



IFMBE



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Conference Program



CMBE BIH

International Conference on
Medical and Biological Engineering

in Bosnia and Herzegovina,
Banja Luka, 16 – 18 May, 2019

Organized by:



Co – Organized by:



MEDICINSKI FAKULTET
BANJA LUKA



UNIVERZITET U SARAJEVU
FARMACEUTSKI FAKULTET

Share the Vision

THURSDAY, May 16th 2019

08:00 - 10:00 Registration + Welcome Cocktail

10:00 - 10:45 Opening Ceremony, BANSKI DVOR, CONCERT HALL

1. **Milorad Dodik** – *Chairman of the Presidency of Bosnia and Herzegovina*
2. **Srđan Rajčević** - *Ministry for Scientific and Technological Development, Higher Education and Information Society*
3. **Shankar Krishnan** – *President of International Federation for Medical and Biological Engineering (IFMBE)*
4. **Panayiotis Kyriacou** – *President of European Alliance for Medical and Biological Engineering and Science (EAMBES)*
5. **Leandro Pecchia** – *Secretary of International Union for Physical and Engineering Sciences in Medicine (IUPESM)*
6. **Meliha Selak**, - *President of IEEE Bosnia and Herzegovina Section*
7. **Dejan Milojevic** - *Hewlett Packard Labs & IEEE President Candidate 2020*
8. **Eddie Custovic** - *Chair of Business Networking Forum (IT & Engineering)*
9. **Ranko Škrbić** – *Chair of International Conference on Medical and Biological Engineering (CMBEBIH 2019)*
10. **Almir Badnjević** – *President of Bosnia and Herzegovina Medical and Biological Engineering Society and Chair of the International Conference on Medical and Biological Engineering (CMBEBIH)*

10:45 - 11:00 Media Press Conference, BANSKI DVOR LOBBY

10:45 - 12:30 Plenary Lectures I, BANSKI DVOR, CONCERT HALL

1. **Damijan Miklavcic, Ph.D.** -*Electroporation based treatments and therapies*
2. **Zimei Wu, Ph.D.** - *Tumor Micro-Environment Sensitive Liposomes for Targeted Drug Delivery*
3. **Natasa Przulj, Ph.D.** - *New Algorithms for Unavailing Biomedical Knowledge from Heterogeneous Omics Data*

12:30 - 13:30 Lunch Break, Hotel Bosna, Crystall Hall

13:30 - 15:30 Plenary Session I, BANSKI DVOR, CONCERT HALL

BIOMEDICAL SIGNAL PROCESSING I

*Session Chairs: **Dejan Jokić**, International Burch University (Bosnia and Herzegovina), **Smiljana Paras**, University of Banja Luka (Bosnia and Herzegovina),*

S1-1: Emina Alickovic, Abdulhamit Subasi - ***Automatic Detection of Alzheimer Disease Based on Histogram and Random Forest***

S1-2: Francisco Cunha, Luis Távora, Pedro Assunção, Sérgio Faria, Rui Fonseca-Pinto - ***Stereo laser speckle dissimilarity analysis using self-organizing maps***

S1-3: Michele Sorelli, Antonia Perrella, Piergiorgio Francia, Leonardo Bocchi - *Wavelet phase coherence analysis between the respiratory activity and the microcirculation: the effects of type 1 Diabetes*

S1-4: Rui Fonseca-Pinto - *Prescribe and Monitor Physical Activity through a community-based eHealth Program: MOVIDA platform*

S1-5: Abdulhamit Subasi, Emine Yaman - *EMG Signal Classification using Discrete Wavelet Transform and Rotation Forest*

S1-6: Smiljana Paras, Nataša Vojinovic - *Impact of high frequency electromagnetic fields on process of angiogenesis*

S1-7: Rijad Saric, Dejan Jokic, Nejra Beganovic - *Implementation of Neural Network-based Classification Approach on Embedded Platform*

13:30 - 15:30 Plenary Session II, BANSKI DVOR, CITY HALL

MEDICAL PHYSICS, BIOMEDICAL IMAGING AND RADIATION PROTECTION 1

Session Chairs: *Nicolas Pallikarakis, University of Patras (Greece), Tatjana Ignjić, Affidea Banja Luka (Bosnia and Herzegovina)*

S2-1: Edis Đedovic, Hasan Osmic, Muhamed Topcagic, Nermina Karaman - *A dosimetric analysis of the overlapping and gap areas produced by simulated set-up errors on a treatment planning system in a case of the craniospinal irradiation of an adult patient*

