XXII Polish Conference on Biocybernetics and Biomedical Engineering

COMMITTEE OF BIOCYBERNETICS AND BIOMEDICAL ENGINEERING

PTIB

IBIB PAN

Final Program

Conference schedule
May 18 – 21, 2021

	May 18, Tuesday	May 19, Wednesday		May 20, Thursday		May 21, Thursday	
		Track 1	Track 2	Track 1	Track 2	Track 1	Track 2
09:00 - 10:00		Opening Ceremony Plenary Lecture 1 - Prof. Frąckowiak (Track 1)		Plenary Lecture 3 - Prof. Legallais (Track 1)		Plenary Lecture 5 - Prof. Marraro (Track 1)	
10:00 - 11:00		S1. Biomedical imaging	S2. Bioinformatics	S6. Bio-micro/nano technologies	S7. Artificial Organs	S10. Biomaterials I	S11. Biomechanics and biorobotics
11:00 - 11:30		Coffee Break		Coffee Break		Coffee Break	
11:30 -12:30	Preconference workshop: "Good practice in research"	Team Leaders Session 1 (Track 1)		Team Leaders Session 2 (Track 1)		Team Leaders Session 3 (Track 1)	
12:30 - 13:30		Lunch Break		Lunch Break		Lunch Break	
13:30 - 14:30		S3. Biomedical signal processing I	SS1. Dlaczego Polska nie produkuje respiratorów?	SS3. IBBE-PAS 45 anniversary (Track 1)		S12. Biomaterials II	S13. Biosensors and bioinstrumentation
14:30 - 15:30		Plenary Lecture 2 - Prof. Miklavcic (Track 1)		Plenary Lecture 4 - Prof. Pijanowska (Track 1)		Plenary Lecture 6 - Prof. Schoening (Track 1)	
15:30 - 16:00		Coffee Break		Coffee Break		Coffee Break	
16:00 - 17:30		SS2. Clinical Engineering	Poster Session I (15:45 - 17:30)	SS4. Prof. Maniewski Anniversary	Poster Session II (15:45 - 17:30)	SS5. Shared Ventilation	Poster Session III (15:45 - 17:30)
17:30-18:30		S4. Biomedical signal processing II	S5. Modeling of biological systems	S8. Neural and rehabilitation engineering	S9. Molecular, cell and Tissue engineering	S14. E-health and telemedicine	SS6. PTIB Awards
18:30						Closing Ceremony	

Plenary lectures

PL1: Prof. Richard Frąckowiak, *Non-invasive exploration of the human brain in health and disease*

PL2: Prof. Damijan Miklavčič, *Electroporation in biomedicine*

PL3: Prof. Cécile Legallais, *Building an external (bio)artificial liver : multi-scale and biomechanical considerations*

PL4: Prof. Dorota G Pijanowska, *Challenges in biosensing technologies*

PL5: Prof. Giuseppe A Marraro, *Respiratory support strategy of severe failure caused by sars-cov-2 infection*

PL6: Prof. Michael Schöning, *25 years with capacitive field-effect biosensors – a short review and current trends*

18 May, Preconference Workskop „Good pratice in research"

10:00 – 10:45 Prof. Jörg Vienken, *Designing medical devices: current concepts and their disqualification by fake news*

10:45 – 12:15 Prof. Adam Liebert, *How to write a good scientific article*?

14:00 – 15:30 Prof. Marek Wroński, *Naruszenia dobrych praktyk badawczych w biomedycynie*

11:30 – 12:30. Team Leaders Session 1 – May 19, 2021

1. Elżbieta Pamuła "*Multifunctional biomaterials for tissue engineering and drug delivery*".
2. Paweł Sajkiewicz "*Biodegradable polymers as scaffolds and drug delivery systems for tissue engineering*".
3. Ludomira Granicka "*Nanomembranes and nanobiosystems for therapeutic purposes*".
4. Katarzyna Arkusz "*Biomechanics and nanobiomaterials at the University of Zielona Gora*".
5. Celina Pezowicz "*Tissue Biomechanics*".
6. Marta Kopaczyńska "*Changes of biomechanical properties of cancer cells induced by cytostatic agents*".
7. Marek Gzik "*From the Biomechanics of the 20th to the Biomechatronics of the 21st century*".
8. Jolanta Pauk "*Trends, research and technologies in the area of biomedical engineering*".
9. Zbigniew Paszenda / Marcin Kaczmarek "*Scientific potential and R&D experience of the Department of Biomaterials and Medical Devices Engineering*".
10. Ewa Piętka „Multimodal techniques in diagnostics, therapy and rehabilitation".

