Seminar

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Institute for Plasma Research

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Title: Design and Analysis of Microwave Components for Mimo Communication System

Speaker: Dr. Gaurav Saxena
Delhi Technological University, New Delhi

Date: 9th December 2022 (Friday)

Time: 03:30 PM

Venue: Join the online meeting:
https://meet.ipr.res.in/join/8525348061?be_auth=MjU3NjEz
(Conference ID: 8525348061; Password: 257613)

Abstract

Wireless communication demands better channel capacity with a high data rate in the modern era. To fulfill these demands, the MIMO-communication systems are developed that use manifold antennas for transmitter and receiver end. MIMO is a state-of-art technology that improves the reliability of the communication systems by utilizing the diversity technique to mitigate the multi-path fading issues, where signals may come together belligerently at the receiver. Improve spectral efficiency is achieved by the total transmitted power spreading over the antennas. Thus, MIMO can increase channel capacities as well as the reliability of the communication system without sacrificing extra transmitted power or power spectrum. Several MIMO antennas have been designed in the literature to improve their characteristics in terms of impedance bandwidth; miniaturization & isolation improvement. The MIMO-communication systems with THz range are required for high data speed in Terabit/sec (Tbps). Also, it is providing very high throughput per device (from multiple Gbps to several Tera-bps) including per area efficiency (bps/km^2). It is also predicted that the world monthly traffic in smartphones will be about 40 Peta-bytes in 2021, so the demand for MIMO antennas will be increased in the future. In this thesis, various microwave components for the MIMO wireless communication system has been analyzed and designed…