S2-2: Milos Lucic, Igor Djan, Olivera Sveljo, Katarina Koprivsek, Dusan Ilic, Sasa Vujnovic, Silvija Lucic - *Diffusion tensor imaging and diffusion kurtosis imaging as potential structural MR imaging biomarkers of early white matter microstructure changes during and after high-grade glioma patients radiotherapy treatment*

S2-3: Silvija Lucic, Igor Djan, Milena Spirovski, Dusan Ilic, Dusko Kozic, Sasa Vujnovic, Milos Lucic - *Metabolic and structural imaging biomarkers in lung cancer tissue volume-dependent comparative analysis*

S2-4: Ivan Lasic, Kristina Galic, Adnan Beganovic, Valentina Lasic, Antonela Krasic-Arapovic, Lejla Civa - *Dose Optimization on CT thorax exam in University Clinical Hospital Mostar*

S2-5: Adnan Beganovic, Irmina Sefic-Pašić, Maja Gazdic-Šantic, Rahima Jašić, Amra Skopljak-Beganovic, Adnan Šehić, Sandra Vegar-Zubovic - *Radiation exposure of patients in neonatal intensive care unit*

S2-6: Adnan Beganovic, Rahima Jašić, Maja Gazdic-Šantic, Amra Skopljak-Beganovic, Nermina Bešlić, Šejla Ceric, Amra Sadija, Sandra Vegar-Zubovic - *Use of uptake values to estimate the effective dose to patients in positron emission tomography*

13:30 - 15:30 Plenary Session III, HOTEL BOSNA, PIANO BAR HALL

CLINICAL ENGINEERING AND HEALTH TECHNOLOGY ASSESSMENT 1

Session Chairs: ***Ernesto Iadanza, University of Florence (Italy), Mario Medvedec, University of Zagreb (Croatia)***

S3-1: Davide Piaggio, Roland Houessouvo, Daton Medenou, Leandro Pecchia - ***Donation of medical devices in low-income countries: preliminary results from field studies***

S3-2: Ernesto Iadanza, Cesare Massaro, Leonardo Vonci – ***Adverse Drug Events (ADEs): a novel RFID device for a safe and strong match between patients and their medications***

S3-3: Mario Medvedec, Mladen Poluta - ***Only all together we can make it better on any strategic matter***

S3-4: Ernesto Iadanza, Alessio Luschi, Roberto Gusinu, Filippo Terzaghi - ***Designing a Healthcare Computer Aided Facility Management System: a New Approach***

S3-5: Alessio Luschi, Riccardo Di Franco, Beatrice Turillazzi, Ernesto Iadanza - ***System for Monitoring Environmental Parameters in a Hospital Facility***

S3-6: Jasmina Hasić, Azra Musić Kilic – ***Using data science for medical decision making case: Role of Gut Microbiome in Multiple Sclerosis***

15:30-16:00 Coffee Break

16:00-19:00 Workshop, BANSKI DVOR, CONCERT HALL

IFMBE Clinical Engineering and Health Technology Assessment Divisions Workshop (only for registered participants – students, members and nonmembers)

16:00-18:00 Visit the University Clinic Center and Radiotherapy Centre Affidea in Banja Luka

(it is necessary to register at Registration desk for this visit)

20:00 – 22:00 B2B Meeting Point for Invited Guests at Integra Restaurant (only with Invitations)

21:00 – 02:00 Student Party, organized together with BLIMC organizers.

- **Location: Smuggler bar, Kralja Petra I Karađorđevića 103, Banja Luka 78000**
- **After midnight: Night Club Rudi, Kralja A. I. Karađorđevića 103a, Banja Luka 78000**

(only for registered participants – students, members and nonmembers)

FRIDAY, May 17th 2019

09:00 - 10:00 Registration

10:00 - 11:30 Plenary Lectures II, BANSKI DVOR, CONCERT HALL

1. **Ervin Sejdic, Ph.D.** – *Computational deglutition – A novel computational field to understand swallowing and associated disorders*
2. **Borut Strukelj, Ph.D.** – *Pharmaceutical Engineering Of Recombinant Probiotics – Novel Delivery System Of Advanced Biological Medicines*

11:30 - 12:30 Springer Book Promotion: “Nanofood and Internet of Nano Things” Authors: Mirjana Maksimović, Enisa Omanović – Mikličanin, Almir Badnjević, BANSKI DVOR, CONCERT HALL

12:30 - 13:30 Lunch Break, Hotel Bosna, Crystal Hall

13:30 – 15:30 Poster session

Poster Chairs: Ervin Sejdić, University of Pittsburgh (USA), Ratko Magjarević, University of Zagreb (Croatia), Shankar Krishnan, University of Boston (USA), Ernesto Iadanza, University of Florence (Italy), Mario Medvedec, University of Zagreb (Croatia),

