Lupiañez, Maria Fernanda Cabrera, Maria Teresa Arredondo, Giuseppe Fico
- 17:15
OR-046 **Bone Metastasis Measurement based on CNN Model for Auto-ROIs**
Kang-Ping Lin, Jimmy Hasugian
- 17:30
OR-047 **Trusted quality infrastructure federated data space for networks in biomedical engineering and medical diagnostics**
Tomasz Sołtysiński

Monday late afternoon Track C, Monday, Jun 10 2024, 16:00–18:15

Location: Lecture room D

Session: Biomedical instrumentation, signal processing and imaging

Chairs: Srdjan Djordjevic and Kazimierz Pęczalski

- 16:00
OR-048 **A System for Multimodal Ultrasound Vascular Assessment**
Marcin Lewandowski, Piotr Karwat
- 16:15
OR-049 **Cardiovascular control alterations associated with genetic polymorphisms of proteins involved in sympathetic pathway signal transduction**
Michal Javorka, Lenka Matušková, Barbora Czippelová, Jana Čerňanová Krohová, Zuzana Turianiková, Zuzana Kolková, Zora Lasabová
- 16:30
OR-050 **Control Unit for Phototherapy Sources**
Jan Havlík, Lenka Maierová
- 16:45
OR-051 **Transfer Learning from the Domain of Diabetic Retinopathy to Aid in the Detection of Age-Related Macular Degeneration**
Roberto Romero-Oraá, María Herrero-Tudela, Roberto Hornero, María I. López, María García
- 17:00
OR-052 **Simple electrochemical sensor for measuring oxygen tension in blood or respiratory gases**
Tadeusz Pałko, *Kazimierz Pęczalski*
- 17:15
OR-053 **Comparison of forehead and finger photoplethysmographic waveform index for stress assessment**
Kristjan Pilt, Ivo Fridolin
- 17:30
OR-054 **Non-Invasive Continuous Measurement of the Intra-Abdominal Pressure**
Josias Wacker, Srdjan Djordjevic, Blaž Trotovšek, Simon Krašna, Jan Žumer, Etienne Haenni, Grégoire Banderet, Patrick Richard, Gürkan Yilmaz
- 17:45
OR-055 **Estimation of middle ear characteristics by an innovative Pressure-Less Acoustic Immittance (PLAI™) device**
Francesco Bassi, Agostino Accardo
- 18:00
OR-056 **Synchronization of magnetocardiographic and electrocardiographic recordings obtained with two separate systems**
Kazimierz Pęczalski, Teodor Buchner, Judyta Sobiech, Gerard Cybulski, Tadeusz Pałko

Tuesday morning Track A, Tuesday, Jun 11 2024, 10:30–12:15

Location: Lecture room A+B

Session: **S15 - Optimizing Healthcare: Patient-Centered Technology Innovations**

Chairs: Paulo Carvalho, Fabiola Martinez-Licona and Murilo Conto

Organizers/Conveners: Paulo de Carvalho, Fabiola Martinez, and Murilo Conto

- 10:30
OR-057 **Patient-centered Innovation in Hospital Patient Monitoring**
Jens Muehlsteff
- 11:00
OR-058 **Shaping the healthcare of tomorrow through patient-centered digital technologies**
Josias Wacker
- 11:30
OR-059 **Consensus on best practices for the management of Large-Scale Pilot projects: results from a Delphi study**
Davide Piaggio, Jordi De Batlle, Alba Gallego, Gloria Cea, Pedro Checa Rifa, Alessia Maccaro, Giuseppe Fico, Leandro Pecchia
- 11:45
OR-060 **Let's Play a Cognitive Game**
Anton Nydal, Ankica Babic
- 12:00
OR-061 **Comparison of automatic and semiautomatic approach for the posterior nipple line calculation**
Francesca Angelone, Alfonso Maria Ponsiglione, Roberto Grassi, Francesco Amato, Mario Sansone

Tuesday morning Track B, Tuesday, Jun 11 2024, 10:30–12:00

Location: Lecture room C

Session: **Biomedical engineering in developing countries**

Chairs: Ernesto Iadanza and Wanzi Su

- 10:30
OR-062 **Smartphone Technology: Manual Validation of Two Eye-tracking Algorithms**
Wanzi Su, Damon Hoad, Davide Piaggio, Leandro Pecchia
- 10:45
OR-063 **A Novel University Course on Medical Devices Design and Certification at the University of Siena**
Ernesto Iadanza
- 11:00
OR-064 **Demand for Biomedical Engineers in Tanzania – A View from the Outside**
Mirjam Bodensterfer
- 11:15
OR-065 **The systematic literature review of automated pupillometry system on five common ophthalmological diseases**
Wanzi Su, Katia Polsi, Jacopo Vitale, Emmanuel Nathaniel, Alvin Vyapoore, Daniel Fox, Damon Hoad, Leandro Pecchia, Davide Piaggio
- 11:30
OR-066 **A frugal smart tool for screening for diabetic neuropathies**
Davide Piaggio, Rossana Castaldo, Gianluca Garibizzo, Ernesto Iadanza, Leandro Pecchia
- 11:45
OR-067 **Establishment of Femoral Bone Defect Model in Sprague-Dawley Rat for Engineered Scaffold Implantation: A Pilot Study**
Amira Raudhah Abdullah, Intan Maslina Musa

Tuesday morning Track C, Tuesday, Jun 11 2024, 10:30–12:00

Location: Lecture room D

Session: **S17 – Regulatory Learning**

Chairs: Laura Lopez-Perez and Beatriz Merino

Organizers/Conveners: Giuseppe Fico

- 10:30
OR-068 **Living Labs as Regulatory Learning Tools for Biomedical Engineering and Digital Transformation in Healthcare**
Giuseppe Fico
- 10:45
OR-069 **Integrating Living Labs for Harmonized Data Collection in Transitional Care**
Beatriz Merino, Gloria Cea, Ivana Lombroni, Irene Mallo, Diego Carvajal, Alejandro Medrano, Maria Fernanda Cabrera, *Maria Teresa Arredondo*, Giuseppe Fico
- 11:00
OR-070 **Bridging Digital Transformation through EU-LAC Cooperation**
Maria Fernanda Cabrera
- 11:15
OR-071 **Regulatory Frameworks and Validation Strategies for Advancing Artificial Intelligence in Healthcare**
Laura Lopez-Perez, Beatriz Merino, Miguel Rujas, Alessia Maccaro, Leandro Pecchia, *Sergio Guillen*, Maria Fernanda Cabrera, Maria Teresa Arredondo, Giuseppe Fico
- 11:30
OR-072 **The BEAMER Lab: conceptualizing a living lab frame-work to develop predictive models, tools, and support programs to improve adherence to treatment**
Beatriz Merino, Miguel Rujas, Peña Arroyo, Rodrigo Martín Gómez del Moral Herran, Jim Ingebretsen, Francisco Lupiáñez, Giuseppe Fico

