Report on the 17th International Conference on Advanced Technologies, Systems and Services in Telecommunications – TELSIKS 2025

The *17th TELSIKS Conference - International Conference on Advanced Technologies, Systems and Services in Telecommunications* was held from October 22 to 24, 2025, at the Faculty of Electronic Engineering, University of Niš (the "Faculty" further in the text). The Faculty hosted the conference in a collegial and professional atmosphere. Modern facilities and careful organization ensured a smooth program flow, while social events encouraged networking and collaboration in an informal setting.

As one of the leading regional scientific events in telecommunications, TELSIKS 2025 gathered researchers, engineers, and industry representatives from across Europe and beyond to exchange new results and ideas in communications, microwave and antenna technologies, signal processing, and emerging digital systems.

Organized by the Faculty and national Society for Microwave Technique, Technologies and Systems, Serbia, technically co-sponsored by the IEEE Microwave Theory and Technology Society (MTT-S), IEEE Antennas and Propagation Society (AP-S), Region 8, Serbia and Montenegro (S&M) IEEE Section, and Serbia and Montenegro IEEE MTT-S Chapter, under the auspices of the Ministry of Science, Technological Development and Innovation of the Republic of Serbia, and in cooperation with Academy of Engineering Sciences of Serbia, Serbia and Montenegro IEEE WIE Affinity Group, Society for Telecommunications, and ETRAN Society, the Conference continued its more than 30-year tradition of promoting international collaboration and scientific excellence.

The 17th TELSIKS Conference officially starts with the Opening Ceremony on Wednesday, October 22, 2025. After a welcome speech of Prof. Nebojša Dončov, the conference TPC (Technical Program Committee) chair from University of Niš, Serbia and chair of the Society for Microwave Technique, Technologies and Systems, Serbia, the conference participants and guests were addressed by Prof. Zlatica Marinković, the vice-chair of Serbia and Montenegro IEEE Section. The address speech was also given by Prof. Vladimir Ćirić, the dean of the Faculty of Electronic Engineering, University of Niš, Serbia, and Prof. Dragan Djordjević, the vice-rector of the University of Niš, Serbia.

Opening ceremony: Prof. Dejan Filipović, Prof. Nebojša Dončov, Prof. Zlatica Marinković (left photo) and Prof. Dragan Djordjević (right photo).

After the Conference opening, a plenary talk titled "*Additive Manufacturing for Microwaves*" was given by Prof. Dejan Filipović from the University of Colorado Boulder, USA.

Plenary talk: Prof. Dejan Filipović.

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The Opening Ceremony featured welcoming remarks by representatives of the University of Niš and the conference committees, was followed by an *In Memoriam* tribute to Prof. Bratislav Milovanović (1948–2025), the long-time chair and one of the founders of the TELSIKS conference series, who passed away in August 2025.

The TELSIKS community deeply mourns the loss of Prof. Milovanović, a distinguished scholar, mentor, and one of the leading figures of microwave engineering in Serbia. Throughout his four-decade career at the Faculty of Electronic Engineering, University of Niš, he made outstanding contributions to microwave technique, antennas, propagation, and wireless communications.

Prof. Milovanović played a pivotal role in the development and international recognition of TELSIKS, serving for many years as an organizer, advisor, and guiding influence. His dedication, expertise, and longstanding commitment helped shape the conference into a respected forum for scientific exchange.

With his passing in 2025, the TELSIKS community has lost not only a leading scientist but also a cherished colleague and friend. His legacy will continue to guide and inspire future generations of researchers who gather at TELSIKS to explore, innovate, and uphold the values he championed.

The organizers and participants of TELSIKS honor his memory with deep respect and gratitude.

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Every effort has been made to create a program that will encourage dialogue within an academic community from all over the world. Among all contributions, there are one plenary talk and 5 invited keynote lectures prepared by experts from various fields of telecommunications who have been invited to participate in the Conference. The technical program featured several high-profile invited presentations: Prof. Alessandra Costanzo from University of Bologna, Italy with invited talk "*Toward Self-Sustaining Sensing Systems: Advances in Passive and Self-Oscillating Microwave Architectures*", Prof. Levent Sevgi

(Istanbul Technical University, Turkey) with invited paper "*From Engineering Electromagnetics to Electromagnetic Engineering*", Dr Sara Goze with invited paper "*Structuring Ethical and Scalable Data Systems: Operational Models from Telecom, Healthcare, and Supply Chain*", Prof. Dragan Olćan from University of Belgrade with invited paper "*Comparison of Different Datasets for Antenna Modelling Using Machine Learning*" and Prof. Ana Vuković from University of Nottingham, UK with invited paper "*Beyond Empirical Limits: Accurate Electromagnetic Modelling of Drug-Delivery Sensors*". These lectures addressed state-of-the-art developments ranging from computational electromagnetics to data-driven design in digital systems.