P1: Marek Zylinski, Małgorzata Wojciechowska, Wiktor Niewiadomski, Marta Sadowiec, Sonia Borodzicz, Gerard Cybulski - *Adaptive Filter Removes Variability Caused by Respiration from Impedance Cardiography Signal*

P2: Grazyna Adler, Izabela Uzar, Anastazja Kazlova, Amina Valjevac, Emina Kiseljakovic, Emir Mahmutbegovic, Nermin N Salkic, Mateusz A Adler, Nevena Mahmutbegovic, Maciej Grabowski, Ewa Rebacz-Marón - *Landscape of CYP3A5 variants in Central-Eastern and South European populations*

P3: Jani Lylykangas, Mirja Ilves, Hanna Venesvirta, Ville Rantanen, Eeva Mäkelä, Antti Vehkaoja, Jarmo Verho, Jukka Leikkala, Markus Rautiainen, Veikko Surakka - *Electrical Stimulation of Eye Blink in Individuals with Dry Eye Symptoms Caused by Chronic Unilateral Facial Palsy*

P4: Heidi Halonen, Jari A.K Hyttinen, Teemu O. Ihalainen - *Miniaturized stimulator for imaging of live cell responses to high frequency mechanical vibration*

P5: Edina Vranic, Amina Tucak, Merima Sirbubalo, Ognjenka Rahic, Alisa Elezovic, Jasmina Hadziabdic - *Development of inhalable dry gene powders for pulmonary drug delivery by spray-freeze-drying*

P6: Edina Vranic, Amina Tucak, Merima Sirbubalo, Ognjenka Rahic, Alisa Elezovic, Jasmina Hadziabdic - *Microneedle-based sensor systems for real-time continuous transdermal monitoring of analytes in body fluids*

P7: Sergei Akulov, Aleksandr Fedotov, Igor Makarov, Aleksandr Sidorov, Angelina Kosheleva - *Influence on artificial microgravity on human arterial vessels*

P8: Emina Alickovic, Abdulhamit Subasi - *Normalized Neural Networks for Breast Cancer Classification*

P9: Mirsada Salihovic, Aida Sapcanin, Selma Špirtovic-Halilovic, Irma Mahmutovic-Dizdarevic, Anesa Jerkovic-Mujkic, Elma Veljovic, Ekrem Pehlic, Fuad Gaši, Sabilja Zeciri - *Antimicrobial activity of selected wild mushrooms from different areas of Bosnia and Herzegovina*

P10: Aida Sapcanin, Aida Hasanovic, Mirsada Salihovic, Ekrem Pehlic, Selma Špirtovic-Halilovic - *Screening of heavy metal occurrence in edible plants from Bosnian market*

P11: Sergei Akulov, Aleksandr Fedotov, Angelina Kosheleva - *Dry electrodes for long term ECG monitoring*

P12: Selma Cifric, Jasna Nuhic, Dina Osmanovic, Emina Kišija - *Review of Electrochemical Biosensors for Hormone Detection*

P13: Tijana Adamovic, Valentina Veselinovic, Nataša Trtić, Andrej Ivanič, Rebeka Rudolf - *Mechanical properties of new denture base material modified with gold nanoparticles*

P14: Safija Herenda, Anera Kazlagic, Edhem Haskovic, Denis Haskovic - *Effects of ^{99m}Tc on the redox properties of Lthyroxine*

P15: Amela Masala, Ivona Alilovic, Husein Ohran, Szilvia Kusza, Teufik Goletic, Amina Hrkovic-Porobija, Aida Hodzic - *Genetic polymorphism β -lactoglobulin gene in Dubska Pramenka sheep breed*

P16: Nermina Sokolovic, Majda Ajanovic, Samir Badic, Miljana Banjanin, Mirna Brkan, Naida Custo, Barbara Stanic, Merima Sirbubalo, Amina Tucak, Edina Vranic - *Predicting the outcome of granulation and tableting processes using different artificial intelligence methods*

P17: Ceren Gürlek, Cagla Yarkent, Izel Oral, ayse köse, Suphi S. Öncel, Murat Elibol - *Evaluation of several microalgal extracts as bioactive metabolites as potential pharmaceutical compounds*

P18: Aida Botonjic, Tino Kostic, Nedim Begic - *Comparison of CFD analysis of shorter designed stent graft in abdominal aorta*

P19: Tarik Ibrahimasic, Dejan Jokic - *Development of a Tray-Separated Microbiological Incubator by Means of Electronic Components and Testing its Performance*