Tuesday afternoon Track A, Tuesday, Jun 11 2024, 14:15–15:30

Location: Lecture room A+B

Session: **S08 – Electroporation meets cardiac treatment**

Chairs: Lea Rems and Chiara Collesi

Organizers/Conveners: Lea Rems

- 14:15
OR-073 **Modelling Dilated Cardiomyopathy through Induced Pluripotent Stem Cell-Derived Cardiomyocytes**
Rebecca Artioli, Rossella Cannilla, Cecilia Thairi, Matteo Dal Ferro, Elisa Di Pasquale, Gianfranco Sinagra, Mauro Giacca, Chiara Collesi
- 14:30
OR-074 **Exploring the Effects of Electroporation on Primary Rat Ventricular Cardiomyocytes: Insights into Action Potential, Calcium Release, and Contraction Dynamics**
Vid Jan, Marko Stručić, Tina Turk, Jernej Jurič, Monika Kos, Matej Reberšek, Martina Perše, Lea Rems, Damijan Miklavčič
- 14:45
OR-075 **Excitation and electroporation in excitable S-HEK cells exposed to electric pulses of different durations**
Tina Batista Napotnik, Tina Cimperman, Lea Rems
- 15:00
OR-076 **Localized electroporation on a chip for effective DNA electrotransfer**
Pouyan Boukany
- 15:15
OR-077 **Gene electrotransfer into cells in hydrogels as extracellular mimicry**
Saša Haberl Meglič

Tuesday afternoon Track B, Tuesday, Jun 11 2024, 14:15–15:30

Location: Lecture room C

Session: **S27 – Perspectives of BME Education**

Chairs: Ratko Magjarevic, Nicolas Pallikarakis and Martha Zequera

Organizers/Conveners: Ratko Magjarević, Nicolas Pallikarakis and Martha Zequera

- 14:15 **IFMBE project on Survey of BME Programs worldwide by IFMBE regions**
OR-078 *Ratko Magjarević*
- 14:30 **How the BME study programs survey is planned to be organized: A proposal**
OR-079 *Nicolas Pallikarakis*
- 14:45 **Emerging Technologies to Support Health Care and Independent Living Summer School: An Innovation Education Model in Latin America**
OR-080 *Martha L. Zequera, Ratko Magjarević, Virginia Ballarin, Luis Zamudio, Shankar Krishnan, Juan Pastore, Eduardo Pinos, Rosa Flores-Luna, Alvaro Poveda, Piotr Ładyżyński, Nubia Arroyo, Mauricio Cubides*
- 15:00 **What does harmonization bring to students, teachers, and researchers in BME**
OR-081 *Shankar Krishnan*
- 15:15 **BME educational programs – Between historical foundations and the need for interdisciplinarity**
OR-082 *Damijan Miklavčič*

Tuesday afternoon Track C, Tuesday, Jun 11 2024, 14:15–15:30

Location: Lecture room D

Session: **S16 – Out-of-the-lab dry EEG**

Chairs: Jens Haueisen and Patrique Fiedler

Organizers/Conveners: Jens Haueisen and Patrique Fiedler

- 14:15 **Dry electrode technologies for comfortable and reliable out-of-the-lab EEG**
OR-083 *Patrique Fiedler, Abdumumin Olimzoda, Indhika Warsito, Silvia Comani, Jens Haueisen*
- 14:30 **A flexible soft cap for neonatal EEG-NIRS recording produced by additive manufacturing**
OR-084 *Mohammed-Reda Mejbar, Ralf Hauffe, Jens Haueisen, Patrique Fiedler*
- 14:45 **Comparison of methods for bad channel detection in dry EEG**
OR-085 *Milana Komosar, Patrique Fiedler, Jens Haueisen*
- 15:00 **Technology and study protocol for the multimodal and ecological investigation of joint action in table tennis**
OR-086 *Silvia Comani, Gabriella Tamburro, Antonio De Fano, Khadijeh Raeisi Nafchi, Mohammad Khazaei, Filippo Zappasodi, Ricardo Bruña, Edson Filho, Hannes Oppermann, Patrique Fiedler*
- 15:15 **Analysis of hyperbrain data underpinning naturalistic joint action**
OR-087 *Gabriella Tamburro, Ricardo Bruña, Patrique Fiedler, Antonio De Fano, Khadijeh Raeisi Nafchi, Mohammad Khazaei, Filippo Zappasodi, Silvia Comani*

Tuesday late afternoon Track A, Tuesday, Jun 11 2024, 16:00–18:00

Location: Lecture room A+B

Session: **IFMBE Young Investigators Competition**

Chairs: Helena Cindrič and Zhivko Bliznakov

- 16:00
OR-088 **Online Uric Acid Concentration Estimation in Blood from Spent Dialysate Measurements Using an Optical Sensor**
Joosep Paats, Jürgen Arund, Kristjan Pilt, Annika Adoberg, Liisi Leis, Merike Luman, Jana Holmar, Risto Tanner, Ivo Fridolin
- 16:15
OR-089 **Comparison of Different Configurations for the Implantable Capacitive Intrabody Communication on a Two-Layer Phantom**
Matija Roglič, Luka Klaić, Ziliang Wei, Yueming Gao, Željka Lučev Vasić
- 16:30
OR-090 **Computational hemodynamic Evaluation of Different Surgical Designs of Systemic to Pulmonary Arterial Shunt under Controlled Pulmonary Flow**
Jiwen Xiong, Qi Sun, Jinfen Liu, Jinlong Liu
- 16:45
OR-091 **Accurate and interpretable deep learning model for sleep staging in children with sleep apnea from pulse oximetry**
Fernando Vaquerizo-Villar, Daniel Álvarez, Gonzalo C. Gutiérrez-Tobal, Adrián Martín-Montero, David Gozal, Eduardo Tamayo, Roberto Hornero
- 17:00
OR-092 **Combined measurement of brain activation during a motor task using fNIRS and OPM-MEG**
Urban Marhl, Stanislaw Wojtkiewicz, Piotr Sawosz, Vojko Jazbinšek, Zvonko Jagličić, Adam Liebert, Tilmann H. Sander
- 17:15
OR-093 **Frequency Domain Cluster Analysis of Human Activity Using Triaxial Accelerometer Data**
Krunoslav Jurcic, Goran Šeketa, Ratko Magjarević
- 17:30
OR-094 **Electrochemical detection of desorbed calcium ions from bovine serum albumin binding**
Tamara Boscarino, Antonio D'Ambrosio, Andrea Palermo, Vincenzo Piemonte, Leandro Pecchia
- 17:45
OR-095 **Computational analysis of large bone defect healing using bone tissue scaffolds, degradation, and growth factor delivery: a mechanobiological model of bone tissue formation**
Adel Alshammari, Fahad Alabdah, Lipeng Song, Glen Cooper

