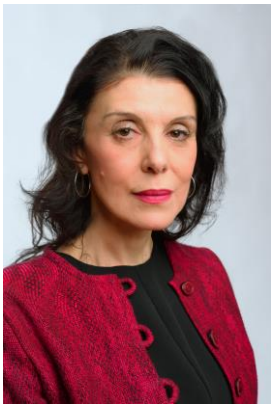

Editor-in-Chief: Scanning the Issue

Dear members and readers,

For the second issue of Microwave Review in 2025, we have selected six scientific papers covering various topics related to microwaves and telecommunications. The Microwave Review journal (Vol. 31, No. 2) features three regular research papers, one extended paper presented at the 17th International Conference on Advanced Technologies, Systems, and Services in Telecommunications (TELSIKS 2025), and two extended papers presented at the 60th International Scientific Conference on Information, Communication, and Energy Systems and Technologies (ICEST 2025). The organizers of the TELSIKS and ICEST Conferences carefully selected relevant papers for potential publication in Microwave Review, which then underwent additional peer review. The authors of the published papers come from different universities and countries—Russia, India, Algeria, North Macedonia, Bulgaria, Italy, and Serbia.

The first paper, entitled ***Compact Circularly Polarized Cavity-Backed Slot Antenna*** by authors Evgeniy R. Gafarov, Alexey A. Erokhin, Roman O. Ryazantsev, and Anton M. Aleksandrin, who are affiliated with the Institute of Engineering Physics and Radio Electronics, Siberian Federal University, Russia. This paper presents a theoretical study of a cavity-backed circularly polarized slot antenna, demonstrating advantages in terms of compact size (0.4λ0), ease of fabrication, and achievable performance characteristics for applications requiring high-quality polarization characteristics across a wide angular range. A high average axial ratio of approximately 0.96 was achieved from -50° to 50°angular region.

The authors of the second paper, Anuj Kumar Sharma, Vipul Sharma, Prateek Agarwal, Ashish Nainwal, and Sanjay Singh are with the Department of Electronics & Communication Engineering, Gurukul Kangri Deemed to be University, Uttarakhand, India. The paper titled ***Design and Fabrication of SRR-Loaded Cantor Fractal-Based Antenna Array with Mutually Coupled Fed Technique for Satellite Communication*** represents a novel mutuallly-coupled fed ultra-wideband antenna array based on a Cantor fractal slotted design with a Defective Ground Surface configuration. The proposed antenna, designed for operation across both the C-band and X-band frequency ranges, was fabricated on a low-cost FR-4 substrate with compact dimensions and experimentally evaluated, suitable for versatile wireless communication systems, including satellite communication, radar systems, WLAN, remote sensing, earth observation, and defense communication infrastructures.

The third paper introduces RPLMQoS, a novel Quality of Service-oriented routing protocol, specifically designed for healthcare IoT environments. RPLMQoS is an enhanced routing protocol that integrates a four-level priority queuing system, a composite routing metric, reinforcement learning-based adaptability, residual energy, and end-to-end latency. The paper entitled ***RPLMQoS: An Adaptive QoS-Aware Routing Protocol with Multi-Queue Prioritization for the Internet of Things*** is written by authors Madani Belacel and Sofiane Boukli Hacene, who are with Djillali Liabès University of Sidi Bel Abbès, Algeria, and Mohamed Belkheir, Mehdi Rouissat, and Allel Mokaddem, who are with the University Center of El-Bayadh, El-Bayadh, Algeria. The results demonstrate significant improvements over the standard Routing Protocol for Low-Power and Lossy Networks.