P20: Nevenka Velickova, Marina Nateva, Slagana Stojanovska - *Liver Enzymes as Biomarkers for Hepatotoxicity of Statins in Patients with Dyslipidemia*

P21: Zvezdana Gavrilovic, Mirjana Maksimovic - *Nanomaterials as a tool for consumer research*

P22: Anastasia Daskalaki, Anthi Malliori, Aris Dermizakis, Nicolas Pallikarakis - *Novel Physical Heterogeneous Breast Phantom for X-ray Phase Contrast Imaging*

P23: Siniša Vucenovic, Jovan Šetrajcic, Ana Šetrajcic - *Near IR exciton theory of ultrathin crystalline film optics and possibilities for drug delivery*

P24: Emina Kišija, Dina Osmanovic, Jasna Nuhic, Selma Cifric - *Review of Biosensors in Industrial process control*

P25: Tatjana Ignjic, Bojan Pavicar, Goran Kolarevic, Zeljko Ranogajec - *Computer tomography tube voltage and phantom dimensions influence on the number of Hounsfield units*

P26: Dušan Ilic, Silvija Lucic, Sasa Vujnovic, Li Sen, Ranko Skrbic, Milos Lucic - *Phonon Engineering in Nanostructures for Targeted Drug Delivery*

P27: Alija Uzunovic, Minela Dacic, Zahida Ademovic, Sead Osmancevic, Saša Pilipovic, Aida Šapcanin - *In vitro evaluation of transdermal patches containing capsaicin marketed in Bosnia and Herzegovina*

P28: Minela Dacic, Alija Uzunovic, Amar Kunic, Saša Pilipovic, Aida Šapcanin - *UV-VIS determination of acetylsalicylic acid in aspirin tablets using different solvents and conditions*

P29: Igor Saveljic - *Atherosclerotic plaque formation in the coronary arteries*

P30: Aida Hasanovic, Aida Sapcanin, Jakub Hasanovic - *Coronary angiography evaluation of atherosclerosis in diabetic patients*

P31: Bojana Caric, Blazenko Vukovic, Katarina Lalic - *Optimizing insulin pump therapy: Advanced bolus options*

P32: Dalibor Nikolic, Igor Saveljic, Nenad Filipovic - *Parametric optimization of stent design based on numerical methods*

P33: Anera Kazagic, Enisa Omanovic-Miklicanin - *Application of Raman Spectroscopy in Food Forensics: A Review*

P34: Lamija Hindija, Armina Gicevic, Alma Karacic - *Toxicity of azo dyes in pharmaceutical industry*

P35: Lejla Gurbeta, Emina Kurta, Alma Badnjevic- Cengic, Sebija Izetbegovic, Almir Badnjevic - *eVerlab: Software Tool for Medical Device Safety and Performance Inspection Management*

P36: Sacira Mandal - *Genes associated with free fatty acid levels and dyslipidemia in Type 2 Diabetes patients*

P37: Seda Damla Hatipoglu - *Two New Certified Reference Materials for Clinical Measurements: UME CRM 1314 Amino Acids in Human Plasma and UME CRM 1315 Organic Acids in Urine*

P38: Lejla Divovic, Lejla Gurbeta, Alma Badnjevic - Cengic, Almir Badnjevic, Behija Berberovic Hukeljic, Tamer Bego, Omer Perva - *Classification of severe aortic stenosis using expert system*

P39: Letícia Silva, Bruno Oliveira Rezende, Hiara Lopes Pinheiro Teixeira, Bianca Duque, Gisele Aparecida Fófano - *Epigenetic: how does it affect cancer?*

P40: Laila Mušic, Nusreta Gabeljic - *Predicting the Severity of a Mammographic Tumor Using an Artificial Neural Network*

P41: Nataša Popovic, Milica Naumovic, Sonja Roganovic - *HIV infection mathematical modeling and future trends of treatment using nanotechnology and nanorobots*

15:30 - 17:30 Plenary Session IV, BANSKI DVOR, CONCERT HALL

BIOMEDICAL SIGNAL PROCESSING 2 + MEDICAL PHYSICS, BIOMEDICAL IMAGING AND RADIATION PROTECTION 2

Session Chairs: **Dusanka Boskovic**, University of Sarajevo (Bosnia and Herzegovina),
Adnan Beganović, University Clinic Center Sarajevo (Bosnia and Herzegovina)

S4-1: Jasna Nuhic, Jasmin Kevric - *Prostate cancer detection using different classification techniques*

