# TELSIKS Conference: Fifteenth Time in Niš

The 15th edition of *International Conference on Advanced Technologies, Systems and Services in Telecommunications* - TELSIKS 2021 was held from 20 to 22 October, 2021. Since the whole world was hit by Covid-19 pandemic, this year the Conference was organized in a hybrid form: a part of the conference was organized virtually (on-line presentations in real time), while the other part was held at the Faculty of Electronic Engineering, University of Niš, Serbia. The conference was organized by the Faculty of Electronic Engineering, Niš and the Society for Microwave Technique, Technologies and Systems, under auspices of Serbian Ministry of Education, Science and Technological Development, in cooperation with the Academy of Engineering Sciences of Serbia, IEEE Serbia and Montenegro Section, Serbia and Montenegro IEEE MTT-S Chapter, National Society for Telecommunications, and Society for ETRAN.



The TELSIKS Conference goes back to 1993, when it was organized for the first time. For the past 28 years, the Conference aim has always been to provide a professional and scientific forum for researchers and professionals from universities, research centers, and industry. During the conference, they have had an ample opportunity to present research results and recent developments as well as current practices in engineering, to meet colleagues, collect new ideas and establish new collaborations.

We would like to acknowledge the Antennas and Propagation Society (AP-S), Microwave Theory and Technique Society (MTT-S), and IEEE Region 8 for their technical sponsoring the TELSIKS 2021. A high professional level in organizing this year's Conference is peculiarly the result of years of experience and joint, tireless efforts of many people: members of the Technical Program Committee (TPC), Organizing Committee, Executive Committee, sponsors and to all the people who have contributed to making this event possible. We are deeply grateful to the members of the International Review Board, who devoted their time to evaluate submitted papers helping the Conference TPC to make a high-level scientific program. Thanks are also extended to the Chairs of the sessions and authors of all papers for their contribution to the quality of the Conference.

The Conference encompasses a wide spectrum of topics in the field of information and telecommunication technologies, systems and services. Broad areas are covered, ranging from modulation and coding to digital signal processing and multimedia, from microwave technique and electromagnetics to microwave electronics, from telecommunication technologies and systems to telecommunication networks and services, from antennas, propagation and radiolocation to wireless communications, from computer systems and internet technologies to electronics, communications, information technologies and big data and IoT.

According to the decision of the International Reviewer Board, among all submitted scientific or application-oriented contributed papers, 86 papers were accepted for presentation. Among all contributions, there are three plenary lectures, one tutorial, one keynote lecture, and 11 invited lectures prepared by experts from various fields of telecommunications who have been invited to participate in the Conference. All these papers were submitted to the IEEE Xplore@ Digital Library.

To provide Conference participants the first hand information on the state-of-the-art in focused fields, each of the oral sessions started with invited lectures presented by today's scientific leaders (*Prof. Valeria Vadala, University of Rome, Italy; Yuehang Xu, University of Electronic Science and Technology of China,* Chengdu, *China; Ana Vuković, University of Nottingham, United Kingdom; Venceslav Kafedžiski, University Ss. Cyril and Methodius, Skopje, North Macedonia; Johannes A. Russer, Technical University of Munich, Germany; Zoran Bojković, Universty of Belgrade, Serbia; Mirko Simić, Vlatacom Institute, Belgrade, Serbia; Dejan Drajić, University of Belgrade, Serbia;* and *Vera Marković, University of Niš, Serbia*).
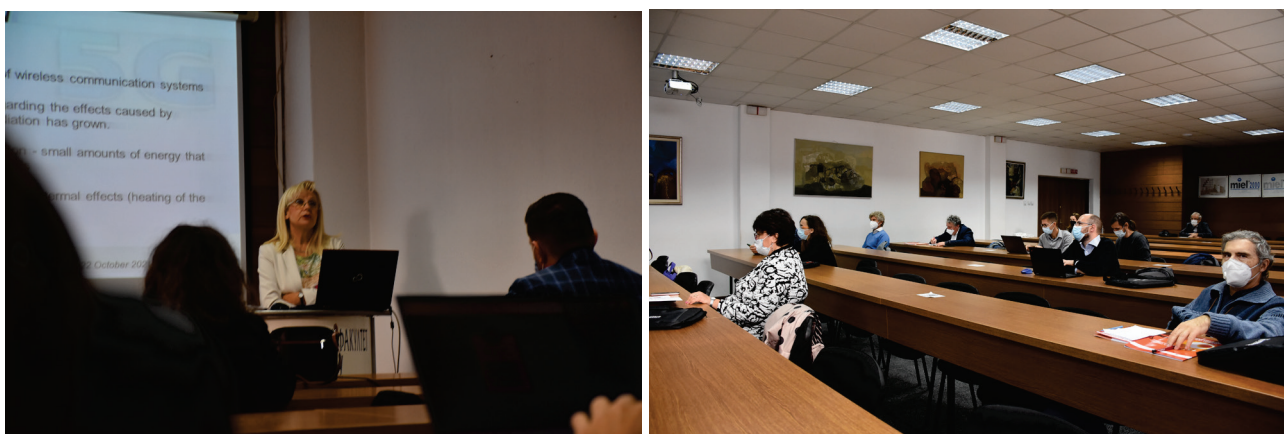
This year, the scientific program of the Conference has been enriched with one tutorial *Machine-Learning Techniques to Enhance High-Frequency Electroporation Treatments* held by Prof. Dr. Luciano Tarricone, University of Salento, Lecce, Italy.