Tuesday late afternoon Track C, Tuesday, Jun 11 2024, 16:00–18:00

Location: Lecture room D

Session: **S24 - Wireless Wearable Networks for Physical Function Rehabilitation Monitoring**

Chairs: Željka Lučev Vasić, Ivana Culjak and Yueming Gao

Organizers/Conveners: Željka Lučev Vasić, Ivana Čuljak, and Yueming Gao

- 16:00
OR-096 **Revealing Statistical Patterns in Shoulder Rehabilitation Exercises Characteristics**
Martina Sassi, Margherita Anna Grazia Matarrese, Umile Giuseppe Longo, Leandro Pecchia
- 16:15
OR-097 **Body Movement Analysis during Sleep Based on Ultra-Wideband Communication Channel Impulse Response Measurement**
Ivana Culjak, Željka Lučev Vasić, Domagoj Vidović, Mario Cifrek
- 16:30
OR-098 **Comparison of Time and Frequency Domain Features For Cluster Analysis of Human Activity Using Triaxial Accelerometer Data**
Krunoslav Jurcic
- 16:45
OR-099 **Dynamic Equivalent Circuit Models for Intracardiac Communication in Leadless Pacemakers**
Dongming Li, Jiamei Wang, Pedro Antonio Mou, Yadong Yin, Hung Chun Li, Yueming Gao, Peng Un Mak, Sio Hang Pun, Mang I. Vai
- 17:00
OR-100 **Cardiac Phantoms for Signal Transmission Characteristics Analysis of Leadless Pacemakers**
Han Wang, Jiamei Wang, *Yang Shuang*, Ziliang Wei, Željka Lučev Vasić, Jiejie Yang, Zhimeng Xu, Mario Cifrek, Yueming Gao
- 17:15
OR-101 **Impact of the Tightness of a Sensorized Top in the Quality of the ECG it Records**
Marta Guzmán-Alarcón, Natalia Guzmán Rodríguez, Pablo Pérez-Tirador, Constantino A. García, *Abraham Otero*
- 17:30
OR-102 **Impedance Cardiography signals in applications for cardiovascular information content analysis**
Gerard Cybulski, Tadeusz Pałko, Kazimierz Pęczalski
- 17:45
OR-103 **An Everyday Hat for Detection of Eye Blinks and Forehead Clenching**
S. M. Musfequr Rahman, Henna Mattila, Asif Shaikh, Pasi Raunonen, Johanna Virkki

Wednesday morning Track A, Wednesday, Jun 12 2024, 10:30-12:00

Location: Lecture room A+B

Session: **S09 - Health Technology Assessment of Medical Devices - Advances and Challenges**

Chairs: Murilo Conto and Ernesto Iadanza

Organizers/Conveners: Murilo Contó and Ernesto Iadanza

- 10:30
OR-104 **Exploration and practice of quality control index system of medical device management**
Yueqi Yang, Yingxin Xu, Xin Li, Xiangnan Geng, Xiang Xu, Hong Gao, Yuzhi Yang, Wei Jin, Hui Zhong, Ying Qian
- 10:45
OR-105 **Cost-effectiveness of Continuous Glucose Monitoring For Paediatric Patients With Type 1 Diabetes Compared With Self-Monitoring Of Blood Glucose**
Martina Andellini, Riccardo Schiaffini, Matteo Ritrovato, Leandro Pecchia
- 11:00
OR-106 **Optimizing Liver Stiffness Assessment in HCV Patients: A Machine Learning Approach to Identify Confounding Factors in Fibrosis Estimation**
Simone Kresevic, Mauro Giuffrè, Milos Ajcevic, Lory Croce, Agostino Accardo
- 11:15
OR-107 **Advances in Health Technology Assessment of Wearable Devices: A Clinical Engineering Perspective**
Fabiola Martinez-Licona
- 11:30
OR-108 **Alarms Early Detection in Dialytic Therapies via Machine Learning Models**
Alessia Nicosia, Nunzio Cancilla, Marco Siino, Michele Passerini, Francesca Sau, Ilenia Tinnirello, Andrea Cipollina
- 11:45
OR-109 **Exploring the Potential of Health Data: EHDS, Secondary Utilization, and Stakeholder Perspectives in Czech Healthcare**
Petra Hospodková, Martin Budil

Wednesday morning Track B, Wednesday, Jun 12 2024, 10:30-12:00

Location: Lecture room C

Session: **S22 - Tools, technologies and computing for point-of-care person-centered health and care delivery**

Chair: Eleni Kaldoudi

Organizers/Conveners: Eleni Kaldoudi

- 10:30
OR-110 **Pointwise reliability of machine learning models: application to cardiovascular risk assessment**
Jorge Henriques, Teresa Rocha, Simão Paredes, Paulo Gil, João Loureiro, Lorena Petrella
- 10:45
OR-111 **Towards Wearable Continuous Point-of-Care Monitoring for Deep Vein Thrombosis of the Lower Limb**
Eleni Kaldoudi, Vaidotas Marozas, Pavlos Moustakidis, Dmitry Novikov, Jurkonis Rytis, Andrius Sakalauskas, Nicolas Pousset, Mathieu Legros, Marco Kircher, Babajide Ayinde, Lara Alessia Moltani, Susann Balling, Antti Vehkajoki, Niku Oksala, Andrius Macas, Neringa Balciuniene, Maria Bigaki, Michail Potoupnis, Stella-Lida Papadopoulou, Elvira Grandone, Maxime Gautier, Sabrina Bouda, Cord Schloetelburg, Thorsten Prinz, Pietro Dionisio, Spyridon Anagnostopoulos, Ioanna Drougka, Frans Folkvord, George Drosatos, Stylianos Didaskalou

- 11:00
OR-112 **Attention Theory Based 12 Lead Visualization of Ventricular Function During Ventricular Pacing Lead Implants**
Neal Duong, Jessica Lee, Paul A. Iazzo
- 11:15
OR-113 **Integration of in-vitro technologies, in-silico biophysical and data driven models towards better stratification and care for hypertrophic cardiomyopathy patients**
Jari Hyttinen
- 11:30
OR-114 **Development of an Explainable Deep Learning-Based Decision Support System for Blood Glucose Levels Forecasting in Type 1 Diabetes Using Edge Computing**
Isabel Longo, Federico D'Antoni, Lorenzo Petrosino, Vincenzo Piemonte, Mario Merone, Leandro Pecchia
- 11:45
OR-115 **Enhancing Balance Rehabilitation through use of Augmented Reality**
Aleksandra Vulović, Đorđe Ilić, Nenad Filipovic