11:30 – 12:30. Team Leaders Session 2 – May 20, 2021

1. Andrzej Czyżewski "*Applications of multimedia technology in medicine*".
2. Robert Iskander "*New concepts in corneal imaging - when noise is not noise*".
3. Anna Korzyńska "*Artificial intelligence and deep learning in pathology*".
4. Tomasz Markiewicz "*Medical image analysis: selected topics*".
5. Jerzy Litniewski "*Quantitative ultrasound. Application in cancer diagnostics and therapy*".
6. Zbisław Tabor "*Statistics and machine learning for radiotherapy*".
7. Gerard Cybulski "*Biosignals detection and event prediction*".
8. Piotr Augustyniak "*Assisted living aspects of physiological signal processing*".
9. Adam Liebert/Piotr Sawosz "*Biomedical optics for assessment of tissue prefusion and oxygenation*".

11:30 – 12:30. Team Leaders Session 3 – May 21, 2021

1. Andrzej Skalski "*Mixed Reality and Image Registration in medicine - IPAL AGH experiences*".
2. Jacek Rumiński "*Ambient Intelligence in Healthcare*".
3. Jacek Waniewski/Jan Poleszczuk "*Mathematical modeling of physiological processes*".
4. Małgorzata Kotulska "*Amyloids - harmful or desirable proteins?*".
5. Tomasz Lipniacki "*Dissecting innate immune responses at single cell level*".
6. Krzysztof Fujarewicz "*Department of System Biology and Engineering at Silesian University of Technology*".
7. Piotr Ładyżyński "*Biomedical systems supporting the diagnosis and treatment of diabetes and its complications*".
8. Paweł Strumiłło "*Computer analysis of images of different modalities in medicine*".
9. Józef Korbicz "*Computer-aided medical diagnosis*"
10. Andrzej Swinarew "*Application of advanced methods of molecular analysis in medical diagnostics*"

May 19, 2021

10:00 - 11:00

S1. Biomedical imaging

O1.1 Guy Perkins, Samuel J. E. Lucas and Hamid Dehghani. *Subject Specific Atlas Based Frequency Domain Diffuse Optical Tomography*

O1.2 Dawid Borycki, Egidijus Auksorius, Sławomir Tomczewski, Kamil Liżewski, Piotr Węgrzyn and Maciej Wojtkowski. *Spatiotemporal optical coherence (STOC) manipulation for structural and blood flow imaging of the human retina in vivo*

O1.3 Stanislaw Wojtkiewicz, Karolina Bejm and Adam Liebert. *Homodyne detection of brain-origin signals in near infrared spectroscopy*

O1.4 Jakub Zak, Krzysztof Siemion, Lukasz Roszkowiak and Anna Korzynska. *Fourier Transform Layer for fast foreground segmentation in samples images of tissue biopsies*

S2. Bioinformatics

O2.1 Agata Wilk, Krzysztof Łakomiec, Krzysztof Psiuk-Maksymowicz and Krzysztof Fujarewicz. *Individualized mathematical models for Covid-19 pandemic in European countries*

O2.2 Katarzyna Hubicka and Małgorzata Kotulska. *Choosing representative subsets of amyloid proteins dataset*

O2.3 Marek Kochańczyk, Frederic Grabowski, Maciej Czerkies, Zbigniew Korwek, Wiktor Prus and Tomasz Lipniacki. *Antagonism between viral infection and innate immunity at the single-cell level*

O2.4 Leon Bobrowski and Tomasz Łukaszuk. *Functionally similar groups of features (genes) in a complex layer of formal neurons*

13:30 - 14:30

S3. Biomedical signal processing I

O3.1 Tomasz Hawro, Ewelina Turczak, Reinhard König and Cezary Sielużycki. *ML classification of auditory evoked responses for task-related hemispheric lateralization*

O3.2 Anna M Stecka, Marcin Michnikowski, Elżbieta M Grabczak, Monika Zielińska-Krawczyk, Rafał Krenke and Tomasz Gólczewski. *Cough: is this seemingly unfavorable phenomenon profitable during thoracentesis?*

O3.3 Agnieszka Uryga, Marek Czosnyka and Magdalena Kasprowicz. *The utility of using non-invasive arterial blood pressure to estimate the time constant of cerebral arterial bed*

O3.4 Jacek Jurkojć, Piotr Wodarski, Robert Michnik, Wojciech Marszałek, Kajetan J. Słomka and Marek Gzik. *The use of FFT and STFT analysis in assessment of ability to maintain balance in sensory conflict conditions as a complementary element for time domain analyses*

SS1. Dlaczego Polska nie produkuje respiratorów?

Moderatorzy sesji:
Prof. Marek Gzik, Prof. Adam Liebert

Paneliści:
prof. Jarosław Fedorowski, prezes Federacji Szpitali Polskich, kardiolog,

prof. Tomasz Topoliński, rektor Uniwersytetu Technologiczno-Przyrodniczego im. Jana i Jędrzeja Śniadeckich w Bydgoszczy w kadencji 2016–2020, pomysłodawca polskiego respiratora,

dr inż. Krzysztof Zieliński, Instytut Biocybernetyki i Inżynierii Biomedycznej im. prof. Macieja Nałęcza PAN, kierownik zespołu wdrażającego polskie urządzenie Ventil, które może pozwolić na wentylację dwóch pacjentów z użyciem jednego respiratora.