Left photo: Dr. Sara Goze (*invited speaker*), Prof. Biljana Stošić, Prof. Levent Sevgi (*invited speaker*).
Right photo: Prof. Alessandra Constanzo (*invited speaker*).

From left: Prof. Nataša Maleš Ilić, Prof. Nebojša Dončov, Prof. Ana Vuković (*invited speaker*), Prof. Dejan Filipović (*invited speaker*), Prof. Olivera Pronić Rančić, Prof. Tijana Dimitrijević, Prof. Zoran Stanković.

This year's scientific contributions came from 18 countries as follows: Austria, Belgium, Bulgaria, France, Germany, Hungary, Indonesia, Italy, Jordan, North Macedonia, Poland, Portugal, Russia, Serbia, Turkey, Ukraine, United Kingdom, and USA.

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Within this conference edition, one special session titled ***The Connected Future with IoT: Technologies, Applications, and Transformations*** (Thursday, October 23, 2025) was organized by Prof. Ivan Vajs and Prof. Dejan Drajić from School of Electrical Engineering/Innovation center, University of Belgrade, Serbia. This session examined IoT connectivity, AI-based data processing, and satellite-aided communications. It explored how cutting-edge research and cross-domain expertise shape the future of IoT, bridging technological advancements with real-world applications, and showing the full potential of multidisciplinary research in IoT.

Special session The Connected Future with IoT: Technologies, Applications, and Transformations:
Prof. Dejan Drajić (left photo) and Prof. Ivan Vajs (right photo).

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Time	Title	Presenter
16 00	Registration of participants	
16 30	Introduction to Custom-FlexMADE project	Jugoslav JOKOVIĆ, Faculty of Electronic Engineering, University of Niš, Serbia
16 40	Wearable Antenna Solutions	Zlatoljub MILOSAVLJEVIĆ, Huawei technologies, Helsinki, Finland
17 00	Flexible Circularly Polarized mmW arrays	Dejan FILIPOVIĆ, Electrical, Computer & Energy Engineering, University of Colorado, USA
17 20	Numerical Electromagnetics and High-Performance Computing	Dragan OLĆAN, School of Electrical Engineering, University of Belgrade, Serbia
17 40	Coffee break	
18 00	Modelling Arbitrary Deformations of Wearable Antennas	Ana VUKOVIĆ, George Green Institute for Electromagnetics Research, Faculty of Engineering, University of Nottingham, UK
18 20	Development of an Anatomically Realistic Volume Conductor Model of the Human Upper Arm for Optimizing Electrocutaneous Warning	Jannik SANDER, Institute of Biomedical Engineering and Informatics, Technische Universität Ilmenau, Germany
18 40	Cylindrical world of the TLM	Tijana DIMITRIJEVIĆ, Faculty of Electronic Engineering, University of Niš, Serbia
19 00	Discussion	

Workshop ***Antenna Modelling and Design for Wearable Applications - State of the Art and Challenges*** was organized by Prof. Jugoslav Joković within the project: *Customized Model for Flexible Antenna Design – CustomFlex-MADE*, Serbian Scientific Cooperation Program with the Diaspora.

The workshop bring together researchers, engineers, and practitioners from academia and industry to exchange ideas, share experiences, and explore innovative solutions for advancing flexible and wearable antenna technologies. It provided a focused forum to discuss the latest developments, challenges, and future directions in the field of wearable antenna design, with a special emphasis on strategies in computational modelling and antenna configurations.

Presentations at this workshop came from both academia and industry, from Finland, USA, UK, Germany and Serbia.

Workshop speakers:
Prof. Dragan Olćan (left photo),
Jannik Sander (right photo).