The fourth paper, titled ***Advanced Spectral Efficiency Assessment for Expert 4G/5G RAN Network Design*** by Uroš S. Savković, Igor A. Tomić, Milutin S. Davidović, and Dejan D. Drajić, is the extended version of the paper presented at the Conference TELSISK 2025. The authors are with the School of Electrical Engineering, University of Belgrade, NEC Aspire Technology, Unit B10, and the Innovation Centre of the School of Electrical Engineering, University of Belgrade, Belgrade, Serbia. This paper evaluates the potential benefits of advanced spectral efficiency analytics in the 4G and 5G RAN design process by analysing an urban cluster in a Central American network by

spectral efficiency and user experience metrics. The study proposes and validates corrective actions, including low-band reactivation and tilt optimization to overcome degraded service quality and low edge throughput. Additionally, the paper incorporates a capacity-oriented assessment that distinguishes propagation-driven limitations from congestion-driven performance degradation and evaluates a set of capacity enhancement mechanisms such as bandwidth expansion, traffic redistribution, densification, and advanced high-capacity solutions.

The fifth paper, entitled ***Forecasting Air Pollution at Construction Sites: An Extended Comparison of Machine Learning Approaches***, is the extended version of the paper presented at the conference ICEST 2025. The paper authors are Eliezer Zahid Gill, Leonardo Cangelmi, Paola Cellini, Daniela Cardone, Alessia Amelio, who are with the Department InGeo, University "G. d'Annunzio" Chieti-Pescara, Pescara, Italy, Alessandro Zaldei who is with National Research Council of Italy, Institute for Bioeconomy, Firenze, Italy and Ivo R. Draganov who is with Technical University of Sofia, Sofia, Bulgaria. This paper introduces a new approach for forecasting up to 24 hours in advance five air pollutants (PM2.5, PM10, NO2, CO and O3) at construction sites, given the temperature as an exogenous variable. Three distinct models, such as random forest, feed-forward artificial neural network, and transformer architecture, were employed, and their performances were evaluated in terms of Root Mean Squared Error. The transformer architecture emerges as a strong alternative to the random forest, which is consistently durable and frequently excels in long-term forecasting, especially for short-term prediction and in data-scarce settings.

The authors of the sixth paper - ***Time-Based Preventive Maintenance without Time Shifts*** are with “St. Kliment Ohridski” University in Bitola: Ilija S. Hristoski is with the Faculty of Economics in Prilep, whereas Gordana Janevska and Mitko Kostov are with the Faculty of Technical Sciences in Bitola, North Macedonia. This paper presents a comprehensive approach to evaluate the time-based preventive maintenance strategy without time shifts by combining modelling and simulation of a generic single-component system using the class of Deterministic and Stochastic Petri Nets with analytical approximation. The proposed model enables steady-state availability assessment across both low- and high-availability systems. It may capture the dynamics among stochastic failures, corrective repairs, and deterministic preventive maintenance cycles. The analysis also indicates the existence of an optimal maintenance interval that balances preventive and corrective actions. By deriving closed-form expressions to approximate availability estimation, which closely match simulation results, the approach provides an efficient means for optimising maintenance scheduling in reliability-critical systems.

The report of the 17th International Conference on Advanced Technologies, Systems and Services in Telecommunications - TELSIKS, which was held in Niš at the Faculty of Electronic Engineering, University of Niš, Serbia from 22nd to 24th October 2025, is included in this journal issue. The authors of the report are Prof. Dr. Biljana Stošić, Prof. Dr. Zoran Stanković, and Prof. Dr. Nebojša Dončov from the University of Nis, Faculty of Electronic Engineering. Also, the Report on Serbia and Montenegro IEEE MTT-S Chapter Activities in 2025, written by Dr. Biljana Stošić, is given in the issue.

The call for participation at the 13th International Conference on Electrical, Electronic, and Computing Engineering, IcETRAN 2026, and the call for the 70th Jubilee National Conference ETRAN 2026, are included at the end.

I would like to acknowledge the dedication of the Reviewers, their efforts, and the time, which contribute to an efficient peer review process. Reviewers’ assessment of the submitted manuscripts enables the authors to disseminate their work at the highest possible quality and improve the content of the Microwave review journal.

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