IEEE youngprofessionals
Antennas and Propagation Society

IEEE (HK) Section
AP/MTT

Seminar On

IEEE AP-S Young Professionals Lecture: From Chip to System: A Holistic Approach to 2D Scalable Low-Loss D-Band Active Phased Array Realization

Prof. Kamil Yavuz Kapusuz

IMEC and Ghent University, Belgium

Date	**:**	**1 September 2026 (Tuesday)**
Time	**:**	**10:00 am – 11:00 am (Hong Kong Time, GMT +08:00)**
Venue	**:**	**Online (Zoom Meeting)**
Zoom Meeting	**:**	https://cityu.zoom.us/j/86904656312?pwd=evb6JaBIfsU5I1lxDPH9JkWd1F1bZp.1 **Meeting ID: 869 0465 6312** **Passcode: 536917**

Abstract

The relentless demand for multi-gigabit wireless communication and high-resolution sensing drives rapid innovation in D-band (110–170 GHz) systems. However, realizing efficient and scalable active phased arrays at these frequencies remains challenging due to high cost, interconnect losses, packaging parasitics, and heterogeneous integration constraints. This talk presents a holistic, system-level approach to low-loss D-band phased array integration that unifies circuit, antenna, and packaging co-design. Leveraging both silicon-based (CMOS, SiGe) and III–V integrated circuits, the approach emphasizes optimized beamformer and power amplifier architectures combined with low-cost 2D scalable, wide-angle scanning wideband antenna arrays implemented using low-cost PCB processes. Through electromagnetic co-optimization and advanced interconnect engineering, the framework achieves significant reduction in loss and improvement in overall system efficiency. Measured D-band results from prototype modules demonstrate wide-angle beam steering and data transmission rates up to 100 Gb/s. These results confirm the feasibility of steerable, high-capacity arrays suitable for both communication and sensing platforms.

Biography

Kamil Yavuz Kapusuz (Senior Member, IEEE) received the M.Sc. degree in Electrical Engineering from Atilim University, Ankara, Turkey, in 2013, and the Ph.D. degree in Electrical Engineering from the Electromagnetics Group, Department of Information Technology, Ghent University, Belgium in 2021.

From 2014 to 2016, he worked as a Senior Antenna Engineer at Remote Sensing Technologies, Turkey. Between 2021 and 2022, he was a Visiting Scientist at the CNRS, IETR Laboratory, France. Since 2022, he has been a Senior Researcher in Electromagnetics at IMEC and Ghent University. His research includes on the analysis and design of quasi-optical systems, leaky-wave antennas, near-field focusing techniques, in/on-body communication systems, active/reconfigurable/unconventional millimeter-wave and sub-terahertz phased arrays, and electromagnetic modeling and optimization of 2.5D and 3D RF packaging architectures.

Dr. Kapusuz received the URSI Young Scientist Award at the 2021 URSI General Assembly.

***** ALL ARE WELCOME *****

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