National Institute of Technology Rourkela

Departmental Seminar

Seminar Title	: Multilayer Fourth Order Single Band Aperture Coupled Bandpass Frequency Selective Surface.
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Venue	: Antenna Design Lab (Room no EC 411)
Date and Time	: 06 Jan 2025 (05.00PM)
Abstract	: In this paper, multilayer fourth order single band aperture coupled bandpass Frequency Selective Surface (FSS) is presented. Firstly, a pair of square truncations and triangular truncations are introduced in a square patch along the right-side diagonal and left- side diagonal respectively, it appears as two tilted hexagons are cascaded together. With simultaneous excitation the symmetry of this structure introduces two orthogonal degenerative modes but due to perturbations in the form of square and triangular truncations splitting the orthogonal modes into two different frequencies. This can be used to implement a compact bandpass FSS. Subsequently, a composite resonator employed by the strategic rotation of patches by 90 degrees between adjacent patches is designed to remove the cross-polarization reflection produced by two orthogonal modes. Building upon this groundwork, a three-layered structure is designed with top and bottom conducting layers as composite resonator and the middle conducting layer is coupled through circular aperture. Finally, with the proposed FSS element a fourth order single band bandpass FSS is designed respectively.