Wednesday morning Track C, Wednesday, Jun 12 2024, 10:30-12:00

Location: Lecture room D

Session: **S19 - IFMBE Industry Committee: Medical Technologies - From Concept to Commercialization**

Chairs: Piotr Ładyżyński and Martha Zequera

Organizers/Conveners: Piotr Ladyzynski and Martha Zequera Diaz

- 10:30
OR-116 **Research collaboration between academia, healthcare and industry. Experience from the research profile Embedded Sensor Systems for Health and an adjunct industrial graduate school**
Maria Lindén, Mats Björkman
- 10:45
OR-117 **Innovative ultrasound devices — from research to commercial product**
Marcin Lewandowski
- 11:00
OR-118 **Development and commercialization of a novel stimulation device for denervated muscles – challenging under MDD, most likely impossible under current MDR**
Winfried Mayr
- 11:15
OR-119 **Navigating Innovational Valleys: Advancing Health Technology Innovation for Sustainable and Affordable Care**
Sudesh Sivarasu
- 11:30
OR-120 **Understanding Regulatory Requirements: A Postmortem Analysis of Tremitas' Bankruptcy in the Medtech Sector**
Tibor Zajki-Zechmeister

Wednesday after lunch Track B, Wednesday, Jun 12 2024, 13:30-14:15

Location: Lecture room C

Session: **IFMBE Scientific Challenge**

Chairs: Bor Kos and Jorge Henriques

Info: Additional talks in this session:

13:30 Jorge Henriques "The challenge: past and future"

13:40 Bor Kos "This year's challenge topic"

13:30 **A Machine Learning Approach for Predicting Electrophysiological Responses in Genetically Modified HEK Cells**
OR-121 *Jacopo Vitale, Martina Sassi, Leandro Pecchia*

13:45 **Optimizing Electroporation Responses in Genetically Engineered HEK Cells: An Ensemble Learning Approach**
OR-122 *Francesco Bassi, Simone Kresevic, Alessandro Biscontin, Aleksandar Miladinovic, Milos Ajcevic, Agostino Accardo*

Wednesday after lunch Track C, Wednesday, Jun 12 2024, 13:30–14:15

Location: Lecture room D

Session: **Cellular and tissue engineering**

Chairs: Adriana Lungu and Dongan Wang

13:30 **Decellularized Tissue Engineering Hyaline Cartilage Graft for Articular Cartilage Repair and Its Forward-Looking Test for Space Medicine**
OR-123 *Dongan Wang*

13:45 **Multicomponent printing inks for the designing of 3D extracellular matrix-mimetic biomaterials**
OR-124 *Adriana Lungu, Raluca Dobrisan, Valentina Ciobanu, Minodora Marin, Sorina Dinescu, Izabela-Cristina Stancu*

14:00 **Artificial Bone Extracellular Matrices based on 3D-printed nanostructured hydrogels**
OR-125 *Adriana Lungu, Izabela-Cristina Stancu, Elena Olăreț, Filis Curti, Carmen-Valentina Nicolae, Sorina Dinescu, Alexandra-Elena Dobranici, Bogdan Stefan Vasile*

Wednesday afternoon Track A, Wednesday, Jun 12 2024, 14:15–15:30

Location: Lecture room A+B

Session: **S20 – System design for biomagnetic applications using optically pumped magnetometers**

Chairs: Tilmann H. Sander, Daniel Baumgarten and Urban Marhl

Organizers/Conveners: Tilmann Sander, Daniel Baumgarten, and Urban Marhl

14:15 **Active compensation for OPM-MEG inside a two-layer magnetically shielded room**
OR-126 *Michał Władziński, Anna Jodko-Władzińska, Tilmann H. Sander*

14:30 **Quantitative magnetic nanoparticle imaging with magnetorelaxometry in unshielded environments**
OR-127 *Aaron Jaufenthaler, Daniel Baumgarten*

14:45 **Improved degaussing procedure for a magnetically shielded room**
OR-128 *Peter Koss, Jens Voigt, Allard Schnabel, Ronja Rasser*

15:00 **Full MEG system based on helium OPMs for medical imaging**
OR-129 *Rudy Romain, Jaroslaw Rutkowski, Sergey Mitryukovskiy, Kevin Arth, Matthieu Le Prado, Agustin Palacios-Laloy, Etienne Labyt*

15:15 **Full OPM-MEG system with limited sensor counts**
OR-130 *Urban Marhl, Rok Hren, Tilmann H. Sander, Vojko Jazbinšek*

Wednesday afternoon Track B, Wednesday, Jun 12 2024, 14:15–15:30

Location: Lecture room C

Session: **S28 – BME Education in Europe**

Chairs: Nicolas Pallikarakis and Ratko Magjarević

Organizers/Conveners: Ratko Magjarević and Nicolas Pallikarakis

- 14:15
OR-131 **Overview of the BME study programs – previous European wide survey results**
Nicolas Pallikarakis
- 14:30
OR-132 **EU students, teachers and researchers exchange programs**
Ratko Magjarević
- 14:45
OR-133 **The CRH–BME Tempus project – results and experience a decade after**
Tomaž Jarm
- 15:00
OR-134 **BME in EC research projects**
Leandro Pecchia
- 15:15
OR-135 **Ethical Engineer: Enhancing AI Education in Engineering**
Lenka Lhotská, David Macku

Wednesday afternoon Track C, Wednesday, Jun 12 2024, 14:15–15:30

Location: Lecture room D

Session: **BME Miscellaneous topics**

Chairs: Milica Nikolic and Nikolay Dukov

- 14:15
OR-136 **M–Health in Prostate Cancer: Professional and Patient Perspectives**
Petra Hospodková, Irina Klubarská, Matyáš Mašek, Martin Budil
- 14:30
OR-137 **Research on dental materials for their suitability in building anthropomorphic phantoms**
Nikolay Dukov, Minko Milev, Todor Todorov, Zhivko Bliznakov, Kristina Bliznakova
- 14:45
OR-138 **Analysis of redox processes from in silico perspective in colorectal cancer cell line**
Milica Nikolic, Nevena Milivojevic Dimitrijevic, Ana Miric, Marko Zivanovic, Nenad Filipovic
- 15:00
OR-139 **Modeling the conductive characteristics of the human lower back using medical imaging and FEM modeling to optimize tSCS therapy**
Jón Andri Árnason, Ragnhildur Guðmundsdóttir-Korchai, Þórður Helgason
- 15:15
OR-140 **Assessing Ergonomic Compliance in Industrial Environments with Markerless 3D Camera-Based Systems**
Jindřich Adolf, Ilona Kačerová, Kateřina Jurčová, Vladimíra Lipšová, Jaromír Doležal, Lenka Lhotská

Wednesday late afternoon Track A, Wednesday, Jun 12 2024, 16:00–18:00

Location: Lecture room A+B

Session: **S14 – Non-invasive methods for monitoring electrophysiological and hemodynamic brain activity**

