Overview of the round table "Medicine and engineering: An inexhaustible source of challenges for cooperation between medical doctors and engineers"

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Abstract

The Academy of Medical Sciences of the Serbian Medical Society (AMS-SMS) and the Academy of Engineering Sciences of Serbia (AESS) have jointly organized the first scientific and expert round table entitled Medicine and Engineering: An Inexhaustible Source of Challenges for the Cooperation of Doctors and Engineers. Biomedical engineering (BME) is a young scientific discipline, in which medical doctors and engineers have united their knowledge with the aim to solve new substantial challenges in the modern society including but not limited to the areas of preventive, regenerative and reconstructive medicine. Here, a short overview of this round table is presented, which was organized for the first time in Serbia.

Keywords: biomedical engineering; scientific and expert meeting; Academy of Medical Sciences of the Serbian Medical Society; Academy of Engineering Sciences of Serbia.

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BOOK AND EVENT REVIEW

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INTRODUCTION

The Academy of Medical Sciences of the Serbian Medical Society (AMS-SMS) and the Academy of Engineering Sciences of Serbia (AESS) have signed a Protocol on cooperation on February 26, 2020, with the aim to contribute to the exchange of knowledge and experience of medical doctors and engineers and to provoke new multidisciplinary research studies. Considerable advancements in medicine have been achieved in the last 2 decades of the 21st century by collaborative efforts of medical and engineering experts in various multidisciplinary research teams worldwide. With the aim to solve more efficiently many old, but also new challenges in preventive, reconstructive, and regenerative medicine as well as in broader fields, medical doctors and engineers have joined their work in the frame of a new scientific discipline – biomedical engineering (BME). Such multidisciplinary teams have achieved significant advancements in almost all fields of BME: bioinformatics, biomechanics, biomaterials science, tissue engineering, pharmaceutical engineering, medical equipment, and devices as well as in clinical and rehabilitation engineering [1].

The first scientific meeting organized jointly by AMS-SMS and AESS entitled *Medicine and Engineering: An Inexhaustible Source of Challenges for the Cooperation of Doctors and Engineers* was held in the Ceremonial Hall of the Serbian Medical Society on June 24, 2021, while respecting all preventive measures against the COVID-19 pandemic. After the welcoming words of the Presidents of the academies, Ljibica Đukanović (AMS-SMS) and Branko Kovačević (AESS), the members of AESS and AMS-SMS presented their most significant results achieved in the field of BME:

- Nenad Ignjatović, A bridge over great challenges in medicine: connecting doctors and engineers (AESS);
- Miroljub Adžić, Lesser known connections between mechanical engineering and medicine (AESS);
- Vladimir Nešić, Application of automation in medicine (Institute Mihajlo Pupin);
- Dragan Dankuc, Artificial inner ear (AMS-SMS);
- Bojana Obradović, Biomimic bioreactor systems for tissue and tumor engineering (AESS);
- Dragoslav Stamenković, Biomedical engineering in dentistry (AMS-SMS).

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Figure 1. Opening of the meeting: Ljubica Đukanović (President of AMS-SMS) and Branko Kovačević (President of AESS)
Slika 1. Otvaranje skupa: Ljubica Đukanović (predsednica AMN-SLD) i Branko Kovačević (predsednik AINS).

After the presentations, discussion followed with the exchange of opinions between medical doctors and engineers in solving current challenges in different fields of medicine and engineering. The presented talks portraying successful collaboration of medical doctors and engineers were appraised with the accent on the multilayerdness and complexity of the shown research studies. One of the conclusions of the meeting is that the creation of collaborative research teams and multidisciplinarity comprising different BME fields form a certain way to excellence and progress. It is expected that the meeting will lead to new collaborative projects of engineers and medical doctors in Serbia, which will also contribute to promotion of both Academia. It was also concluded that educational degrees in BME, which have been introduced at different universities in Serbia over recent years, should be included in the job catalogue in the public sector.

REFERENCES

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Osvrt na okrugli sto "Medicina i inženjerstvo: neiscrpni izvor izazova za saradnju lekara i inženjera"

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Izvod

U organizaciji Akademije medicinskih nauka Srpskog lekarskog Društva (AMN-SLD) i Akademije inženjerskih nauka Srbije (AINS) organizovan je po prvi put naučno-stručni okrugli sto pod nazivom Medicina i inženjerstvo: neiscrpni izvor izazova za saradnju lekara i inženjera. Biomedicinsko inženjerstvo (BI) je mlada naučna disciplina u kojoj su inženjeri i lekari objedinili svoja znanja i iskustva, a u cilju rešavanja novih velikih izazova koje savremeno društvo nameće u oblasti preventivne, regenerativne i rekonstruktivne medicine i šire. U kratkom izvestaju je prikazan Okrugli sto na ovu temu koji je po prvi put organizovan u Srbiji.

