**Activity Report of Jaypee Institute of Information Technology, Noida**

**on**

**Distinguished Microwave Lecturer Talk on “100–300 GHz Wireless: Transistors, ICs, Systems”**

**Organized by:** The IEEE Microwave Theory & Technology Society (MTT-S) Student Branch Chapter in association with the IEEE Antennas & Propagation Society (AP-S) Student Branch Chapter, Jaypee Institute of Information Technology, Noida

**Date:** 15 September, 2025

**Venue:** LT4, ABB-II, JIIT Noida

**Speaker:** Prof.Mark Rodwell (Fellow, IEEE)

**Affiliation:** Department of Electrical and Computer Engineering, University of California, Santa Barbara, USA.

The IEEE MTT-S and AP-S Student Branch Chapters at JIIT, Noida, successfully organized a Distinguished Microwave Lecturer (DML) Talk on the cutting-edge topic “100–300 GHz Wireless: Transistors, ICs, Systems.” The talk was given by Prof. Mark Rodwell, an IEEE fellow affiliated with the Department of Electrical and Computer Engineering, University of California, Santa Barbara, USA. The talk was part of the prestigious IEEE DML series, which aims to bring leading experts in the field of microwave engineering to student and professional communities worldwide. This session provided a deep dive into the rapidly emerging frequency bands between **100 and 300 GHz**, exploring advances in **transistor technologies** supporting sub-millimetre wave operation, design and development of **integrated circuits (ICs)** for high-frequency communication, and the system-level challenges and solutions for **ultra-high frequency wireless applications.**

The lecture also provided an in-depth exploration of both the **opportunities and research challenges** involved in the development of **100–300 GHz wireless communication and imaging systems**. Operating at these frequencies offers significant advantages due to the short wavelengths, which enable **massive spatial multiplexing** for both **network nodes** and **point-to-point links**. This spatial efficiency allows for **aggregate transmission capacities approaching 1 Tbps**, pushing the boundaries of current wireless capabilities. The speaker further elaborated on their ongoing research and development efforts, including **140 GHz massive MIMO wireless hubs** and the **210 GHz and 280 GHz MIMO backhaul links**. These systems represent a significant step toward practical implementation of ultra-high-frequency wireless and imaging technologies.

The DML talk was attended by 120 participants, including students, faculty members, and researchers, who actively engaged in the session. The talk concluded with a Q&A segment, where attendees interacted with the speaker, gaining further clarity and technical understanding. Overall, the talk was informative and contributed significantly to the academic and research awareness of the participants.









