



## Editor-in-Chief: Scanning the Issue

Dear members and readers,

The December issue of the *Microwave Review* journal (Vol. 29, No. 2) includes ten research papers of which authors come from different Universities and countries. The papers present a variety of the researchers' results.

In the first paper, entitled *A Low-Profile Wideband Microstrip Patch Antenna with Simple Configuration*, an antenna with compact size and enhanced impedance bandwidth is proposed using a novel approach to operate in ISM applications. A new approach adopts the antenna radiator dimensions to stimulate TM<sub>010</sub> and TM<sub>020</sub> modes simultaneously. The truncated ground plane technique is used for the input impedance matching for both modes. The proposed antenna was fabricated and experimentally tested. The authors of the paper are Muaad Hussein, Haider Alrudainy, Wazie Abdulkawi, Ahmed Alieldin, S. Alshamrani from the Southern Technical University, Iraq and King Saud University, Saudi Arabia.

The second paper titled *Millimeter-Wave Broadband Antenna: A Review and Current State of the Art* is written by authors from India: Sneha Tiwari, a PhD scholar, and Professor Srikanta Pal. A comprehensive overview of the recent developments in millimeter-wave antenna design is presented. The focus is on the working principles of broadband antennas, their associated design characteristics, the potential enhancements, and various applications, which necessitate high data rates and significantly greater bandwidth enabled by millimeter-wave antennas.

The third paper written by Hamid Outzguinimt, Mouhcine Lahame, Rajaa Oumghar, and Boubkar Bahani from Morocco is entitled *3D Electromagnetic and Thermal Behaviour Analysis of Magnetic Flux Leakage Transformers Using Finite Element Method*. This paper relates to the thermal analysis of the magnetic flux leakage (MFL) transformer by using the finite element analysis (FEA) for the prediction of the magnetic field distribution, current density, and heat generation within the transformer to provide valuable information for improving the design and performance of MFL transformer in microwave power supply systems.

The authors of the fourth paper are Dheeraj Kumar, Naveen Kumar Saxena, and Bhoopendra Singh from India. This paper entitled *Effect of Progressive Phase Excitation on Tunability of Rectangular Patch Array Antenna Printed on Synthesized LiTiZn Ferrite* examines the effects of progressive phase excitation on the radiation characteristics of a microstrip antenna array imprinted on the biased LiTiZn ferrite substrate operating at a frequency of 10 GHz by using Matlab for simulation. The results indicate that the radiation pattern, which becomes more directional, provides a significant advantage in beam scanning, a crucial attribute for efficient signal transmission and reception.

The fifth paper explains the theory and design of the unit cell and array of leaky wave antenna in different frequency ranges, X-band, Ku-band, and higher frequency ranges. The diverse techniques for removing the open stop band which is a major constraint in leaky wave antennas, are examined. Also, different characteristics of leaky wave antenna with the design of substrate integrated waveguide are discussed, as well as various techniques for achieving high beam scanning and higher gain. The paper title is *Open Stop Band (OSB) Removal Techniques for SIW-Leaky Wave Antenna: A Review* by authors Akash Mishra, Tanuj Garg, and Vivek Arya from India.

The sixth paper *Study on Effects of Non-Ionizing Electromagnetic Radiation on Pollen Grains at Sub-THz Frequencies* is written by authors Md. Faruk Ali, and Sudhabindu Ray from India. This paper investigates the effects of the high frequency EM energy on the pollen grains at sub-THz frequencies. A realistic three dimensional

electrical model of a pollen colony is simulated using Finite Integral Time (FIT) based commercially available software CST Microwave Studio. Results show that significant EM energy absorbed inside the pollen grains at frequencies close to their electrical resonance frequencies is converted into the thermal energy inside the pollen grains.

The paper under the title *Antenna for Cognitive Radio Applications - A Review*- the seventh paper in Microwave Review, surveys recent cognitive radio (CR) antenna advancements that significantly integrate two crucial concepts of spectrum sensing and communication. The ultra-wideband / narrow-band antenna's sensing and communication capabilities are elaborated. A thorough analysis of several interweave cognitive radio antennae is done as well as the explanation of filtering for hybrid CR approaches, which offers a glimpse into the future. The authors of this paper are Prem Nath Suman, and Gajendra Kant Mishra from India.

The researchers Teena Raikwar, Prem Nath Suman, Rakesh Kumar Chandan, Gajendra Kant Mishra, and R.K.Rusia are authors of the eighth paper entitled *The Road Ahead of 6G: Exploring the Future of Wireless Connectivity*. It provides insights into the fundamental technologies that will shape the future of 6G, leading to a highly connected and intelligent world. 6G aims to create a wireless ecosystem that enables near-instantaneous data transfer, seamless device connectivity, and ubiquitous access to information by harnessing sophisticated technologies such as terahertz frequency bands, advanced antenna systems, machine learning, artificial intelligence, and quantum communication.

The ninth paper titled *An X/Ku-Band Series Feed Center Fed Shared Aperture Array Antenna for AIR-Borne Synthetic Aperture Radar Applications* presents a shared aperture antenna, SAA, designed with a single layer as linear polarized for operation in X/Ku-bands. The five element series-fed array, which are formed by the square patches, is activated by a coaxial probe. The X/Ku SAA is modeled, the proof-of-concept prototype is built, and tested in simulation and measurements for Airborne synthetic aperture radar applications. The authors of this paper are Praveena Kati, and Venkata Kishore Kothapudi from India.

The title of the tenth paper is *Modelling and Designing Wire-Grid Sparse Antennas Using MoM-based Approaches for Enhanced Performance and Reduced Cost*. The authors are Adnan F. Alhaj Hasan, Manh Tuan Nguyen, and Talgat R. Gazizov from Russia. This paper evaluates the performance of the connecting Optimal Current Grid Approximation (COCGA) approach, which is applied on the horn, conical horn, and reflector antennas. The verification is conducted by comparing achieved results with those obtained from numerical and experimental tests for the same antenna design.

The report of the **16<sup>th</sup> International Conference on Advanced Technologies, Systems and Services in Telecommunications - TELSIS**, which was held in Niš at the Faculty of Electronic Engineering, University of Niš, Serbia from 25th to 27th October 2023, is included in this journal issue. Also, the Report of the **Women in Microwaves** event, jointly organized by Serbia and Montenegro IEEE MTT-S Chapter and IEEE WiE Affinity Group during the TELSIS conference is given in this issue of Microwave Review as well as **the Report on Serbia and Montenegro IEEE MTT-S Chapter Activities in 2023**. Dr. Biljana Stošić is authors of the Reports.

Call for participation at the **11th International Conference on Electrical, Electronic, and Computing Engineering, IcETRAN 2024**, is included at the end.

I would indicate that all persons involved in the preparation of this journal: the Editor-in-Chief, Associate Editor, and reviewers contribute as volunteers. Also, I would explain that the selection process of submitted papers for publication in a journal may last even several months due to the overburden of the reviewers.

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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