National Institute of Technology Rourkela

Departmental Seminar

Seminar Title	: Proposed Alternating Optimization Scheme for Multi-IRS-Aided Cognitive Radio Network under Imperfect Channel Scenario
Speaker	: Gyana Ranjan Mati
Supervisor	: Prof. Susmita Das
Venue	: Seminar Room (EE-205)
Date and Time	: 01 Sep 2025 (5:45 PM)
Abstract	: Cognitive radio is essential for enabling secondary users to effectively utilize limited spectrum resources. The effectiveness of cognitive radio relies on enhancing signal strength to facilitate spectrum detection and data transmission, particularly when the primary user is not utilizing the designated spectrum. By incorporating Intelligent Reflective Surface (IRS), cognitive radio systems can be optimized through strategic phase adjustments at the IRS, which improves signal transmission for secondary users while minimizing interference for primary users. This research investigates a scenario where multiple IRSs are deployed alongside various primary and secondary users. The objective is to enhance the performance of the secondary network by reducing interference experienced by both primary users and other secondary users. In this framework, the simulation-based study evaluates both perfect and imperfect channel state information (CSI) conditions by maximizing the overall achievable rate for secondary users.