S4-2: Ahmed Osmanovic, Sabina Halilovic, Samed Jukic, Jasmin Kevric, Naida Hadziabdic - *Application of a computer-aided diagnostic system for early identification of periapical lesions - a pilot study*

S4-3: Sanda Sljivo, Dusanka Boskovic, Orhan Lepara - *Vectorcardiogram eLearning application*

S4-4: Boris Dragojevic, Dusanka Boskovic - *Evaluating MSE applicability to short HR time-series*

S4-5: Lejla Civa, Adnan Beganovic, Mahira Redzic, Maja Gazdic-Šantic, Amra Skopljak-Beganovic, Rahima Jašic, Ivan Lasic, Sandra Vegar-Zubovic - *Evaluation of computed tomography X-ray beam dose profiles*

S4-6: Edis Đedovic, Azra Gazibegovic-Busuladžic, Mustafa Busuladžic, Adnan Beganovic - *Comparison of specific fractal and multifractal parameters for certain regions of interest from digital mammograms*

S4-7: Jovica Ž. Praskalo, Biljana V. Petrovic, Adnan Beganovic - *Portable X-Ray devices: loosing border between controlled and supervised areas*

S4-8: Irfan Karagoz - *Effectiveness of Asymmetry Analysis Technique Based on Statistical Features in Breast Cancer Detection with Modern Thermographic Imaging Systems*

15:30 - 17:30 Plenary Session V, BANSKI DVOR, CITY HALL

BIOSENSORS AND BIOINSTRUMENTATION + CLINICAL ENGINEERING AND HEALTH TECHNOLOGY ASSESSMENT 2

Session Chairs: **Baki Karaboce**, TUBITAK UME (Turkey), **Zdenka Babić**, University of Banja Luka (Bosnia and Herzegovina)

S5-1: Mitar Simic, Ross Gillanders, Alesksej Avramovic, Slavica Gajic, Vedran Jovanovic, Vladan Stojnic, Vladimir Risojevic, James Glackin, Graham Turnbull, Janja Filipi, Nikola Kezic, Mario Muštra, Zdenka Babic - *Honeybee Activity Monitoring in a Biohybrid System for Explosives Detection*

S5-2: Semir Sakanovic, Jasmin Kevric - *HaBEEtat: A Novel Monitoring Platform for more efficient honey production*

S5-3: Andrea Felici, Michele Sorelli, Leonardo Bocchi - *Design and implementation of a monitoring system for elastomeric infusion pumps*

S5-4: Emil Valchinov, Konstantinos Rotas, Athanasios Antoniou, Vasileios Syrimpeis, Nicolas Pallikarakis - *Wearable system for early diagnosis and follow up of spine curvature disorders*

S5-5: Zeynep Orhan, Mine Mercan, Merve Kevser Gokgol – *A new digital mental health system infrastructure for diagnosis of psychiatric disorders and patient follow-up by text analysis in Turkish*

S5-6: Jasmina Barakovic Husic, Sabina Barakovic, Enida Cero Dinarevic - *Smart Ageing: Are we succeeding?*

S5-7: Karaböce Baki, Huseyin Okan Durmus, Emel Cetin - *Establishment of Measurement System for Hearing Aids at TÜBITAK UME*

S5-8: Karaböce Baki, Huseyin Okan Durmus, Emel Cetin - *The Importance of Metrology in Medicine*

15:30 - 17:30 Plenary Session VI, HOTEL BOSNA, CRYSTAL HALL

HEALTH INFORMATICS, E-HEALTH AND TELEMEDICINE + ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING IN HEALTHCARE

Session Chairs: Tamer Bego, University of Sarajevo (Bosnia and Herzegovina), Zerina Masetic, International Burch University Sarajevo (Bosnia and Herzegovina)

S6-1: Nuno Pombo, Nuno Garcia - *Towards Pain-Fingerprinting: a Ubiquitous and Interoperable Clinical Decision Support System for Pain Assessment*

S6-2: Rijad Saric, Dejan Jokic, Eddie Custovic - *Identification of Alcohol Addicts among High School Students using Decision Tree based Algorithm*

S6-3: Joana Moreira, Mariana Moreira, Nuno Pombo, Bruno Silva, Nuno Garcia - *Identification of real and imaginary movements in EEG using Machine Learning models*

S6-4: Arnela Tarakcija, Vedad Terzic, Almir Vardo, Sabrina Smajlovic, Sabilja Zeciri, Selma Imamovic, Tanja Dujic, Maja Malenica, Tamer Bego - *Development of a diagnostic support software in the clinicobiochemical evaluation of thyroid disease diagnosis*

