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# Conference Program



## CMBEBIH

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 16<sup>th</sup> 2019**

**08:00 - 10:00 Registration**

**10:00 - 11:00 Opening Ceremony, BANSKI DVOR, CONCERT HALL**

1. **Milorad Dodik** – *Chairman of the Presidency of Bosnia and Herzegovina*
2. **Srdan 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. **Timo Jämsä**– *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)*

**11:00 - 11:15 Media Press Conference, BANSKI DVOR LOBBY**

**11:00 – 11:15 South East European International Institute for Sustainable Technologies (SEEIIST) - Presented by Minister of Science of Montenegro Sanja Damjanovic, BANSKI DVOR, CONCERT HALL**

**11:15 - 12:45 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*

**12:45 - 13:00 Zoono in Bosnia and Herzegovina. Say NO to Germs!, BANSKI DVOR, CONCERT HALL**

**13:00 - 14:00 Lunch Break, HOTEL BOSNA, CRYSTALL HALL**

**14:00 - 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*

**14:00 - 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 highgrade 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 volumedependent 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-Pašic, Maja Gazdic-Šantic, Rahima Jašic, Amra Skopljak-Beganovic, Adnan Šehic, Sandra Vegar-Zubovic - *Radiation exposure of patients in neonatal intensive care unit*

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

**14:00 - 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 Welcome Cocktail, organized together with BLIMC organizers. LOCATION: SMUGGLER BAR, KRALJA PETRA I KARADORĐEVIĆA 103, Banja Luka 78000 (only for registered participants – students, members and nonmembers)**

## **FRIDAY, May 17<sup>th</sup> 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, HOTEL BOSNA, NATIONAL SALON**

Poster Chairs: **Ervin Sejdic**, 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 <sup>99m</sup>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  $\beta$ -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 Osmanovic, 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 Kazlagic, 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 Mušić, 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 Jašić, Ivan Lasic, Sandra Vegar-Zubovic - *Evaluation of computed tomography X-ray beam dose profiles*

**S4-6:** Edis Đedovic, Azra Gazibegovic-Busuladžić, Mustafa Busuladžić, 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, HOTEL BOSNA, PIANO BAR**

***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)***

**S5-1:** Nuno Pombo, Nuno Garcia - ***Towards Pain-Fingerprinting: a Ubiquitous and Interoperable Clinical Decision Support System for Pain Assessment***

**S5-2:** Rijad Saric, Dejan Jokic, Eddie Custovic - ***Identification of Alcohol Addicts among High School Students using Decision Tree based Algorithm***

**S5-3:** Joana Moreira, Mariana Moreira, Nuno Pombo, Bruno Silva, Nuno Garcia - ***Identification of real and imaginary movements in EEG using Machine Learning models***

**S5-4:** 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***

**S5-5:** Lemana Spahic, Emina Kurta, Sabahudin Cordic, Merjem Becirovic, Lejla Gurbeta, Almir Badnjevic - ***Machine Learning Techniques for Performance Prediction of Medical Devices: Infant Incubators***

**S5-6:** Dželila Mehanovic, Zerina Masetic, Dino Keco - ***Prediction of heart diseases using majority voting ensemble method***

**S5-7:** Lemana Spahic, Emir Šehovic, Alem Secerovic, Zerina Đozic, Lejla Smajlovic Skenderagic - ***Lactose Intolerance Prediction Using Artificial Neural Networks***

**S5-8:** 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, BUSINESS SALON**

**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 18<sup>th</sup> 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 VI, 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)

**S6-1:** Tugçe Mutaf, Gülizar Çalışkan, Cafer Meydan, Suphi Öncel, Murat Elibol - *Biogenic nanoparticle synthesis using marine alga Schizothyrium sp.*

**S6-2:** Gülizar Çalışkan, Tugçe Mutaf, Suphi Öncel, Murat Elibol - *Green synthesis of metal nanoparticles using microalga Galdieria sp.*

**S6-3:** Amar Ramovic, Zerina Zorlak, Denana Husic, Samir Ramic - *Zeolite microneedles: recent advancements and implications in the delivery of collagen*

**S6-4:** 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*

**S6-5:** Vesna Raspudic - *Analysis of Vertical Ground Reaction Force and Center of Pressure during Stair Climbing*

**S6-6:** 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 VII, 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)

**S7-1:** 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*

**S7-2:** Semir Sakanovic, Jasmin Kevric - HaBEEtat: *A Novel Monitoring Platform for more efficient honey production*

**S7-3:** Andrea Felici, Michele Sorelli, Leonardo Bocchi - *Design and implementation of a monitoring system for elastomeric infusion pumps*

**S7-4:** Emil Valchinov, Konstantinos Rotas, Athanasios Antoniou, Vasileios Syrimpeis, Nicolas Pallikarakis - *Wearable system for early diagnosis and follow up of spine curvature disorders*

**S7-5:** 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*

**S7-6:** Jasmina Barakovic Husic, Sabina Barakovic, Enida Cero Dinarevic - *Smart Ageing: Are we succeeding?*

**S7-7:** Karaböce Baki, Huseyin Okan Durmus, Emel Cetin - *Establishment of Measurement System for Hearing Aids at TÜBİTAK UME*