16:00 - 17:30

SS2. Inżynieria kliniczna w Polsce – jak przeskoczyć lukę pokoleniową

Chairs: Prof. E. Zalewska

SS2.1 Ewa Zalewska „*Inżynieria kliniczna – filar nowoczesnej ochrony zdrowia* "

SS2.2 Tadeusz Pałko, Kazimierz Pęczalski „*Zawód inżyniera medycznego – regulacje prawne*"

SS2.3 Zbigniew Paszenda, Marek Gzik, Witold Walke "*Inżynier medyczny - realia i perspektywy* "

SS2.4 Piotr Augustyniak „*Inżynieria kliniczna w planowaniu kariery absolwenta i programowaniu toku studiów* "

Poster Session I
(15:45 - 17:30)

17:30 - 18:30

S4. Biomedical signal processing II

O4.1 Zalewska Ewa. *Differentiation between single fiber potential (SFP) from one muscle fiber and SFP contaminated by other fibers*

O4.2 Aleksandra Królak and Edyta Pilecka. *Analysis and comparison of heart rate variability signals derived from PPG and ECG sensors*

O4.3 Nikodem Hryniewicz, Marcin Sińczuk, Rafał Rola, Ewa Piątkowska-Janko, Danuta Ryglewicz and Piotr Bogorodzki. *Manual and automatic epilepsy events selection in EEG-fMRI studies*

O4.4 Katarzyna Minta-Bielecka and Jolanta Pauk. *Gait patterns classification in hemiplegia patients based on biclustering algorithm*

S5. Modeling of biological systems

O5.1 Emilia Kozłowska and Andrzej Świerniak. *The stochastic mathematical model predicts angio-therapy could delay the emergence of metastases in lung cancer*

O5.2 Jaroslaw Smieja, Krzysztof Psiuk-Maksymowicz and Andrzej Swierniak. *A framework for modeling and efficacy evaluation of treatment of cancer with metastasis*

O5.3 Mauro Pietribiasi, Jacek Waniewski and John Leypoldt. *Modelling bicarbonate and CO_2 dialysance in the haemodialyzer*

O5.4 Leszek Pstraś and Jacek Waniewski. *Contribution of albumin and globulins to plasma oncotic pressure*

May 20, 2021

10:00 - 11:00	

S6. Bio-micro/nano technologies

O6.1 Katarzyna Reczyńska, Magdalena Bialik, Natalia Nowosińska and Elżbieta Pamuła. *Solid lipid nanoparticles loaded with antibacterial peptides as versatile drug delivery systems for the treatment of bacterial infections*

O6.2 Małgorzata Siatkowska, Paulina Sokołowska, Kamila Białkowska, Aleksandra Zimon, Magdalena Grala, Marcin Rosowski, Kinga Kądzioła-Długołęcka, Piotr Komorowski, Krzysztof Makowski, Daniel Reda and Bogdan Walkowiak. *Impact of micron-sized diamond particles on barrier cells of the human small intestine*

O6.3 Maxime Fages-Lartaud, Joanna Doskocz, Magdalena Przybyło, Maciej Łukawski and Marek Langner. *Development of the effective iron delivery vehicle*

O6.4 Krzysztof Makuch, Jolanta Zegarlińska, Aleksander Czogalla, Tomasz Borowik, Magdalena Przybyło and Marek Langner. *Liposomal carrier as a phospholipid depot for tear film lipid layer supplementation in patients with evaporative Dry Eye Syndrome*

S7. Artificial Organs

O7.1 Maria Rocchi, Libera Fresiello, Bart Meyns, Steven Jacobs, Anna Stecka, Maciej Kozarski and Krzysztof Zielinski. *An In Vitro System To Study Suction Events In Ventricular Assist Devices In Different Pathophysiological Conditions*

O7.2 Jacek Waniewski, Joanna Stachowska-Pietka and Roman Cherniha. *Hydration and swelling of non-perfused tissue: spatially distributed mathematical model for nonlinear poroelasticity*

O7.3 Anna Ciechanowska, Piotr Foltyński, Ilona Marcelina Góra, Stanislawa Sabalińska and Piotr Ładyżyński. *Design and optimization of the system controlling glucose concentration in a model of the artificial blood vessel*

O7.4 John Leypoldt, Joerg Kurz, Jorge Echeverri, Markus Storr, Mauro Pietribiasi and Kai Harenski. *Modeling acid-base balance for in-series extracorporeal carbon dioxide removal and continuous venovenous hemofiltration devices*

