



## Editor-in-Chief: Scanning the Issue

Dear members and readers,

The current July issue of the *Microwave Review* journal (Vol. 27, No. 1) contains five research papers. These papers present ongoing research and developments achieved by researchers in different areas and countries.

In the era of globalization, the digital economy is driving an ever-increasing demand for communication bandwidth. For this antenna play very vital and authentic role for communication. The first paper titled ***Leaky Wave Antenna: A Historical Development*** aims to review the work of various researchers for an old and latest advancements on leaky wave antenna (LWA) theory and design. In microwave engineering, the leaky waves had been the most emerging field of research in last few decades. After reviewing the working principles and characteristics of LWAs, an essence of some recent developments of designs have been discussed. The paper is written by Vivek Arya and Dr. Tanuj Garg from India.

Liquid Crystal Polymer (LCP) has become attractive choice since its introduction to RF (Radio Frequency) world about two decades ago, as a substrate and packaging material due to its unique electrical and mechanical characteristics. One of its most promising qualities is its flexibility, which enables the evolving of conformal electronics to RF and microwave world. The second paper is titled ***Liquid Crystal Polymer: Potential Bio-Compatible Substrate for Antenna Application*** and written by authors from India: B. Biswas, A. Karmakar, and V. Adhikar. The paper describes the capability of liquid crystal polymer as an attractive choice for antenna usages targeting several bio-medical applications. One lower frequency application details about the development of a conformal, wideband, fractal implemented miniaturized antenna for wireless capsule endoscopy purpose over 2450 MHz Industrial, Scientific and Medical (ISM: 2400-2480 MHz) band. Whereas, another application outlines the developmental activity targeting high gain 100 GHz planar antenna array for medical imaging with appreciable resolution.

With increasing demands of high data rate, millimeter-wave communication in the unlicensed frequency spectrum around 60 GHz received a lot of attention from academic as well as industrial researchers. In the third paper titled ***Compact Wideband Antenna for 60 GHz Millimeter Wave Applications*** a gap coupled rectangular monopole antenna for millimeter wideband applications is proposed. The bandwidth of a rectangular radiator fed by a microstrip feedline is enhanced by using the technique of gap coupling along its radiating edge and by using rectangular notch loaded partial ground plane. It has an impedance bandwidth of 42-68.1 GHz. It has resonances at the frequencies of 45.5, 56.1 and 65.8 GHz. H-plane and E-plane patterns are observed to be omnidirectional and bidirectional respectively. It has its radiation efficiency more than 94% with a peak gain of 4 dB across the entire band of operation. The author is Sarthak Singhal from India.

The overall target of the future next generation optical fiber access networks is to deliver high multi-data rate services, support multi-standards, multi-band technologies and serve a huge number of users at low cost employing high spectral efficiency modulation formats, advanced multiplexing techniques and more flexibility. One of the key enabling solutions to assure these requirements over a single unified communication system is the Radio Over Fiber (RoF), the technology that could transport any kind of information services seamlessly over the same fiber link to the both mobile and fixed users. The main purpose of the fourth paper titled *Simultaneous Distribution of OFDM with IR-UWB Signals using Radio over Fiber* is to study a seamless converged transmission between wireline and wireless services delivering multi-channel Polarization Division Multiplexing Coherent Optical Orthogonal Frequency Division Multiplexing (PDM CO-OFDM) integrated with both single and dual-polarization Impulse Radio Ultra-Wide Band (IR-UWB) signals over an existing reconfigurable Add/Drop Wavelength Division Multiplexing Optical Distribution Network (Add/Drop WDM ODN) infrastructure. All the transmitted channels are distributed using optimum low optical powers, and the performance of the proposed system is evaluated based on Bit Error Rate (BER) and constellations diagrams for the DP CO-OFDM channels that reached a 720 Gbps over fiber link of 420 km. While, the IR-UWB signals are analyzed in terms of BER and eye diagrams achieved high quality transmission over 60 km and 120 km for 1 Gbps single and 5 Gbps dual-polarization IR-UWB signals, respectively, under the adopted Forward Error Correction (FEC) BER limit of  $10^{-9}$ . The paper is written by Belkacem Anes and Borsali Ahmed Riad from Algeria.

Software Defined Networking (SDN) and Network Function Virtualization (NFV) are the key technologies used by mobile operators to cope with traditional challenges, such as high operational costs, vendor lock-in, slow time to market etc. SDN separates the control and user plane and brings the benefit of having open and easy programmability and application development, whereas NFV allows network operators to manage and expand their network capabilities on demand using virtual, software-based applications where physical boxes once stood in the network architecture. Today, the most widely spread protocol for control-user plane communication is OpenFlow (OF). The last fifth paper titled *Analytical Modeling of OpenFlow-Switches Based on the Buffering Design* is written by Strahil Panev, Pero Latkoski, and Dimitar Bogatinov from North Macedonia. The overall performance of the OpenFlow (OF) switches greatly relies on the output buffer design. In this paper an analytical approach for modelling the average packet loss rate of two OF-switch buffering mechanisms is provided: standard single shared buffer, and an advanced isolated two priority buffer. The results proved that using buffers with non-preemptive prioritization is the clear design choice for the user plane of mobile core networks, as it provides significant performance gains when compared to traditional buffering.

All involved people in this journal: Editor-in-Chief, Associate Editor and reviewers contribute as volunteers. Selection of submitted papers for publication in journal is a very hard work. There may be a phase of high load where reviewers cannot find time to work on papers, and because of that a processing time make take several months.

I am very grateful for the contribution all valued anonymous reviewers have made to *Microwave Review* journal by providing their reviews in 2021. I would like to show my appreciation for the time and effort that they give to the assessment of submitted manuscripts.

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