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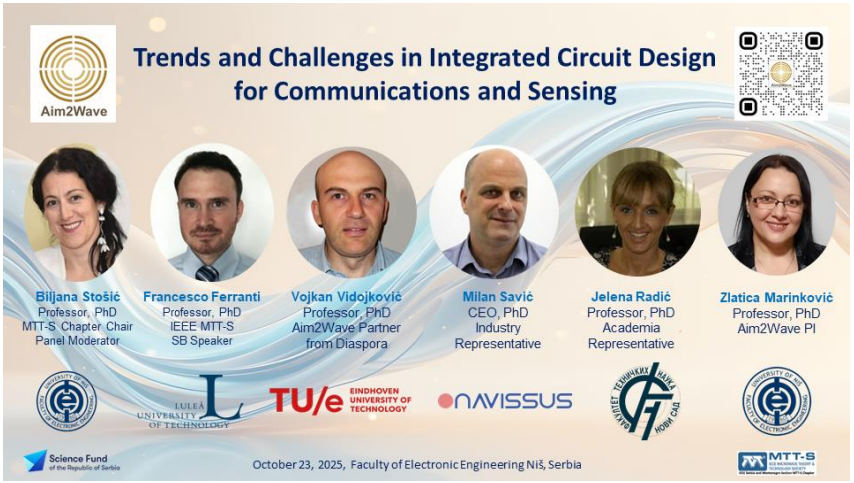
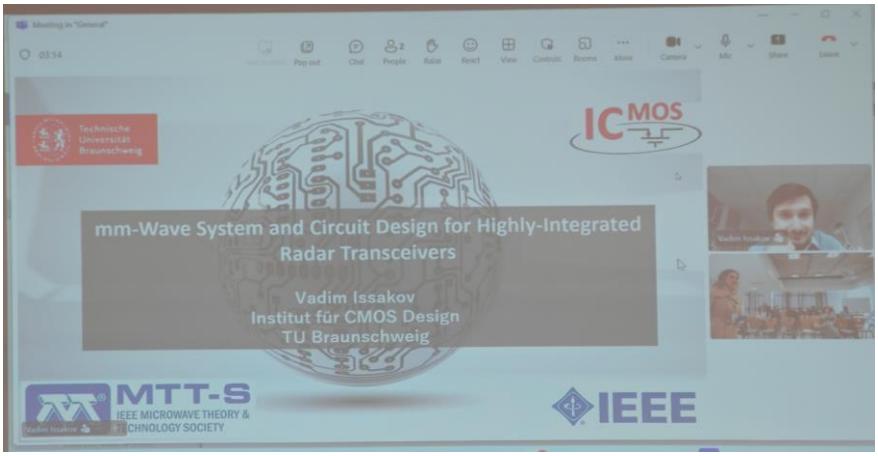
Panel ***Trends and Challenges in Integrated Circuit Design for Communications and Sensing*** was organized by Science Fund of the Republic of Serbia - Aim2Wave Project and S&M IEEE MTT-S Chapter. The panel took place on Thursday, October 23, 2025.



The IEEE MTT-S each year carefully selects a group of Distinguished Microwave Lecturers (DMLs). Therefore, DML program offers a list of speakers who are internationally recognized experts and technical leaders in their fields within the Society. The DMLs are available to present talks to local chapters world-wide and serve as ambassadors for the Society. In addition to DML program, MTT-S offers the Speakers Bureau (SB) program as another technical service to its members.

For this occasion, S&M IEEE MTT-S Chapter supported the panel by inviting two MTT-S speakers to give the introductory lectures: Prof. Vadim Issakov from Braunschweig University of Technology, Germany, as a DML speaker to deliver an on-line lecture on "*mmWave System and Circuit Design for Highly-Integrated Radar Transceivers*", and as a SB speaker Prof. Francesco Ferranti from Luleå University of Technology, Sweden to deliver an in-person lecture titled "*Advanced Modeling Techniques for Microwave and Photonic Design and Fault Identification*". The introductory lectures made a perfect basis for the discussion moderated by Prof. Biljana Stošić, S&M IEEE MTT-S Chapter Chair and Aim2Wave team member. With combined strong industry and university experience, Prof. Vojkan Vidojković, Eindhoven University of Technology, the Aim2Wave Project Partner from Diaspora, highlighted general trends and challenging in IC design. Dr. Milan Savić, Navissus CEO, and Prof. Jelena Radić, University of Novi Sad discussed the IC design challenging in Serbian IC industry and academia. Prof. Ferranti spoke about the application of the innovative techniques in IC design, while Prof. Zlatica Marinković, the Aim2Wave project principal investigator presented the planned activities of the project. Discussion was engaging and opened many new questions to be discussed further and gained a lot of attention of the audience.