**S7-8:** Karaböce Baki, Huseyin Okan Durmus, Emel Cetin - *The Importance of Metrology in Medicine*

## **10:30-12:30 Plenary Session VIII, 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)

**S8-1:** Medina Hamidovic, Ferenc Ender, Andreas Springer - *A Novel Enzymatic Microreactor: Towards Transforming the Pharmaceutical Industry*

**S8-2:** 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*

**S8-3:** 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*

**S8-4:** 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*

**S8-5:** Smiljana Djorovic, Igor Saveljic, Nenad Filipovic - *Numerical Analysis of Plaque Progression in 3D Patient Specific Model of Carotid Artery*

**S8-6:** Arash Ghareh Baghi, Amir A. Sepehri, Ankica Babic - *Forth Heart Sound Detection Using Backward Time-Growing Neural Network*

**S8-7:** 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**

## **13:30-17:00 Plenary Session IX, BANSKI DVOR, CONCERT HALL**

### ***STUDENTS COMPETITION SESSION 1***

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

**S9-1:** Sabahudin Cordic, Lemana Spahic - *Prostate Tissue Classification Based on Prostate Specific Antigen levels and Mitochondrial DNA Copy Number Using Artificial Neural Network*

**S9-2:** Ghazaal Sheikhi, Hakan Altincay - *Using the Distance in Logistic Regression Models for Predictor Ranking in Diabetes Detection*

**S9-3:** Lejla Hadžić, Arnela Fazlic, Osman Hasanic, Nudžejma Kudic, Lemana Spahic - *Expert system for prediction of performance of patient related parameters of anesthesia machines*

**S9-4:** Lejla Šabic, Adnan Mujanovic - *Smoking and caffeine consumption as stress coping mechanisms in medical students*

**S9-5:** 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*

**S9-6:** 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#*

**S9-7:** 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*

**S9-8:** Merve Kevser Gokgol, Zeynep Orhan - *A Language Independent Decision Support System for Diagnosis and Treatment by Using Natural Language Processing Techniques*

**S9-9:** 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*

**S9-10:** 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*

**S9-11:** 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*

**S9-12:** 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*

**S9-13:** Jasmin Novalic, Berina Bektic - *Effect of Commercially available Synthetic Insulin on the Biofilm formation in S. aureus and E. coli bacterial strains*

**S9-14:** 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*

**S9-15:** 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 X, BANSKI DVOR, CITY HALL**

### **GENETIC AND PHARMACEUTICAL ENGINEERING 1**

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

**S10-1:** Fatima Mrkulic, Lejla Gurbeta, Enisa Omanovic-Miklicanin, Tamer Bego, Almir Badnjevic - *Correlation of Leukemia Genes Overexpression and Point Mutations in Different Tissues*

**S10-2:** Zurifa Ajanovic, Aida Sarac-Hadzihalilovic - *Craniometric analysis of the foramen magnum for gender determination in Bosnian human skulls*

**S10-3:** Emina Arukovic, Dina Fetahovic, Belma Pehlivanovic - *Impact of antibiotic misuse on genetics alterations of bacteria*

**S10-4:** Selena Kurtic, Zvezdan Stojanovic - *Diagnosis of skin disease based on fingerprint*

**S10-5:** Svetlana Golocorbin-Kon, Momir Mikov\*, Hani Al-Salami, Boris Miličević, Sasa Vukomirovic, Ranko Skrbic - *Gliclazide microvesicles – a pharmaceutical formulation with hypoglycemic effect in Tipe1 diabetes mellitus rats*

**S10-6:** Momir Mikov, Hani Al-Salami, Svetlana Golocorbin-Kon, Ranko Skrbic - *Probiotics and bile acid semisynthetic analogue as permeation modifiers si*

**13:30-15:30 Plenary Session XI, HOTEL BOSNA, PIANO BAR**

**GENETIC AND PHARMACEUTICAL ENGINEERING 2**

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

**S11-1:** Berina Tatlic, Lejla Šejto, Merima Sirbubalo, Amina Tucak, Edina Vranic - *Novel aspects of drug delivery: Wireless electronic devices*

**S11-2:** 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*

**S11-3:** Begler Begovic, Midhat Vehabovic, Amila Sahinpasic, Una Glamoclija - *Lysozyme-enzyme with valuable effects in prevention and treatment of postoperative complications in adult patients after bilateral tonsillectomy*

**S11-4:** Anesa Sušić, 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*

**S11-5:** Emir Šehović, Lemana Spahić, Ajla Kulagić, Lejla Smajlović Skenderagić, Aida Saračević – *Analysis of miRNA targets in correlation to neurodevelopment and diagnosis of ASD*

**S11-6:** Biljana Tubić, Bojan Marković, Tibor Sabo – *Discovery of membrane permeability, pharmacokinetics properties and mechanism of action for analogs of ethylenediamine-N,N'-di-2-(3-cyclohexyl)propionic acid*

**17:00-17:30 Closing and Award Ceremony, BANSKI DVOR, CONCERT HALL**

**17:30 – 21:00 IT&Engineering – Business Networking Forum, HOTEL BOSNA, RESTORAN PRESIDENT**

**Hosted by BH Future Foundation, Forum Chair: Prof. Edhem ‘Eddie’ Custovic**

**21:00 – 02:00 Goodbye party**

- **Night Club Rudi, Kralja A. I. Karađorđevića 103a, Banja Luka 78000**

**SUNDAY, May 19<sup>th</sup> 2019**

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