13:30 - 14:30	

SS3. IBBE-PAS 45 anniversary

SS3.1 Kamila Sadowska. *Implantable biofuel cells for self-powered biosensors*

Laboratory of Biosensors and Microanalytical Systems

SS3.2 Piotr Sawosz. *Cerebral oxygenation – clinical aspects*

Laboratory of Biomedical Optics

SS3.3 Jan Poleszczuk. *Computational oncology: how close are we to performing in silico clinical trials?*

Laboratory of Mathematical Modeling of Physiological Processes

16:00 - 17:30	

SS4. Prof. Maniewski Anniversary

Poster Session II (15:45 - 17:30)

17:30 - 18:30	

S8. Neural and rehabilitation engineering

O8.1 Jolanta Zuzda, Jakub Kacpura, Jakub Dziura, Piotr Borkowski and Robert Latosiewicz. *An innovative approach for a hip disorders rehabilitation*

O8.2 Piotr Wodarski, Jacek Jurkojć and Marek Gzik. *Wavelet Decomposition in Analysis of Impact of Virtual Reality Head Mounted Display Systems on Postural Stability*

O8.3 Kacper Ogórek, Paweł Poryzała and Paweł Strumiłło. *EEG Based Image Reconstruction Using Transformers*

O8.4 Katarzyna Koter and Witold Szulc. *Examination of pneumatic bellows for the rehabilitation of the human jaw*

S9. Molecular, cell and Tissue engineering

O9.1 Małgorzata Krok-Borkwoicz, Bartosz Mielan and Elżbieta Pamuła. *Dynamic vs. static cell culture PLGA microspheres for "bottom-up" tissue engineering*

O9.2 Ilona Marcelina Góra, Anna Ciechanowska and Piotr Ładyżyński. *Activation of NLRP3 Inflammasome in Type 2 Diabetes*

O9.3 Małgorzata Kotulska, Michał Burdukiewicz, Witold Dyrka, Marlena Gąsior-Głogowska, Katarzyna Hubicka, Monika Szefczyk, Natalia Szulc and Jakub Wojciechowski. *Identification of amyloid proteins and their interactions – bioinformatics versus experiment*

O9.4 Natalia Szulc, Marelena Gąsior-Głogowska, Jakub W. Wojciechowski, Monika Szefczyk, Andrzej M. Żak, Michał Burdukiewicz and Malgorzata Kotulska. *The effect of deuterium oxide on the aggregation process of CsgA fragments*

May 21, 2021

10:00 - 11:00

S10. Biomaterials I

O10.1 — Aleksandra Jędrzejewska. *Corrosion properties of double-walled TiO2 nanotubes measured in 0.9% NaCl - preliminary results*

O10.2 — Marcin Elgalal, Piotr Komorowski and Bogdan Walkowiak. *Custom implants for the reconstruction of complex cranial and maxillofacial bone tissue defects*

O10.3 — Katarzyna Arkusz, Marta Nycz, Ewa Paradowska and Dorota G. Pijanowska. *Corrosive and antibacterial properties of titanium nanotubes surface-modified thermally and with silver nanoparticles*

O10.4 — Beata Niemczyk-Soczyńska and Paweł Sajkiewicz. *Thermosensitive hydrogel/short electrospun fibers as a smart scaffold for tissue engineering*

S11. Biomechanics and biorobotics

O10.1 — Kamila Wiśniewska, Aleksandra Jędrzejewska, Monika Ratajczak and Tomasz Klekiel. *Analysis of the mechanical properties of impact absorbing structures used in military helmets*

O10.2 — Joanna Rymek and Adam Ciszkiewicz. *Analyzing the sensitivity of a procedure for obtaining a spherical contact pair to model the hip joint*

O10.3 — Marek Gzik, Wojciech Wolański, Kamil Joszko, Bożena Gzik-Zroska, Michał Burkacki and Sławomir Suchoń. *Multivariate analysis the blast injury of soldiers*

O10.4 — Monika Palmerska, Tomasz Klekiel and Agnieszka Mackiewicz. *Characteristics of nerve roots mechanical properties exposed to uniaxial stretching tests*

13:30 - 14:30

S12. Biomaterials II

O12.1 — Konrad Kwiecień, Katarzyna Reczyńska, Katarzyna Bąk, Daria Niewolik, Katarzyna Jaszcz and Elżbieta Pamuła. *Manufacturing of poly(ester-anhydride) microparticles as drug delivery systems for pulmonary administration*

O12.2 — Aleksandra Jastrzębska, Marta Kamińska and Bogdan Walkowiak. *Assessment of changes in biological and antimicrobial properties of double-doped TiO2 coatings produced by anodic oxidation*

O12.3 — Angelika Zaszczynska and Paweł Sajkiewicz. *Designing of Three-Dimensional Piezoelectric Scaffolds for Neural Tissue Engineering*