DML speaker: Prof. Vadim Isakov.

SB speaker: Prof. Francesco Ferranti.

Panel moderator and panelists during discussion.

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Panel session ***Waves of Change: Women Shaping the Digital Future*** organized by S&M IEEE MTT-S Chapter; S&M IEEE WiE Affinity Group and MTT-S Women in Microwaves (WiM) was moderated by Prof. Biljana Stošić, S&M IEEE MTT-S Chapter chair. It took place on Wednesday, October 22, 2025 in the evening followed by networking event designed to bring people together and to create space for attendees, speakers, and organizers to meet, talk, and build connections in a more informal setting.

The panel covered three themes: personal career journeys and the mentors who shaped them; women's innovations and entrepreneurship across fields like 5G, AI, and biotech; and forward-looking insights on emerging opportunities and guidance for the next generation in STEM and entrepreneurship.

Panelists: Prof. Alessandra Costanzo, Dr. Sara Goze, Prof. Zlatica Marinković, Prof. Jelena Radić.
Moderator: Prof. Biljana Stošić.

Panelists and audience.

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This year, seven oral and one poster session featured over 60 papers on: antennas and computational electromagnetics, artificial intelligence and machine learning for ICT systems, RF & microwaves, signal processing and remote sensing, telecommunication networks and information systems, and information and communications technologies. The sessions provided an excellent platform for young researchers to present their work and for cross-disciplinary discussion among participants.

Oral session: Telecommunication Networks and Information Systems I.
Chairs: Prof. Tijana Dimitrijević and Prof. Dragan Stojanović.

Poster session: Information and Communication Technologies.

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In addition to its strong scientific focus, the friendly TELSIKS team always strives to ensure that participants enjoy their stay and have the opportunity to become acquainted with the faculty, the city, and the surrounding region, as well as the folklore, music, and customs of Niš.

That's why this year, the official opening of the Conference was followed by performing Serbian ethno song "*Why Do My Thoughts Struggle So*", conducted by the Choir of the Faculty of Arts (conductor prof. mr Ivana Mirović, Faculty of Arts of the University of Niš). Sightseeing tour was organized after the working part of the second Conference day, on Thursday, October 23, 2025. The tour introduced the participants to the historical heritage of Niš, the birth place of the Roman emperor Constantine the Great. Within the sightseeing tour the participants visited Archaeological Site Mediana (an important archaelogical site from the late Roman period – a luxurious residence with a highly organized economy), 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 May 31, 1809). The participants, guided by part of the organizing team, continued to the Malča winery, where they had the opportunity to enjoy cheeses and wines from that part of Serbia. The day's leisure activities were crowned with Conference Dinner in ethno restaurant "Nišlijska mehana - old part" during which international participants had the opportunity to taste Serbian specialties.

Sightseeing tour: Archaeological Site Mediana.


Sightseeing tour: Monument Skull Tower.


Sightseeing tour: Malča Vinery – wine and cheese tasting.

Conference dinner at ethno restaurant "Nišlijska mehana – old part".

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None of this would have been possible without the remarkable people behind it. This occasion allowed us to welcome our speakers and participants, and to thank all who contributed to the Conference's success. We extend our sincere gratitude to the members of the Technical Program Committee, Organizing Committee, Executive Committee, our sponsors, and everyone whose efforts made this event a reality. We are especially thankful to the Review Board for dedicating their time to evaluating submissions and supporting the TPC in shaping a high-quality scientific program. Our thanks also go to the session chairs and all authors for their valuable contributions to the Conference.

TELSIKS 2025 successfully continued the conference's legacy of scientific quality and collaboration. Through its balanced program of invited lectures, panel discussions, workshops, and technical papers, it strengthened academic and industrial cooperation and inspired future innovation in advanced communication systems.

The *In Memoriam* tribute at the opening ceremony honored Prof. Milovanović's legacy while the event itself stood as a vibrant and forward-looking forum for scientific exchange and collaboration.

Accepted papers are published in IEEE Xplore and indexed by Scopus, ensuring wide international visibility.

Looking forward to the next TELSIKS Conference edition – TELSIKS 2027!

Prof. Dr. Biljana Stošić, Prof. Dr. Zoran Stanković, Prof. Dr. Nebojša Dončov
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