S6-5: Lemana Spahic, Emina Kurta, Sabahudin Cordic, Merjem Becirovic, Lejla Gurbeta, Almir Badnjevic - *Machine Learning Techniques for Performance Prediction of Medical Devices: Infant Incubators*

S6-6: Dželila Mehanovic, Zerina Masetic, Dino Keco - *Prediction of heart diseases using majority voting ensemble method*

S6-7: Lemana Spahic, Emir Šehovic, Alem Secerovic, Zerina Đozic, Lejla Smajlovic Skenderagic - *Lactose Intolerance Prediction Using Artificial Neural Networks*

S6-8: Jasna Nuhic, Lemana Spahic, Sabahudin Cordic, Jasmin Kevric - *Comparative study on different classification techniques for ovarian cancer detection*

13:30-19:00 EAMBES Activities, HOTEL BOSNA, Piano Bar Hall

- a) 13:30-15:00 EAMBES Council meeting,**
- b) 15:30-17:30 EAMBES General Assembly meeting,**
- c) 17:30-19:00 EAMBES Round table discussion between EAMBES council members with EAMBES Fellows**
(only for EAMBES Representatives)

20:00 – 00:00 Gala dinner, Hotel Bosnia *(only for registered Members, Non-Members and special Invitations)*

SATURDAY, May 18th 2019

08:00 - 09:00 Registration

09:00 - 10:30 Plenary Lectures III, BANSKI DVOR, CONCERT HALL

- 1. Hani Al Salami, Ph.D.** – *Biotechnological advancement in drug delivery and tissue engineering: Future prospective.*
- 2. Goran Stojanovic, Ph.D.** - *Design a fabrication of microfluidic chips in different technologies for biomedical applications*

10:30-12:30 Plenary Session VII, BANSKI DVOR, CONCERT HALL

BIO-MICRO/NANO TECHNOLOGIES + BIOMATERIALS, BIOMECHANICS, ROBOTICS AND MINIMALLY INVASIVE SURGERY

Session Chairs: **Enisa Omanović - Mikličanin**, University of Sarajevo (Bosnia and Herzegovina), **Mirjana Maksimović**, University of East Sarajevo (Bosnia and Herzegovina)

S7-1: Tugçe Mutaf, Gülizar Çalışkan, Cafer Meydan, Suphi Öncel, Murat Elibol - ***Biogenic nanoparticle synthesis using marine alga Schizothyrium sp.***

S7-2: Gülizar Çalışkan, Tugçe Mutaf, Suphi Öncel, Murat Elibol - ***Green synthesis of metal nanoparticles using microalga Galdieria sp.***

S7-3: Amar Ramovic, Zerina Zorlak, Denana Husic, Samir Ramic - ***Zeolite microneedles: recent advancements and implications in the delivery of collagen***

S7-4: Monia Avdic, Zerina Masetic, Ahmed El Sayed, Lejla Odobasic, Mirsada Hukic - ***A Novel Approach in Determination of Biofilm Forming Capacity of Bacteria using Random Forest Classifier***

S7-5: Vesna Raspudic - ***Analysis of Vertical Ground Reaction Force and Center of Pressure during Stair Climbing***

S7-6: Zlata Jelacic, Remzo Dedic - ***Reference tracking of the robotic above-knee prosthetic leg with actuated knee and ankle joints using robust control***

10:30-12:30 Plenary Session VIII, BANSKI DVOR, CITY HALL

GENETIC AND PHARMACEUTICAL ENGINEERING 1

Session Chairs: **Lana Nežić**, University of Banja Luka (Bosnia and Herzegovina), **Tamer Bego**, University of Sarajevo (Bosnia and Herzegovina)

S8-1: Fatima Mrkulic, Lejla Gurbeta, Enisa Omanovic-Miklicanin, Tamer Bego, Almir Badnjevic - ***Correlation of Leukemia Genes Overexpression and Point Mutations in Different Tissues***

S8-2: Zurifa Ajanovic, Aida Sarac-Hadzihalilovic - *Craniometric analysis of the foramen magnum for gender determination in Bosnian human skulls*

S8-3: Emina Arukovic, Dina Fetahovic, Belma Pehlivanovic - *Impact of antibiotic misuse on genetics alterations of bacteria*

S8-4: Selena Kurtic, Zvezdan Stojanovic - *Diagnosis of skin disease based on fingerprint*

S8-5: Svetlana Golocorbin-Kon, Momir Mikov*, Hani Al-Salami, Boris Milijasevic, Sasa Vukomirovic, Ranko Skrbic - *Gliclazide microvesicles – a pharmaceutical formulation with hypoglycemic effect in Tipe1 diabetes mellitus rats*