O12.4 — Roman Major, Adam Byrski, Maciej Gawlikowski, Katarzyna Kasperkiewicz, Marcin Dyner, Juergen M. Lackner and Boguslaw Major. *The demands for designing the patient-specific, anti-microbial bioactive finger implants for durable functional reconstruction after amputation*

S13. Biosensors and Bioinstrumentation

O13.1 — Rene Welden, Michael J. Schöning, Patrick H. Wagner and Torsten Wagner. *Light-addressable electrodes induce pH changes in microfluidic channels*

O13.2 — Igor Buzalewicz, Łukasz Zadka, Anna Matczuk and Halina Podbielska. *Optical phenotyping and characterization of macro- and micro-scale biological objects*

O13.3 — Dua Özsoylu, Tugba Isik, Mustafa M. Demir, Michael J. Schöning and Torsten Wagner. *A cell-based biosensor: "All-in-one" and "off-the-shelf" format for on-site monitoring of cell response*

O13.4 — Agnieszka Paziewska-Nowak, Marcin Urbanowicz, Anna Sołdatowska, Kamila Sadowska and Dorota Genowefa Pijanowska. *A multimodal, optical and electrochemical, approach towards detection of endogenous immunomodulators*

16:00 - 17:30

SS5. Shared Ventilation

SS5.1 — Giuseppe Marraro. *Flow diverters for lung ventilation in clinical practice: state of the art and future perspectives*

SS5.2 — Peter Khan. *Split Ventilation – Lessons from the COVID-19 Pandemic*

SS5.3 — Shriya Srinivasan et. al. *iSAVE Ventilator Multiplexing System*

SS5.4 — Krzysztof Zieliński. *Ventil - the system for independent lungs ventilation in splitted ventilation*

Poster Session III
(15:45 - 17:30)

17:30 - 18:30

S14 E-health and telemedicine

O14.1 — Piotr Foltynski and Piotr Ladyzynski. *An internet service system for automatic wound area measurement: preliminary tests*

O14.2 — Jan Poleszczuk, Niklas Krupka and Benjamin Misselwitz. *Microsimulation-based optimization of colorectal cancer screening strategies*

O14.3 — Mariusz Kaczmarek, Adam Bujnowski, Kamil Osiński, Tomasz Neumann and Jacek Rumiński. *eBathtub and eChair sensor subsystems supporting the elders*

O14.4 — Jakub Niemczuk, Dawid Michałowski, Bartosz Pośpiech and Marek Langner. *Novel Bluetooth Low Energy wireless endoscopic capsule for gastrointestinal diagnostics*

SS6. PTIB Awards

SS6.1 — Aleksandra Maria Osowska-Kurczab. *Differentiation of the Renal Cancer Types Based on the Analysis of CT Images*

SS6.2 — Wiktoria Wojnarowska. *Analysis of PEEK applications in knee endoprosthesis modeling*

SS6.3 — Paweł Czekała. *Construction of a voice communication device in production conditions for deaf people*

SS6.4 — Krzysztof Andrzej Gromada. *Construction and research of pulse pump with magneto-hydraulic levitation applied to artificial heart*

SS6.5 — Agnieszka Dubiel. *Attempt to develop a technology for the production of personalized polylactide plates for bone anastomosis reinforced with glass fiber*

