



Module PMRF-ISSS011/2024

## Selected topics on MIMO Communications

### Name of the PMRF student

Sourasis Chatterjee

### Required background of the students taught

Electronics & Communication Engineering with exposure to digital communication, probability theory and linear algebra.

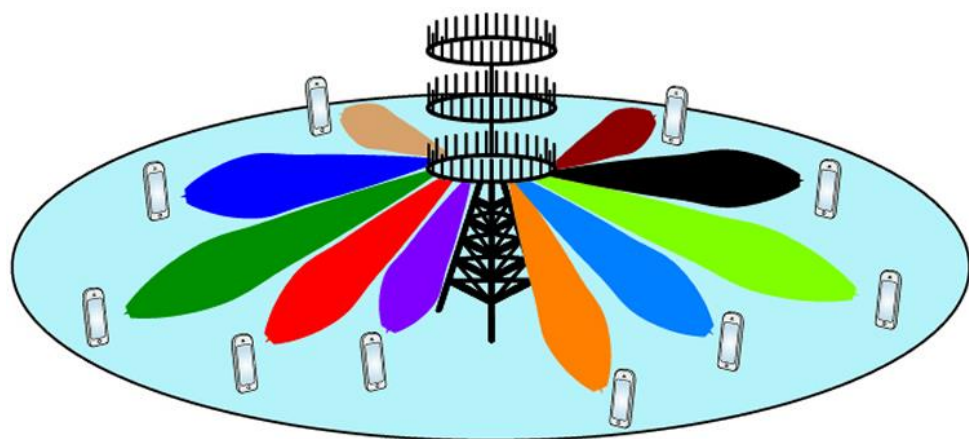


Image source: Wireless Future Blog

### Details of the content of the module

Lectures will cover following topics:

**Lecture 1** - Introduction to MIMO architecture, its advantages, relevant system model

**Lecture 2 & 3** - Detailed discussion on wireless channels (modelling, properties)

**Lecture 4** - Capacity analysis for SISO, SIMO, MISO and MIMO systems

**Lecture 5** - Spatial correlation and its importance in MIMO communication, local scattering model, channel hardening and favourable propagation

**Lecture 6** - Channel estimation techniques and different types of receiver design (MR, ZF, MMSE)

**Lecture 7** - Energy and hardware efficiency in MIMO communication

**Lecture 8** - Real-time deployment issues

### Schedule of the module

Start Date : 08/02/2024

End Date : 28/03/2024

Class Timing: Every Thursday (6-8 pm)

Meeting link : Will be shared later

[Link](#)

Contact email ID: [issf.forum@gmail.com](mailto:issf.forum@gmail.com)

Registration link:

<https://forms.gle/6ThfiN3iK55trFzHA>