Chairs: Vojko Jazbinšek, Tilmann H. Sander and Stanislaw Wojtkiewicz

Organizers/Conveners: Vojko Jazbinšek, Tillman Sander, and Stanislaw Wojtkiewicz

- 16:00
OR-141 **Difference in Mentalizing Function between Face-to-Face and Online Communications**
Joohyeong Kim, Hayato Watanabe, *Koichi Yokosawa*
- 16:15
OR-142 **Track-EP: A Semi-automated Tool for Enhancing Interictal EEG Interpretation**
Margherita Anna Grazia Matarrese, Simonetta Filippi, Leandro Pecchia, Christos Papadelis
- 16:30
OR-143 **The Neuromodulation Evaluation with Functional Near-Infrared Spectroscopy for Transcutaneous Auricular Vagus Nerve Stimulation on Upper Extremity Rehabilitation**
Chien-An Chen, Jia-Jin Chen, Wei-Cheng Sun, Chao Chen Lo
- 16:45
OR-144 **Can fNIRS be used as a treatment monitoring tool for Alzheimer's disease?**
Samaneh Azarbarzin, *Zahra Moussavi*
- 17:00
OR-145 **Multiparametric measurement of cerebral blood flow in neurointensive care**
Karin Wårdell, Sofie Tapper, Stina Mauritzon, Fredrik Ginstman, Peter Zsigmond
- 17:15
OR-146 **Measuring Anxiety Quantitatively in a Depression population**
Zahra Moussavi, *Brian Lithgow*
- 17:30
OR-147 **Data processing and visualization for multimodal imaging of neurovascular coupling**
Stanislaw Wojtkiewicz, Urban Marhl, Piotr Sawosz, Vojko Jazbinšek, Tilmann H. Sander, Adam Liebert
- 17:45
OR-148 **Applying near infrared spectroscopy for assessment of anxiety**
Chien-An Chen, BO-TSEN Lin, Yi-Jing Huang, Yu-Jui Huang, Pao-Huan Chen, Jia-Jin Chen

Wednesday late afternoon Track B, Wednesday, Jun 12 2024, 16:00-18:00

Location: Lecture room C

Session: **S25 - IFMBE Education in BME: BME Education in Latin America and BME in Africa**

Chairs: Martha Zequera, Virginia Ballarin and Sudesh Sivasaru

Organizers/Conveners: Martha Zequera Diaz and Virginia Laura Ballarin

- 16:00
OR-149 **ARCUSUR SYSTEM: supporting the way to accreditation programs**
Virginia Laura Ballarin
- 16:15
OR-150 **Academic Programs in Mexico: The Current State of Biomedical Engineering 50 Years Later**
Fabiola Martinez-Licona
- 16:30
OR-151 **Integration of health technology management in healthcare service delivery systems in Kenya**
Salome Mwaura
- 16:45
OR-152 **Managed equipment service in Kenya**
Symon Mbakah
- 17:00
OR-153 **Needs assessment in Kenyan healthcare facilities for context-sensitive design of medical devices**
Florinda Coro, Bazil Mlamba, Augustine Waswa, Carmelo De Maria, June Madete, Valentina Mangano, Margaret Keraka, Arti Ahluwalia

- 17:15
OR-154 **Standardisation of Medical Devices: A Contended Practice with Potential Benefits for South African Healthcare**
Sudesh Sivarasu
- 17:30
OR-155 **Digitizing Malaria Case Management Protocol in Ghana: A pilot Study**
George Boadu
- 17:45
OR-156 **From Emergency to Enhancement: Streamlining Ventilator Procurement in Africa for Improved Healthcare Outcome**
Sudesh Sivarasu

Wednesday late afternoon Track C, Wednesday, Jun 12 2024, 16:00–18:15

Location: Lecture room D

Session: **Artificial intelligence in healthcare**

Chairs: Jacopo Vitale and Marilena Tarousi

- 16:00
OR-157 **Insights in Data Generation: A Synthetic Data Approach for Enabling Small Datasets in Atrial Fibrillation Research**
Ali Salman, Francesco Goretti, Alessandra Cartocci, Ernesto Iadanza
- 16:15
OR-158 **An explainable deep-learning model to aid in the diagnosis of age related macular degeneration**
María Herrero-Tudela, Roberto Romero-Oraá, Roberto Hornero, Gonzalo C. Gutiérrez-Tobal, María I. López, María García
- 16:30
OR-159 **Wearable sensors and artificial intelligence for blood pressure estimation during daily life and sleep, a pilot study**
Katy Stokes, Salman Haleem, Rossana Castaldo, Francesco Cappuccio, Leandro Pecchia
- 16:45
OR-160 **Unlocking robotic potential through modern organ segmentation**
Ansh Chaudhary, Robail Yasrab
- 17:00
OR-161 **Rare Eye Diseases Automatic Classification: A Deep Learning Approach**
Jacopo Vitale, Maria Elisabetta Pagnano, Margherita Anna Grazia Matarrese, Rosa Boccia, Paolo Melillo, Francesco Testa, Francesca Simonelli, Leandro Pecchia
- 17:15
OR-162 **Empowering Colorectal Cancer Research through Advanced Data Integration and Analysis: A case study of the DIOPTRA project**
Marilena Tarousi, Stavros-Theofanis Miloulis, Maria Haritou, Konstantinos Bromis, Ioannis Kouris, George Botis, Ioannis Kakkos, George Matsopoulos
- 17:30
OR-163 **Predicting Depression Status After Transcranial Direct Current Stimulation Treatment Using Machine Learning**
Sayna Rotbei, Giordano D'Urso, Alessio Botta
- 17:45
OR-164 **Evaluation of Hydrogel Flow into Osteoporotic Trabecular Bone: A Computational Fluid Dynamics Study**
Fahad Alabdah, Adel Alshammari, Araidá Hidalgo-Bastida, Glen Cooper
- 18:00
OR-165 **Enabling COVID-19 detection from multiple audio recordings: a preliminary comparison between cough, breath, and speech signals**
Alfonso Maria Ponsiglione, Francesca Angelone, Rossella Sparaco, Salvatore Piccolo, Amy Parrish, Andrea Calcagno, Guillaume Fournier, Ayana de Brito Martins, Fulvio Cordella, Arianna Arienzo, Lorenzo Castella, Vincenzo Norman Vitale, Francesco Amato, Maria Romano

Thursday morning Track B, Thursday, Jun 13 2024, 10:30–12:00

Location: Lecture room C

Session: **S11 – IFMBE Education in BME: Education in Biomedical Engineering for Students**

Chairs: Martha Zequera, Ratko Magjarevic, Shankar Krishnan and Piotr Ładyżyński

Organizers/Conveners: Martha Zequera Diaz, Ratko Magjarevic and Shankar M. Krishnan