May 19, 2021	**Poster Session I**	
15:45 - 17:30	P1.1	Ilona Karpiel and Klaudia Duch. *BOLD-fMRI study of auditory cortex in young women*
	P1.2	Paweł Bzowski, Daniela Schwedka-Nowak and Damian Borys. *Analysing of breast deformations in different patient positions using FEM*
	P1.3	Marcin Skobel, Marek Kowal and Józef Korbicz. *Cell nuclei detection in breast cancer cytology images with U-Net neural network*
	P1.4	Damian Wanta, Mateusz Midura, Przemysław Wróblewski, Grzegorz Domański, Jacek Kryszyn and Waldemar T. Smolik. *Capacitively coupled electrical tomography for anatomical and functional imaging of thorax*
	P1.5	Anna Pawłowska, Norbert Żołek, Katarzyna Dobruch-Sobczak, Ziemowit Klimonda, Hanna Piotrzkowska-Wróblewska and Jerzy Litniewski. *The outcome of breast chemotherapy based on Gray Relational Coefficient of ultrasound images*
	P1.6	Lukasz Fura, Norbert Zolek and Tamara Kujawska. *Numerical simulations of the ultrasonic tissue ablation process*
	P1.7	Dominika Gabor, Rafał Doniec, Szymon Sieciński, Natalia Piaseczna, Konrad Duraj and Ewaryst Tkacz. *Automatic Assessment of Benton Visual Retention Test Results*
	P1.8	Krzysztof Psiuk-Maksymowicz, Martyna Szczyrba and Damian Borys. *Automatic detection of intracranial aneurysms on MRA data sets*
	P1.9	Kamil Kawoń, Zuzanna Setkowicz, Agnieszka Dróżdż, Krzysztof Janeczko and Joanna Chwiej. *Biochemical anomalies of nervous tissue resulting from mechanical brain injury can be characterized using the techniques of vibrational microspectroscopy*
	P1.10	Mateusz Midura, Damian Wanta, Przemysław Wróblewski, Jacek Kryszyn and Waldemar Smolik. *Web Application with Semiautomatic Algorithm for Renal Blood Flow Estimation in Dynamic Scintigraphy*
	P1.11	Lukasz Roszkowiak, Jakub Zak, Krzysztof Siemion, Antonina Pater and Anna Korzynska. *Split point assessment for HRnet dual model*
	P1.12	Marta Borowska. *Multiscale entropy in the analysis of enveloped uterine EMG signals*
	P1.13	Karolina Bejm, Stanislaw Wojtkiewicz, Żanna Pastuszak and Adam Liebert. *Decrease of hemodynamic responses to visual stimulation in the human brain under hypoxia*
	P1.14	Aleksandra Jung. *Influence of compartment model structure simplification on radiation dose calculation for C-14 urea breath test*
	P1.15	Katarzyna Hajdowska, Damian Borys and Andrzej Świerniak. *Spatial 3D simulations of tumour progressionmodel using evolutionary game theory*
	P1.16	Jolanta Zuzda, Jakub Kacpura, Jakub Dziura, Manuel Sillero Quintana and Robert Latosiewicz. *The Influence of Hip Conditioning Program with Rotational Movements on Thermal Response of Lower Limbs*
	P1.17	Agnieszka Mackiewicz, Tomasz Klekiel, Jagoda Kurowiak, Tomasz Piasecki and Romuald Będziński. *Mechanical properties of New Zealand White Rabbit urethra tissue under urinal fluid flow*
	P1.18	Mikołaj Schabowski and Adam Ciszkiewicz. *Analyzing the geometry of the articular surfaces of the bones in the radioulnar and the radiohumeral joint*
	P1.19	Anna Kasperczuk and Agnieszka Dardzinska. *Decision support system for IBD*
	P1.20	Marlena Gąsior-Głogowska, Natalia Szulc, Oliwia Polańska, Monika Szefczyk and Witold Dyrka. *Aggregation determination of bacterial amyloid signaling motifs using ATR-FTIR spectroscopy*
	P1.21	Jakub W. Wojciechowski and Małgorzata Kotulska. *Statistical potential and energy maps in prediction of amyloids*
	P1.22	Katarzyna Orzechowska and Tymon Rubel. *An SVM-based peptide identification algorithm integrated into a database search engine*
	P1.23	Michał Burdukiewicz, Katarzyna Sidorczuk, Przemyslaw Gagat, Filip Pietluch, Jakub Kała, Dominik Rafacz, Mateusz Bąkała, Jadwiga Słowik, Rafał Kolenda, Stefan Rödiger and Paweł Mackiewicz. *Negative data set sampling as the source of bias in prediction of antimicrobial peptides*