Keywords: biomedicinsko inženjerstvo; naučno-stručni skup; Akademija medicinskih nauka Srpskog lekarskog Društva; Akademija inženjerskih nauka Srbije.

PRIKAZ KNJIGA I DOGAĐAJA

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UVOD

Akademija medicinskih nauka Srpskog lekarskog društva (AMN-SLD) i Akademija inženjerskih nauka Srbije (AINS) su 26. februara 2020. godine potpisale protokol o saradnji sa ciljem da se doprinese razmeni iskustava i znanja inženjera i lekara i podstaknu nova multidisciplinarna istraživanja. U poslednje dve dekade 21. veka veliki napredak u medicini ostvaren je zajedničkom saradnjom lekara i inženjera u različitim multidisciplinarnim istraživačkim timovima širom sveta. U cilju efikasnijeg, bržeg i uspešnijeg rešavanja mnogih starih ali i novih izazova u preventivnoj, rekonstruktivnoj i regenerativnoj medicini ali i šire, inženjeri i lekari su se povezali pod okriljem nove naučne discipline – biomedicinsko inženjerstvo (BI). Multidisciplinarni istraživački timovi sačinjeni od inženjera i lekara ostvarili su značajne napretke u gotovo svim oblastima BI: bioinformatici, biomehanici, biomaterijalima, inženjerstvu tkiva, farmaceutskom inženjerstvu, medicinskoj opremi i uređajima, kao i u kliničkom i rehabilitacionom inženjerstvu [1].

Prvi naučni sastanak u zajedničkoj organizaciji AMN-SLD i AINS održan je 24. juna 2021. godine, u svečanoj sali Srpskog lekarskog društva u Beogradu sa temom Medicina i inženjerstvo: neiscrpni izvor izazova za saradnju lekara i inženjera, a uz poštovanje svih mera protiv pandemije COVID-19. Nakon pozdravnih reči predsednika akademija, Ljibice Đukanović (AMN-SLD) i Branka Kovačevića (AINS) članovi AINS i AMN-SLD su predstavili svoje najznačajnije rezultate ostvarene u oblasti BI:

- Nenad Ignjatović, Most iznad velikih izazova u medicini: povezivanje lekara i inženjera (AINS);
- Miroljub Adžić, Manje poznate veze mašinstva i medicine (AINS);
- Vladimir Nešić, Primena automatike u medicini (Institut Mihajlo Pupin);
- Dragan Dankuc, Veštačko unutrašnje uvo (AMN-SLD);
- Bojana Obradović, Biomimični bioreaktorski sistemi za inženjerstvo tkiva i tumora (AINS);
- Dragoslav Stamenković, Biomedicinsko inženjerstvo u stomatologiji (AMN-SLD).

Nakon održanih predavanja usledila je diskusija, međusobna razmena mišljenja lekara i inženjera u rešavanju aktuelnih izazova u različitim oblastima medicine i inženjerstva. Diskutovano je o održanim predavanjima u kojima je prikazana uspešna saradnja inženjera i lekara, kao i o slojevitosti i kompleksnosti prikazanih istraživanja. Formiranje zajedničkih istraživačkih timova i multidisciplinarnost u različitim oblastima BI siguran je put ka izvrsnosti i napretku, jedan je od zaključaka ovog skupa. Očekivano je da bi održani sastanak vodio ka novim saradnjama inženjera i lekara u našoj zemlji, što bi takođe doprinelo promocijama obe akademije. Obrazovni profil Biomedicinsko inženjerstvo koji je

poslednjih godina uveden na različitim univerzitetima u Srbiji potrebno je uneti u katalog radnih mesta u javnim službama, takođe je jedan od zaključaka sa ovoga skupa.

Slika 2. Auditorijum okruglog stola u svečanoj sali Srpskog lekarskog društva
Figure 2. Audience at the round table in the Ceremonial Hall of the Serbian Medical Society

LITERATURA

[1] Ignjatović N, Mitković M, Obradović B, Stamenković D, Dankuc D, Manić M, Grbović A, Kovačević B, Đukanović Lj. Interdisciplinary crossover for rapid advancements-collaboration between medical and engineering scientists with the focus on Serbia. *Srp Arh Celok Lek.* 2021; 149: 229-235 https://doi.org/10.2298/SARH210110021D