*Tutorial: On the left picture - Prof. N. Doncov (Serbia), Prof. Dr. Luciano Tarricone (Italy).*

Five Special Sessions were held:

1. *IoT Applications, State-of-the-Art and Beyond* chaired by Prof. Dejan Drajić form University of Belgrade, Serbia,
2. *Bioelectronic Applications of RF and Microwaves* organized by Prof. Giovanni Crupi (University of Messina, Italy) and Prof. Vincenzo Stornelli (University of L'Aquila, Italy),
3. *Advanced Sensor Technologies in Biomedical Applications and Healthcare* chaired by Prof. Zlatica Marinković (University of Niš, Serbia) and Prof. Nicola Donato (University of Messina, Italy),
4. *Stochastic Electromagnetic Fields* organized by Prof. Johannes Russer (Technical University of Munich, Germany) and Prof. Yury Kuznetsov (Moscow Aviation Institute, Russian Federation),
5. Special CEEPUS session *Modeling, Simulation, Computer-Aided Design and Management for Advanced Communication Systems* chaired by Prof. Vera Marković (University of Niš, Serbia) and Prof. Galia Marinova (Technical University of Sofia, Bulgaria).



*Special CEEPUS Session*

The IEEE Region 8 Student Paper Contest (SPC) is a traditional competition of research papers of the IEEE student members or graduate student members who have not yet started their PhD. It was established 54 years ago and since then it is held every year, being an excellent occasion for involvement of IEEE student members in an important IEEE scientific/technical activity. The contest includes two parts. First, from all submitted student papers, the international jury selects five best papers anonymously. In the second part, an oral finals is organized during one of two IEEE Region 8 flagship conferences, EUROCON or MELECON. Exceptionally, this year the oral finals was postponed because of the Covid-19 pandemic and is held in a hybrid way within the scope of the IEEE R8 – technically co-sponsored conference TELSIKS 2021.

*IEEE Region 8 Student Paper Contenst*

This special student session has included 5 papers presented by finalists from Belgium, Morocco, Serbia, Slovenia and the United Arab Emirates. They were assessed by the SPC international jury whose members this year were Prof. Paul Micallef from Malta, Prof. Mike Hinchey from Ireland, Prof. Giambattista Gruosso from Italy and Prof. Vera Marković from Serbia.