- 10:30
OR-166 **An introduction to Ventra; a programmable abdominal phantom for training, educational, research, and development purposes**
Salar Tayebi, Ashkan Zarghami, Manu Malbrain, Johan Stiens
- 10:45
OR-167 **Ethics as part of biomedical engineering and informatics education**
Lenka Lhotska
- 11:00
OR-168 **Implementation of a Pattern Classifier on Thermograms from Plantar Region**
Santiago Humberto Ramirez Martinez, Martha L. Zequera, Francisco Carlos Calderón Bocanegra
- 11:15
OR-169 **Using 24-hour Heart Rate Variability indices for prognosis monitoring in heart failure patients**
Shi-Yi Wu, Shao-Hung Lu, Mei-Fen Chen, Wen-Chen Lin, Wen-Chi Lin, Cheng-Lun Tsai, Kang-Ping Lin
- 11:30
OR-170 **Proposal for the Application of Blockchain in Predictive Management in Medical Devices**
Mariana Brandão, Renato Garcia
- 11:45
OR-171 **EMG Rehab: An interactive platform controlled by EMG signals to improve adherence to rehabilitation therapy in patients who have suffered lower body muscle injuries**
Leslie Yessenia Cieza Huané, Ana Cristina Aldana Palomino, Sergio Enrique Moreno Elescano, Andre Jesus Cruces Chanchhuaña, Angel Eduardo Dianderas Jorge, Pablo Cardenas Caceres

Thursday morning Track C, Thursday, Jun 13 2024, 10:30–12:00

Location: Lecture room D

Session: **Clinical engineering**

Chairs: Alessio Luschi and Aris Dermitzakis

- 10:30
OR-172 **Assessing Perfusion Changes in Clinical Oncology Applications using Hyperspectral Imaging**
Rok Hren, Jošt Stergar, Urban Simončič, Gregor Serša, Matija Milanič
- 10:45
OR-173 **OHIO: Integrating IoT Technologies for Enhanced Clinical Engineering and Dynamic Tracking of Medical Equipment**
Alessio Luschi, Gianpaolo Ghisalberti, Giovanni Luca Daino, Vincenzo Mezzatesta, Ernesto Iadanza
- 11:00
OR-174 **An Innovative Solution for Efficient Workflow Management in Healthcare**
Alessio Luschi, Ernesto Iadanza
- 11:15
OR-175 **Towards the Creation of a National Medical Equipment Inventory**
Aris Dermitzakis, Spiliotis Zisimopoulos, Nicolas Pallikarakis

11:30
OR-176

Implementing a Centralized Medical Equipment Management System on a National level

Aris Dermitzakis, Spilios Zisimopoulos, Nicolas Pallikarakis

11:45
OR-177

Calibration of medical equipment - why is it critical?

Symon Mbakah

Poster Presentations

Tuesday morning poster session, Tuesday, Jun 11 2024, 10:00-10:30

Location: Coffee break and poster display area

Session: **Poster session**

Info: The same posters will be presented also during the afternoon coffee break, i.e. this Poster session will continue during the Tuesday afternoon coffee break.

Odd-numbered posters (PO-01, PO-03, ...) comprise the Tuesday poster session and presenters are expected to be present at their posters during the two coffee breaks.

- PO-1 **Neural network based fetal ECG extraction from abdominal signals**
Dragoş-Daniel Țărălungă, Radu Botezatu, Alina-Elena Sultana, Titus Mihai Vasile, *Georgeta-Mihaela Neagu*
- PO-3 **Fundamental study of Readiness Potential elicited by foot movement**
Reon Takahashi, Puwadej Leelasiri, Tomoya Oi, Tatsuhiro Kimura, Hiroshi Ohshima, Kiyoyuki Yamazaki, Fumitaka Aki
- PO-5 **Automatic detection of sympathovagal response using HRV analysis. Case study: resident surgeons during training and their first laparoscopic surgery**
Maria Elisabetta Pagnano, Jacopo Vitale, Margherita Anna Grazia Matarrese, Gianluca Mascianà, Marco Caricato, Leandro Pecchia
- PO-7 **Preliminary development and evaluation of a low-cost digital stethoscope**
Muyanga Kampekete, Francis Chikweto, Foster Munsanje, Boyd Mubanga, Conix Sunday, Jimmy Sikwese
- PO-9 **Trade-Off Between Real-Time and Classification Performance in Motor Imagery BCI**
Aleksandar Miladinovic, Milos Ajcevic, *Katerina Iscra*, Francesco Bassi, Alessandra Raffini, Joanna Jarmolowska, Uros Marusic, Agostino Accardo
- PO-11 **Evaluation of Precursors to Momentary Sleepiness in Automobile Driving Using Cerebral Blood Flow Variability and Thermography**
Tomoya Oi, Reon Takahashi, Puwadej Leelasiri, Kiyoyuki Yamazaki, Hiroshi Ohshima, Fumitaka Aki
- PO-13 **Use of ECG gating approach for high frequency ultrasound vector flow imaging**
Chi-Hung Yang, *Chih-Chung Huang*
- PO-15 **Intraoral scanner classification and accuracy evaluation using UV mapping of scan bodies**
Mykolas Akulauskas, Darius Jegelevičius, Vygandas Rutkūnas, Liudas Auškalinis, Justinas Pletkus
- PO-17 **Multi-input CNN based Classification of EEG and NIRS signal during voluntary hand movement**
Puwadej Leelasiri, Reon Takahashi, Fumitaka Aki, Hiroshi Ohshima, Kiyoyuki Yamazaki
- PO-19 **Combining quantitative MRI, fluorescence, and neuropathology in frameless brain tumor needle biopsies**
Elisabeth Klint, Anders Tisell, Ida Blystad, Martin Hallbeck, *Teresa Nordin*, Johan Richter, Karin Wårdell