S8-6: Momir Mikov, Hani Al-Salami, Svetlana Golocorbin-Kon, Ranko Skrbic - *Probiotics and bile acid semisynthetic analogue as permeation modifiers*

10:30-12:30 Plenary Session IX, HOTEL BOSNA, PIANO BAR HALL

CARDIOVASCULAR, RESPIRATORY AND ENDOCRINE SYSTEMS ENGINEERING

Session Chairs: Nenad Filipović, University of Kragujevac (Serbia), Peđa Kovačević, University of Banja Luka (Bosnia and Herzegovina)

S9-1: Medina Hamidovic, Ferenc Ender, Andreas Springer - *A Novel Enzymatic Microreactor: Towards Transforming the Pharmaceutical Industry*

S9-2: Pietro Tarchi, Francesca Bologna, Costanza Scortecci, Eleonora Tiribilli, Diletta Pennati, Leonardo Sacconi, Michele Sorelli, Leonardo Bocchi - *Modeling of voltage imaging for the study of action potential propagation*

S9-3: Nebojsa Skrepnik, Andrew Spitzer, Roy Altman, John Hoekstra, John Stewart, Richard Toselli - *Assessing the Impact of a Novel Smartphone Application Compared With Standard Follow-Up on Mobility of Patients with Knee Osteoarthritis Following Treatment With Hylan G-F 20: A Randomized Controlled Trial*

S9-4: Nebojsa Skrepnik, Yusuf Yazici, Christopher Swearingen, Anita Di Francesco, Jeyenesh Tambiah - *Results from a 52-week randomized, double-blind, placebo-controlled, phase 2 study of a novel, intra-articular WNT pathway inhibitor (sm04690) for the treatment of knee osteoarthritis*

S9-5: Smiljana Djorovic, Igor Saveljic, Nenad Filipovic - *Numerical Analysis of Plaque Progression in 3D Patient Specific Model of Carotid Artery*

S9-6: Arash Ghareh Baghi, Amir A. Sepehri, Ankica Babic - *Forth Heart Sound Detection Using Backward Time-Growing Neural Network*

S9-7: Tijana Sustersic, Milica Nikolic, Nihal Engin Vrana, Nenad Filipovic - *Discrete modelling of liver cell aggregation using partial differential equations*

12:30 - 13:30 Lunch Break, Hotel Bosna, Crystall Hall

13:30-15:30 Plenary Session X, BANSKI DVOR, CONCERT HALL

STUDENTS COMPETITION SESSION 1

Session Chairs: **Ervin Sejdic**, *University of Pittsburgh (USA)*, **Leandro Pecchia**, *University of Warwick (UK)*

S10-1: Sabahudin Cordic, Lemana Spahic - *Prostate Tissue Classification Based on Prostate Specific Antigen levels and Mitochondrial DNA Copy Number Using Artificial Neural Network*

S10-2: Ghazaal Sheikhi, Hakan Altincay - *Using the Distance in Logistic Regression Models for Predictor Ranking in Diabetes Detection*

S10-3: Lejla Hadžić, Arnela Fazlic, Osman Hasanic, Nudžejma Kudic, Lemana Spahic - *Expert system for prediction of performance of patient related parameters of anesthesia machines*

S10-4: Lejla Šabic, Adnan Mujanovic - *Smoking and caffeine consumption as stress coping mechanisms in medical students*

S10-5: Vanja Piljak, Belma Muftic, Sukejna Redžepi, Mirza Dedic, Nermina Žiga - *The Assessment of Drug Interactions and Safety of Administration with Regard to Special Population Groups by a Developed Computer Program*

S10-6: Sukejna Redžepi, Belma Muftic, Vanja Piljak, Nermina Žiga, Mirza Dedic - *Implementing the Calculation of the Appropriate Drug Dose for Children Using the Programming Language C#*

S10-7: Ernesto Iadanza, Rachele Fabbri, Alessio Luschi, Francesca Gavazzi, Paolo Melillo, Francesca Simonelli, Monica Gherardelli - *ORA 'O: RESTful Cloud-Based Ophthalmologic Medical Record for Chromatic Pupillometry*

13:30-15:30 Plenary Session XI, BANSKI DVOR, CITY HALL

STUDENTS COMPETITION SESSION 2

Session Chairs: **Baki Karaboce**, *UME Tubitak (Turkey)*, **Borut Strukelj**, *University of Ljubljana (Slovenia)*

