National Institute of Technology Rourkela

Departmental Seminar

Seminar Title	: Linearly Polarized Pentagonal Fractal Antenna for 5G Sub-6 GHz Applications.
Speaker	: Khushbu Patel
Supervisor	: Prof S K Behera
Venue	: Room No. EC-411 (Microwave and Antenna Design Laboratory), ECE Dept. (Electrical Science Building)
Date and Time	: 16 Jun 2025 (11.00AM)
Abstract	: This paper investigates a linearly-polarized pentagonal fractal antenna for 5G Sub-6 GHz Applications. The final design topology is attained by a circular slot fractal-based pentagonal radiator, the partial ground, and a microstrip feedline, to realize a novel fractal antenna with a small footprint, better geometrical conformability, and wide Impedance Bandwidth (IBW) to function in the UWB. A 2 nd order fractal geometry is employed along the inner edges of the radiator. The antenna performance shows that the design structure is covering the frequency band of 2.9 GHz to 16 GHz in Linear Polarization (LP) mode. The peak realized gain is 5.6 dBi in the operational band. The dimensional parameters of the proposed antenna are 35 × 30 × 1.6 mm3 . Due to the compactness, high realized gain, low loss, and wide bandwidth the proposed structure can be a suitable candidate for 5G communications.