- PO-21 **Indoor Natural Ventilation Assessment in Healthcare Facilities in Low-Resource Setting**
Nahimiya Husen Ibrahim, Vincenzo Piemonte, Leandro Pecchia
- PO-23 **Towards Equity in Healthcare: Designing an Affordable Spirometer for Low-Resource Settings**
Pedro Checa Rifa, James Wallace, Davide Piaggio
- PO-25 **Efficacy of a virtual reality–based video game intervention for individuals with schizophrenia spectrum disorder**
Jen-Suh Chern, Yu Yang, Yi-Ching Tsai
- PO-27 **Range of Motion and Morphological Characteristics of the Sacroiliac Joint**
Seonjin Shin, Dai-Soon Kwak
- PO-29 **Effect of friction coefficient on subsidence of cemented polished stem in THA**
Noriyuki Takano, Yuuta Nakajyou, Ayumi Kaneuji
- PO-31 **Effect of Tissue on Stress-Strain Characteristics of Pulmonary Pleura**
Hitomi Sakai, Hirosane Hayashi, Sumiko Maeda, Noriyuki Takano
- PO-33 **Evaluation of the biocompatibility of interface-free polymer-ceramic fusion technology using laser-driven penetration synthesis**
Minseong Chae, Kang-Sik Lee, Yu-Chan Kim, Hojeong Jeon, Seung-Hoon Um, Hwachul Jung, Dongkyu Koo, Dong-Ho Lee
- PO-35 **Dual growth-factors delivery (VEGF and BMP-2) with alendronate improve cell adhesion in osteoinductive bone repair**
Amira Raudhah Abdullah, Mohd Riduan Mohamad, Ka Liong Tan, Nadia Mohd Effendy, Nur Nabilah Abu Bakar, Intan Maslina Musa
- PO-37 **Cardiac Hypertrophy Simulations Using Echocardiography-based LV Model**
Bogdan Milicevic, Miljan Milosevic, Milos Kojic, Nenad Filipovic
- PO-39 **Evaluation of brain activity using NIRS to examine the antecedents of microsleep**
Fumitaka Aki, Tatuhiro Kimura, Hiroshi Ohshima, Kiyoyuki Yamazaki
- PO-41 **An IoT-based Medication Calendar for Home-Visiting Nursing**
Yasushi Yamauchi, Junto Hosono
- PO-43 **Investigation of the use of 3D modeling and predictive analysis for optimizing the management of the Miljacka River**
Madžida Hundur, Merima Smajlhodžić-Deljo, Faruk Bećirović, Naida Babić Jordamović, Lejla Gurbeta Pokvić
- PO-45 **The Development of Medical Imaging in China and Its Impact on the Clinical Practice**
Kui Cai, Guobin Li, Junan Zheng, Lei Chen, Qing Mao, Ruixin Jiang, Shuheng Zhang, Taomin Zhang, Wenjing Ma, Xiaoyue Gu, Ying Qian
- PO-47 **An explainable XGBoost model to predict pediatric sleep apnea resolution after treatment from new phenotypic information**
Gonzalo C. Gutiérrez-Tobal, Javier Gomez-Pilar, Daniela Ferreira-Santos, Pedro Pereira-Rodrigues, Daniel Álvarez, Félix del Campo, David Gozal, Roberto Hornero
- PO-49 **Analysis of age-related variations in photoplethysmography: a Machine Learning approach**
Sara Lombardi, Federica Tavernise, Piergiorgio Francia, Leonardo Bocchi

- PO-51 **Influence of fatigue in swimmers suffering from swimmer shoulder pain**
Alessandra Raffini, Alex Buoite Stella, Miriam Martini, Laura Mazzari, Agostino Accardo
- PO-53 **Semi-Automated Approach to Analyze the Tapering of Coronary Vessels from Contrast-Enhanced Micro-CT Scans of Human Coronary Artery Anatomy**
Amanda DeVos, Paul A. Iaizzo
- PO-55 **Reliability of the SPIMON, a portable 3-D spinal range of movement measurement prototype device**
Aris Dermitzakis, Athanasios Lampropoulos, Ioannis Kalamaras, Emil Valchinov, Vasileios Syrimpeis, Dimitra-Tania Papanikolaou, Evdokia Billis
- PO-57 **Surface electromyographic (sEMG) biofeedback device as an outcome measure for an individualized pelvic floor muscle (PFM) training program for urinary incontinent women: preliminary results**
Dimitra-Tania Papanikolaou, Aris Dermitzakis, Emil Valchinov, Konstantinos Giannitsas, Evangelos Dermatas, Epaminondas Mitronikas, Evdokia Billis
- PO-59 **Tempo Certo Project - Adapting EEG systems to perform Multifocal Visual Evoked Potentials for clinical care and research**
Igor Telles, Arthur Conceição, Paulo Galhanone, Mauricio Cagy, Dimitri Abramov, Antonio Miranda de Sa
- PO-61 **Microstates analysis for dry and gel-based multichannel electroencephalography**
Hannes Oppermann, Patrique Fiedler, Jens Haueisen
- PO-63 **The potential use of electroporation in combination with chemotherapeutics or calcium chloride as a therapeutic option for uveal melanoma patients: first in vitro and in vivo results**
Miltiadis Fiorentzis
- PO-65 **Acoustic pressure analysis due to high-frequency electric field on the biological cell during reversible electroporation**
Mayank Kumar, Rochish Thaokar
- PO-67 **Texture Analysis of H-scan Ultrasound Images for the Characterization of Breast Tumors**
Zhanjie Zhang, Sio Hang Pun, Peng Un Mak, Hung Chun Li, Kung Jui Hou, Mang I. Vai
- PO-69 **Prognosis and Uncertainty Management for Filament Degradation of X-ray CT Tubes with IoMT time series data**
Jie Zhong, Heng Zhang, Qiang Miao, Qilin Liu, Jin Huang

Wednesday morning poster session, Wednesday, Jun 12 2024, 10:00–10:30

Location: Coffee break and poster display area

Session: **Poster session**

Info: The same posters will be presented also during the afternoon coffee break, i.e. this Poster session will continue during the Wednesday afternoon coffee break.

Even-numbered posters (PO-02, PO-04, ...) comprise the Wednesday poster session and presenters are expected to be present at their posters during the two coffee breaks.

- PO-2 **BIM operations and clinical engineering in the training of the biomedical engineer**
Luis Vilcahuaman
- PO-4 **Baroreflex function in young patients with obesity: analysis of the cardiac chronotropic and vascular resistance baroreflex arms**
Jana Čerňanová Krohová, Barbora Czippelova, Zuzana Turianiková, Miriam Kuricova, Dana Cernochova, Luca Faes, Michal Javorka
- PO-6 **Artificial Intelligence Advancements in Fetal Monitoring: Enhancing Prenatal Care**
Dragoş-Daniel Țarălungă, Ionut Manea, Rares-Marin Preoteasa, Bogdan Cristian Florea, Georgeta-Mihaela Neagu
- PO-8 **Using localized electroporation for transfecting cardiac cells**
Jernej Jurič, Vid Jan, Tina Turk, Lea Rems
- PO-10 **The Study of Non-Invasive Blood Information Measurement and Monitoring Method via Wearable AWPPG Device**
Chung ChiFu, Lu PoWen, Cheng Chun Chang
- PO-12 **Development of Neurorehabilitation Bicycle with Posture Control Detection**
Ya-Ju Chang, Hsiao-Lung Chan, Jr-kai Yu, Miao-Ju Hsu, Rou-Shayn Chen
- PO-14 **Mapping side effects for deep brain stimulation in essential tremor**
Teresa Nordin, Erik Österlund, Dorian Vogel, Anders Fyttagoridis, Simone Hemm, Karin Wårdell
- PO-16 **Exploring the impact of data and statistical methods for defining sweet spots in Deep Brain Stimulation**
Vittoria Bucciarelli, Dorian Vogel, Teresa Nordin, Karin Wårdell, Jérôme Coste, Jean-Jacques Lemaire, Raphael Guzman, Simone Hemm
- PO-18 **REDCap and SQLite: a powerful combination for streamlining metadata capture in Deep Brain Stimulation research**
Marc Stawiski, Vittoria Bucciarelli, Dorian Vogel, Jérôme Coste, Jean-Jacques Lemaire, Siegward Elsas, Ute Gschwandtner, Peter Fuhr, Ethan Taub, Simone Hemm
- PO-20 **Numerical Study of Hemodynamic Characteristics on the Surgery of Pulmonary Artery Banding**
Jinlong Liu, Weiru Luo, Jiwen Xiong, Yanjun Sun
- PO-22 **Monte Carlo Simulated Photoplethysmography Signals for the Validation of an In Vitro Wrist Phantom**
Raghda Al-Halawani, Meha Qassem, James May, Panicos A. Kyriacou
- PO-24 **Identification of Barriers in the Adoption and Promotion of Advanced Endoscopic Systems and Minimally Invasive Surgical Equipment in China: Evidence from a Survey of 320 Healthcare Facilities**
Zhichen Wang, Fei Sun, Qian Zhang, Jing Sun, Jingyi Feng