The first, second and third place are awarded with 800 $, 500 $ and 200 $, respectively. In addition, the student branch of the student who wins first prize gets an award of 250 $.
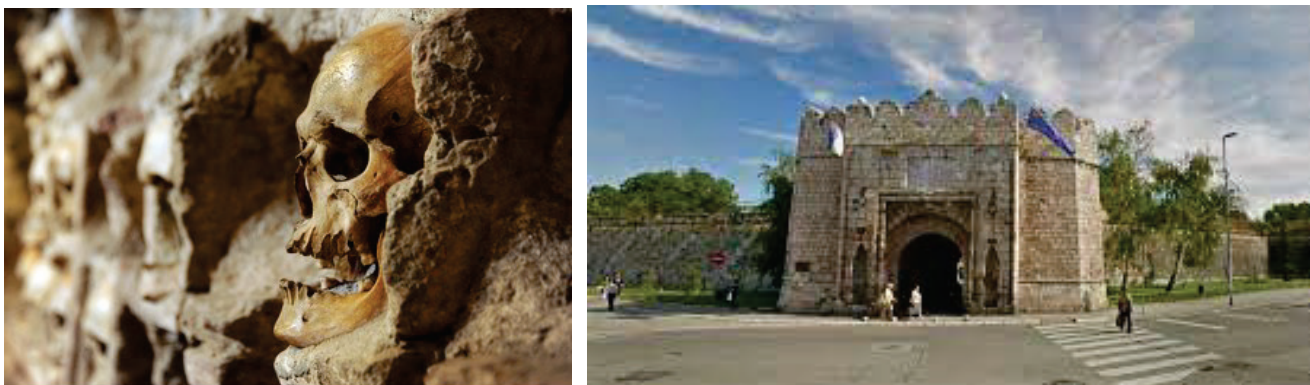


*IEEE Region 8 Student Paper Contenst – Award Ceremony*

Following presentations of scientific papers, several significant and stimulating activities were arranged, which were related to the scientific and professional trends in the world:
1. Plenary talk "Cloud, Fog and Mist Computing for Real-Time Applications Resource Allocation and Scheduling Issues" given by Prof. Helen Karatza from the Aristotle University of Thessaloniki, Greece,
2. Plenary talk "Ambient intelligence: Convergence of Artificial Intelligence, Machine Learning, Biometrics, Cloud/Fog/Edge Computing and Internet-of-Things for Smart Environments" given by Prof. Vincenzo Piuri, Università degli Studi di Milano, Italy,
3. Plenary talk "Full-Duplex Communications: Antenna Story" given by Prof. Dejan S. Filipović, University of Colorado Boulder, USA,
4. Keynote lecture "Space Based Networks for Emerging 5G/IoT Telecom Infrastructure" given by Ramesh K Gupta, Ligado Networks, Reston, VA, USA,
5. Invited lecture „Sensors and Machine Learning for Organ-on-Chips" given by Eugenio Martinelli, Associate Professor, University of Rome Tor Vergata, Rome, Italy.

A group of participants who attended conference in-person could learn about stormy history of Niš and enjoy its rich culture and heritage. The venues for official social events were selected to allow attendees to experience both tradition and modernity.

The Sightseeing Tour was organized on Thursday, 21 October, giving the conference participants the opportunity to feel the spirit of modern and traditional Niš. Within the sightseeing tour they visited *Niš Fortress*, extant fortification of Turkish origin, dating back to the first decades of the 18ᵗʰ century, *Archeological Hall of National Museum of Niš*, and *Monument Scull Tower* (unique monument in the world is 5 meters tall and it has inbuilt 952 human heads, raised by the Turks in 1813, after the defeat of the Serbian rebels led by Stevan Sinđelić on Čegar, on 31 May, 1809).



*A sightseeing tour: Skull Tower and Niš Fortress*

We truly hope that we will gather in person all together at the 16th Conference – TELSIKS 2023. For those who will visit Niš, we are going to make a great effort to make them remember the Conference as the successful one and to experience the city in all its   greatness especially because of the people full of warmth, hospitality, and enthusiasm.

Sincerely,

On behalf of the Organizing Committee,
*Dr. Biljana Stošić, Prof. Dr. Zoran Stanković*
University of Niš
Faculty of Electronic Engineering
Niš, Serbia

On behalf of the Technical Program Committee,
*Prof. Dr. Nebojša Dončov*
University of Niš, Faculty of Electronic Engineering
Niš, Serbia

Conference General Chair,
*Prof. Dr. Bratislav Milovanović*