May 20, 2021	Poster Session II	
15:45 - 17:30	P2.1	Agnieszka Kolodziejczyk, Paulina Sokolowska, Aleksandra Zimon, Magdalena Grala, Marcin Rosowski, Malgorzata Siatkowska, Piotr Komorowski and Bogdan Walkowiak. *Atomic force spectroscopy as a nanoscopic tool for assessing nanomaterials toxic effects in vitro*
	P2.2	Farnoosh Vahidpour, Torsten Wagner and Michael Josef Schöning. *A combined chemical/biosensor for simultaneous online monitoring and sterility assurance in aseptic food packaging*
	P2.3	Marcin Urbanowicz, Bartłomiej Lemieszek, Kamila Sadowska, Anna Sołdatowska, Agnieszka Paziewska-Nowak, Marek Dawgul and Dorota Pijanowska. *A new low-range biosensor for glutamate based on hyperbranched linkers*
	P2.4	Paulina Sokołowska, Małgorzata Siatkowska, Kamila Białkowska, Marcin Rosowski, Piotr Komorowski and Bogdan Walkowiak. *Osteosarcoma cells in early and late passages as the cancer progression model in vitro for assessing responsiveness of cancer cells to silver nanoparticles*
	P2.5	Anna Grzeczkowicz, Agata Lipko and Ludomira Granicka. *Nanothin Polyelectrolyte Membranes for Biomedical Purposes*
	P2.6	Magdalena Walkowiak-Przybyło, Marta Walczyńska, Marta Kamińska, Małgorzata Siatkowska, Piotr Komorowski and Bogdan Walkowiak. *Quantitative real-time polymerase chain reaction (qRT-PCR) technique as a useful tool for the assessment of cancer risk caused by medical*
	P2.7	Krzysztof Pietryga, Angelika Kiełbasa and Elżbieta Pamuła. *Indirect 3D-printing of viscous hydrogel in poly(vinyl alcohol) molds as a method to obtain tissue engineering scaffolds*
	P2.8	Anna Miklewska, Eleonora Kruglenko, Ryszard Tymkiewicz, Marcin Krajewski and Barbara Gambin. *Magnetic ferrofluids and ferrogel as sample materials for hyperthermia study*
	P2.9	Julia Lisoń, Anna Taratuta, Marcin Basiaga, Magdalena Antonowicz and Zbigniew Paszenda. *Various approaches to modify Ti13Nb13Zr alloy surfaces for improving biocompatibility*
	P2.10	Natalia Janik-Olchawa, Agnieszka Dróżdż, Damian Ryszawy, Maciej Pudełek, Karolina Płaneta, Zuzanna Setkowicz, Maciej Śniegocki, Andrzej Żądło, Beata Ostachowicz and Joanna Chwiej. *Assessment of the toxicity and possible therapeutic effects of iron oxide nanoparticles in in vitro cellular models*
	P2.11	Justyna Gargaś, Justyna Janowska, Karolina Ziąbska, Małgorzata Ziemka-Nałęcz and Joanna Sypecka. *An in vitro model of perinatal asphyxia: the influence of different biomaterials on proliferation and morphology of oligodendrocytes and astrocytes*
	P2.12	Mateusz Kopec, Adam Brodecki and Zbigniew L. Kowalewski. *Microstructural analysis of fractured orthopedic implants*
	P2.13	Ved Prakash Dubey, Mateusz Kopec and Zbigniew L. Kowalewski. *Insight of magnesium matrix nanocomposites for biomedical applications- a synthetic review*
	P2.14	Marta Kamińska, Magdalena Walkowiak-Przybyło, Marta Walczyńska, Piotr Komorowski and Bogdan Walkowiak. *Effect of surface structuring of metallic materials on their thrombocompatibility*
	P2.15	Malgorzata Debowska, Mauro Pietribiasi, Jan Poleszczuk, Wojciech Zaluska, Wojciech Dabrowski and Alicja Wojcik-Zaluska. *Bioimpedance measurements in estimation of fluid removal during hemodialysis*
	P2.16	Joanna Stachowska-Pietka, Beata Naumnik, Ewa Suchowierska, Jacek Waniewski and Bengt Lindholm. *Mathematic modeling of automated peritoneal dialysis: Effect of schedules with variable temporal patterns of administration of dialysis fluid with different glucose concentration*
	P2.17	Barbara Stankiewicz, Krzystof J. Pałko and Marek Darowski. *Lung function impairment in CDH – from fetus diagnostics to young child examination*
	P2.18	Grzegorz Żurek, Mateusz Gąbka, Paulina Dałek, Magdalena Przybyło and Marek Langner. *The method for the approximation of AUC curve for supplements of endogenous biologically active substances*
	P2.19	Daria Hemmerling, Magdalena Wójcik-Pędziwiatr and Łukasz Paluch. *The classification system for Parkinson's disease based on EMD using voice signals*
	P2.20	Marzena Rugieł, Justyna Kutorasińska, Agnieszka Dróżdż, Zuzanna Setkowicz and Joanna Chwiej. *The use of FTIR microspectroscopy for the investigation of molecular changes in the hippocampal formation after repetitive electrical stimulation*
	P2.21	Bogdan Walkowiak, Magdalena Walkowiak-Przybyło and Piotr Komorowski. *Can molecular biology and photoelectron spectroscopy methods be used to identify nanotechnology products?*
	P2.22	Karolina Planeta, Zuzanna Setkowicz-Janeczko, Damian Ryszawy, Natalia Janik-Olchawa, Agnieszka Dróżdż and Joanna Chwiej. *Biomolecular topography of glioblastoma multiforme developed in the rat brain – a FTIR study*
	P2.23	Katarzyna Kramek-Romanowska, Agata Dorosz, Anna Stecka and Piotr Okrzeja. *Numerical simulations of air flow and particle deposition in the model human airways during independent lung ventilation*