- PO-26 **Co-transfection of anti-fibrotic microRNAs as a treatment for oral sub-mucous fibrosis**
Kai-Chiang Yang, Chih-Yuan Fang, Hsing-Yu Chen, Yung-Hsin Cheng
- PO-28 **Analysis of Open-Source Softwares for Ultrasound Tomography Based on Full-Waveform Inversion**
Lucas da Costa, Nilton Assugeni Neto, João Henrique Uliana, Théo Pavan, Antonio Adilton Carneiro
- PO-30 **Improving diagnostic performance of an automated melanoma diagnostic system using fast style transfer data augmentation**
Takashi Nagaoka, Mitsutaka Nemoto, Yuichi Kimura
- PO-32 **Estimating stride length through a deep learning model utilizing foot inertial data in individuals with Parkinson's disease**
Hsiao-Lung Chan, Ya-Ju Chang, Ai-Tung Hsieh, Rou-Shayn Chen
- PO-34 **A Convolutional Neural Network (CNN) based Electrocardiogram (ECG) Pattern Analysis under Cycling Movement with the Applications into the Development of an Exhaustion Stratification System**
Szi-Wen Chen, Yu-Hsuan Huang, Rou-Shayn Chen
- PO-36 **The Prediction of Sleep Quality using Heart Rate Variability Modulations during Wakefulness**
Andrea Di Credico, David Perpetuini, Pascal Izzicupo, Giulia Gaggi, Nicola Mammarella, Alberto Di Domenico, Rocco Palumbo, Pasquale La Malva, Daniela Cardone, Arcangelo Merla, Barbara Ghinassi, Angela Di Baldassarre
- PO-38 **Comparative Analysis of Depression Detection using EEG Signals**
Stefana Duta, Georgeta-Mihaela Neagu, Alina-Elena Sultana
- PO-40 **Unveiling Age-Related Patterns in Vocal Expression of Emotions: A Machine Learning Approach with Mel and Gammatone Frequency Cepstral Coefficients**
Michele Giuseppe Di Cesare, David Perpetuini, Daniela Cardone, Arcangelo Merla
- PO-42 **A Machine Learning Framework for Gait and EMG Analysis for Post-Stroke Motor Dysfunctions Assessment**
Francesco Romano, David Perpetuini, Daniela Cardone, Arcangelo Merla
- PO-44 **Comet Assay in the Digital Era: A Review of the use of Artificial Intelligence for the Analysis of DNA damage based on the results of the Comet Assay**
Adna Softić, Nejra Merdović, Velid Dlakić, Emina Mrđanović, Lejla Mahmutović, Daria Ler, Lejla Gurbeta Pokvić
- PO-46 **Advancing Pediatric Cardiology Training with a VR-Based TEE and Amplatz Deployment Simulator**
David Buyck, Enrique Vergara-Escudero, Susana Arango, Varun Aggarwal, Benjamin Gorbaty, Paul A. Iazzo
- PO-48 **Automatic Prediction of Pediatric Postoperative Behavioral Disturbance from Neuronal Activity During Anesthesia**
Javier Gomez-Pilar, Laura Gutiérrez-de Pablo, Carlota Gordaliza, Estefanía Gómez-Pesquera, Jesús Poza, Eduardo Tamayo, Roberto Hornero
- PO-50 **Investigation of the Use of Gait Analysis for Prosthetic Patients: Evaluating the Relationship Between Gait Outcome Measures and Function (K-level)**
Amy Edwards, Thomas Stone

- PO-52 **Influence of the Subcutaneous Fat Layer Thickness on the Activation of the Phrenic Nerve via Non-Invasive Electrical Stimulation**
Laureen Wegert, Alexander Hunold, Marek Ziolkowski, Irene Lange, Tim Kalla, Jens Haveisen
- PO-54 **Use of electrical household appliances and risk of all types of tumours: A case-control study**
Muhammad Waseem Khan, Shabana Noori
- PO-56 **How Many is Enough? The Influence of patient count on structural normative template quality**
Dorian Vogel, Jérôme Coste, Jean-Jacques Lemaire, Simone Hemm
- PO-58 **Assessing stress level by utilizing heart rate variability and galvanic skin response features**
Sandro Radan, Jana Bratanić, Ana Sušac
- PO-60 **Sensitivity Analysis of Reconstruction Fiber Tracking Parameters from Diffusion Tensor Magnetic Resonance Imaging of Reanimated Ex Vivo Swine Hearts**
Neal Duong, Paul A. Iuzzo
- PO-62 **Insights into Magnetomotive Ultrasound: Evaluating Key Parameters for Enhanced Imaging**
Ariane Sanches, Nicholas Zufelato, David Collazos-Burbano, João Henrique Uliana, Théo Pavan, Antonio Adilton Carneiro
- PO-64 **Unveiling the phenolics of chestnut honey-based propolis and in silico phytoestrogen activity**
Idris Arslan
- PO-66 **Enhancing Cross-Domain Adaptability of Existing Computer-Aided Endoscopic Lesion Detection Using Plug-and-Play Tracker**
Yijie Ku, Hui Ding, Guangzhi Wang
- PO-68 **Design and Analysis of a Biomedical Orthosis for Clubfoot Corrective Device**
Shahrol Mohamaddan
- PO-70 **A complex spinal surgery lifting system for prone positioning**
Lutong Li, Stuart Watson, Glyn Smurthwaite, John Large, Andrew Weightman, Glen Cooper