S11-1: Merve Kevser Gokgol, Zeynep Orhan - *A Language Independent Decision Support System for Diagnosis and Treatment by Using Natural Language Processing Techniques*

S11-2: Sarah Krezic, Esved Krhan, Nikolina Kovac, Emir Mandžuka, Danira Krajina, Amina Maric, Sajra Komic, Azra Nikšić - *Fabrication of rectal and vaginal suppositories using 3D printed molds: the challenge of personalized therapy*

S11-3: Mirela Camovic, Amila Bišcevic, Iman Brcic, Kana Borcak, Sadzida Bušatlic, Nejra Cenanovic, Anida Dedovic, Alen Mulalic, Maida Osmanlic, Merima Sirbubalo, Amina Tucak, Edina Vranic - *Coated 3D printed pla microneedles as transdermal drug delivery systems*

S11-4: Nikolina Begovic, Amina Džih, Lamija Aliman, Igor Đukic, Arnela Tarakcija, Vedad Terzic, Neven Mesledzic, Selma Imamovic, Tanja Dujic, Maja Malenica, Tamer Bego - *Development of a diagnostic support software in the clinicobiochemical evaluation of secondary amenorrhea diagnosis*

S11-5: Mirela Camovic, Amila Bišcevic, Iman Brcic, Kana Borcak, Sadzida Bušatlic, Nejra Cenanovic, Anida Dedovic, Alen Mulalic, Merima Sirbubalo, Amina Tucak, Edina Vranic - *Acid-resistant capsules with sugar microneedles for oral delivery of ascorbic Acid*

S11-6: Jasmin Novalic, Berina Bektic - *Effect of Commercially available Synthetic Insulin on the Biofilm formation in S. aureus and E. coli bacterial strains*

S11-7: Haris Hadžovic, Minela Alic, Anida Dedovic, Anesa Sušic, Berina Tatlic, Zerina Zorlak, Nermina Žigic, Maja Malenica, Tamer Bego - *Use of Biosensors in Diabetes Monitoring: Medical and Economic Aspects*

S11-8: Samuell Ferreira, Rubens zeron, Guilherme Carvalho, Lara Gandra, Victoria Carestiato, Allice Bastos, Juliana Silva, Adnan Mujanovic - *Therapeutic aspects and diagnosis of the attention deficit hyperactivity disorder - adhd in adults*

13:30-15:30 Plenary Session XII, HOTEL BOSNA, Crystal Hall

GENETIC AND PHARMACEUTICAL ENGINEERING 2

Session Chairs: **Lana Nežić**, University of Banja Luka (Bosnia and Herzegovina), **Tamer Bego**, University of Sarajevo (Bosnia and Herzegovina)

S12-1: Berina Tatlic, Lejla Šejto, Merima Sirbubalo, Amina Tucak, Edina Vranic - *Novel aspects of drug delivery: Wireless electronic devices*

S12-2: Aida Etminan, Alija Uzunovic, Anela Topcagic, Sabina Žero, Muamer Dizdar, Lejla Klepo, Dušan Culum, Huriya Džudžević Cancar, Ismet Tahirovic - *Quantification of active substances in some drugs using by derivative UV/Vis spectroscopy*

S12-3: Begler Begovic, Midhat Vehabovic, Amila Sahinbasic, Una Glamoclija - *Lysozyme-enzymic with valuable effects in prevention and treatment of postoperative complications in adult patients after bilateral tonsillectomy*

S12-4: Anesa Sušic, Zekira Hrnjica, Ilma Kajgana, Minela Mujezinovic, Alma Hasanbegovic, Jelena Brckalo, Amina Tucak, Merima Sirbubalo, Edina Vranic - *Use of hollow microneedle drug delivery systems in treatment of diabetes mellitus*

S12-5: Emir Šehović, Lemana Spahić, Ajla Kulagić, Lejla Smajlović Skenderagić, Aida Saračević – *Analysis of miRNA targets in correlation to neurodevelopment and diagnosis of ASD*

S12-6: Biljana T., Bojan M., Tibor S. – *Discovery of membrane permeability, pharmacokinetics properties and mechanism of action for analogs of ethylenediamine-N,N'-di-2-(3-cyclohexyl)propionic acid*

15:30-16:00 Closing and Award Ceremony, **BANSKI DVOR, CONCERT HALL**

17:00-21:00 IT & Engineering – Business Networking Forum, **HOTEL BOSNA, Restaurant President**

- Hosted by BH Futures Foundation
- Forum Chair: Prof. Edhem 'Eddie' Custovic

SUNDAY, May 19th 2019

10:00 – 18:00 Rafting @Vrbas river (*only for registered Members*)

