

Departmental Seminar

Seminar Title	: Outage Performance of Imperfect Hardware Ambient Backscatter Communication Systems.
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Supervisor	: Prof Pankaj Kumar Sharma.
Venue	: EC303, Seminar Room
Date and Time	: 22 Nov 2024 (10.00AM)
Abstract	: In this work, we explore an ambient backscatter system (AmBS) comprising an ambient source, multiple tags, and a reader. Herein, an ambient source communicates with its legacy user. The radio frequency (RF) signal transmitted by the ambient source is overheard by a selected tag that reflects the received signal after modulating by its own message. Further, we assume that ambient source and reader node of considered AmBS are corrupted by RF hardware impairments (RFHI). RFHI is caused by cheap hardware and simple fabricating process of the system. For this set-up, we investigate the exact and asymptotic outage probability (OP) under Nakagami-m faded links. We illustrate that as RFHI increases in considered AmBS it increases systems OP and beyond a certain ceiling threshold OP becomes unity. Further, we show that for feasible communication, when the number of tags or tag's reflection coefficient increases the outage performance of the system improves. We finally verify the theoretical results through simulations.