May 21, 2021	Poster Session III	
15:45 - 17:30	P3.1	Monika Drabik, Anna Grzeczkowicz, Paweł Bącal, Angelika Kwiatkowska, Magdalena Antosiak-Iwańska, Beata Kazimierczak, Ewa Godlewska and Ludomira Granicka. *Composite Membrane Scaffolds with Incorporated Metallic Nanoparticles for Supporting Fibroblastic Cell Growth*
	P3.2	Karolina Orzeł, Tomasz Gajowik and Magdalena Zielińska. *Customizable transepithelial/endothelial electrical resistance device with integrated multi-microelectrodes for the measurement of cellular barrier integrity*
	P3.3	Denise Molinnus, Kevin A. Janus, Aleksander Drinic, Heiko Iken, Nadja Kröger, Max Zinser, Ralf Smeets, Marius Köpf, Alexander Kopp and Michael J. Schöning. *Flexible electrochemical biosensor fabricated from Bombyx mori silk*
	P3.4	Melanie Jablonski, Jasmina Nork, Denise Molinnus, Likas Muschallik, Johannes Bongaerts, Torsten Wagner, Michael Keusgen, Petra Siegert and Michael J. Schöning. *Biosensoric acetoin detection in alcoholic beverages and fermentation broths*
	P3.5	Yasamin Ziai, Chiara Rinoldi, Paweł Nakielski, Tomasz Kowalewski and Filippo Pierini. *Bioinspired glucose sensor based on a smart nanoarchitecture hydrogel composite*
	P3.6	Anna Sołdatowska, Marcin Urbanowicz, Agnieszka Paziewska-Nowak, Kamila Sadowska and Dorota Pijanowska. *Bioplatform development for DNA-azathioprine interaction studies*
	P3.7	Adam Mirek, Paulina Korycka, Katarzyna Kramek-Romanowska, Marcin Grzeczkowicz and Dorota Lewinska. *How to create the electrospun polymeric mats of desired structure for biomedical applications?*
	P3.8	Aleh Sudakou, Anna Gerega, Helene Isler, Piotr Sawosz, Daniel Ostojic, Martin Wolf and Adam Liebert. *Hemoglobin spectra affect estimation of concentration and oxygen saturation: blood-lipid phantom study*
	P3.9	Antonina Pater, Łukasz Roszkowiak, Krzysztof Siemion and Anna Korzyńska. *Estimation of the fraction of area covered by cells and cell clusters in WSI patches*
	P3.10	Krzysztof Siemion, Anna Korzyńska, Łukasz Roszkowiak, Jakub Żak, Antonina Pater and Joanna Reszeć-Giełażyn. *Application of image analysis methods to evaluate histopathological slides in the study of prognostic factors of inflammatory spindle cell lesions*
	P3.11	Marcin Sińczuk, Jacek Rogala, Nikodem Hryniewicz, Ewa Piotrowska-Janko and Piotr Bogorodzki. *Feasibility analysis of suppressed water peak in single voxel 1-H MRS thermometry*
	P3.12	Elham Fazliazar, Piotr Sawosz, Aleh Sudakou and Adam Liebert. *Validation of a method to improve depth sensitivity of diffuse reflectance measurements to absorption changes in an optically turbid medium*
	P3.13	Kamil Wołos and Jan Poleszczuk. *Pulse wave propagation modeling for non-invasive assessment of heart function*
	P3.14	Piotr Okrzeja, Krzysztof Zieliński, Marcin Michnikowski and Marek Darowski. *Independent Lungs Ventilation impact on the cardiovascular system – a computer simulations*
	P3.15	Julia Grajek, Iñaki Schniewind, Claudia Peitzsch and Jan Poleszczuk. *Cellular plasticity upon proton irradiation*
	P3.16	Raman Pasledni and Krzysztof Zielinski. *Hybrid cardiovascular simulator - an application for the mechanical assistance by an intra-aortic balloon pump*
	P3.17	Małgorzata Ciężkowska, Monika Wiśniewska, Agnieszka Wencel, Dorota Genowefa Pijanowska and Krzysztof Dariusz Pluta. *Evaluation of Polysulfone Capillary Membranes Used for Hepatic Cells Culturing in Dynamic Conditions*
	P3.18	Monika Wiśniewska, Małgorzata Jakubowska, Agnieszka Wencel, Dorota Pijanowska and Krzysztof Pluta. *Construction of Hollow Fiber Bioreactors for Hepatic Cell Culture*
	P3.19	Joyce Pinto, Malgorzata Debowska and Jacek Waniewski. *Mathematical modelling of phosphate kinetics, its peculiarity and adequacy indices for patients on maintenance hemodialysis*
	P3.20	Akanksha Jaiswar, Maria Grześ, Magdalena Oroń and Dawid Walerych. *Functional transcriptomics analysis of driver's oncogenes molecular programs in human neoplasia*
	P3.21	Saeed Samaei, Neda Mogharari, Dawid Borycki, Adam Liebert and Michal Kacprzak. *Non-invasive brain perfusion and oxygenation assessment with combined use of time-domain diffuse correlation spectroscopy and time-domain near-infrared spectroscopy*
	P3.22	Neda Mogharari, Saeed Samaei, Stanislaw Wojtkiewicz, Adam Liebert and Michał Kacprzak. *Hybrid diffuse optical system for the tissue perfusion and oxygenation assessment*
	P3.23	Dominika Szuberla, Włodzimierz Łukasik, Elżbieta Magdalena Grabczak, Krzysztof Jakub Pałko and Tadeusz Pałko. *Two methods for recording and classifying cough signals*