

Preface

International Conference on Medical and Biological Engineering in Bosnia and Herzegovina (CMBEBIH2017) is an exciting, informative and inspiring conference infusing rigorous scientific and engineering practices. CMBEBIH2017 is the largest Medical and Biological Engineering gathering in South East Europe. The goal of CMBEBIH 2017 is to serve as a platform for sharing ideas, experiences, best practices and latest advancements in biomedical engineering and all related fields while staying true to the conference motto: *“Pursuing innovation. Shaping the future.”*

The conference is a continuation of the extensive work conducted by the Bosnia and Herzegovina Medical and Biological Engineering Society to encourage and support development of Medical and Biological Engineering in Bosnia and Herzegovina and Balkan region. The predecessor conference yielded great results with 7 eminent keynote speakers from all around the world, 120 oral presentations, 50 poster presentations and 3 international workshops.

Medical and Biological Engineering covers all disciplines of the Biomedical and Clinical Engineering spectrum. Research and development in these areas are impacting the science and technology by advancing fundamental concepts in medicine. They are helping us better understand human physiology and function at multiple levels by improving tools and techniques for the detection, prevention and treatment of diseases. The 2017 program consists of 120 accepted papers on new developments encompassing the conference theme.

More specifically the parallel scientific sessions cover the topics of biomedical signal processing, biomedical imaging and image processing, biosensors and bioinstrumentation, bio-micro/nano technologies, biomaterials, biomechanics, robotics and minimally invasive surgery, cardiovascular, respiratory and endocrine systems engineering, neural and rehabilitation engineering, molecular, cellular and tissue engineering, bioinformatics and computational biology, clinical engineering and health technology assessment, health informatics, e-health and telemedicine, biomedical engineering education, pharmaceutical engineering, genetic engineering.

International workshops include topics of new perspectives in health technologies regarding diagnostics and therapy, management systems in the health sector and discussions on how to build a thriving Medical and Biological Engineering Industry in Bosnia and Herzegovina and other South East European Countries.

Furthermore, the Conference program is highlighted by the seven keynote lecturer sessions. All sessions discuss different areas of Medical and Biological (biomedical) engineering and are moderated by prominent experts and professionals in the area.

The session held by Dr. Ernesto Iadanza (Italy), Chair of IFMBE Clinical Engineering Division discuss the Clinical Engineering. The title of his lecture is *“Biomedical and Clinical Engineers: the key to success is a wide knowledge”*.

Keynote lecture in the area of processing of biomedical signals is held by Dr. Ervin Sejdic (USA) and focus on discussing the usage of big data to understand functional changes in swallowing, gait and handwriting.

This keynote lecture entitled “Neuro-prosthetic technologies to restore movement and communication of people with paralysis” is held by Dr. Tomislav Milekovic (Croatia). Dr. Milekovic is one of the rising stars of Neuro-prosthetics, a field at the intersection between Engineering, Mathematics and Neuroscience.

More on neural networks, complex algorithms and new advancements is a focus of prof. Dr. Christopher James (UK) keynote lecture.

Prof. Dr. Nesrin Hasirci (Turkey) will give lecture entitled “Multifunctional Biomaterials and Tissue Engineering Applications”, while prof. Dr. Vesna Maras (Montenegro) will focus and discuss advancements in Genetic Engineering.

Nanotechnology, one of the Conference themes will be discussed by prof. Dr. Sefik Suzer (Turkey), leading scientists in surface science and spectroscopy.

We express our gratitude to the Bosnia and Herzegovina leading academic institutions for supporting this project. Particular thanks are expressed to the kind support and effort of international organizations such as IFMBE, IEEE and ESEM for endorsing this project, as well as our publisher Springer Nature. Furthermore, there is a limited number of external sponsors for which we are sincerely thankful.

Finally, a heartfelt thanks to all of you, the participants, for your outstanding contributions. We wish you all the best with your ongoing research in advancing medical and biological engineering for humanity. We hope that CMBEBIH 2017 creates opportunities for professional growth and networking with fellow scientist, engineers and other enthusiasts. It is our vision that this conference creates a lasting memory of Sarajevo and that the networking enables successful and ongoing collaborations amongst fellow professionals.

We hope that you will appreciate the CMBEBIH 2017 Proceedings as much as we have and that you take pride in this outstanding project.

Sincerely,

Almir Badnjevic, Phd.

CMBEBIH 2017 Conference Chair

Sarajevo, 16–18 March, 2017

CMBEBIH 2017

Proceedings of the International Conference on Medical
and Biological Engineering 2017

Badnjević, A. (Ed.)

2017, XIX, 806 p. 489 illus., Softcover

ISBN: 978-981-10-4165-5