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**PhD Topic:** Design and Analysis of Microstrip Antenna for Wireless Applications

**Keywords:** Multiband, antenna, metasurface, monopole, slot

## **FINDINGS**

**PhD Topic:** Design and Analysis of Microstrip Antenna for Wireless Applications

**Research Finding:** Since Microstrip antennas show various advantages such as easy fabrication, low profile, light weight, low cost and easy integration with high frequency devices, they are always considered ideal for latest portable electronic gadgets and are used in various applications like defence, marine, transportation, satellite and mobile communication. In recent days, the researchers in antenna community have shown a great interest in electromagnetic metamaterial owing to its ability to make left handed media, where wave propagates apparently opposite to the conventional right handed media. I chose to work upon microstrip antennas and produced several innovative designs as listed below:

A hepta band metasurface enabled compact antenna for wearable applications has been designed and fabricated.

A hexa band circularly polarized antenna for WLAN/Wi-Max/SDARS and C- band applications is designed and fabricated.

A meta-resonator enabled compact circularly polarized deca-band antenna has been designed and tested.

A RIS Enabled Monopole Antenna Covering GPS/GSM/LTE/Sub-6 GHz 5G/WLAN/MBAN-Bands for Smart Helmets/Cap has been simulated and tested.

A Low Profile Ultrawide Band Antenna for WLAN/Wi-Max/C-Band Wireless applications has been presented.

So, electromagnetic metamaterial due to its ability to make left-handed media, where wave propagates apparently opposite to the conventional right handed media has been demonstrated and used to improve the performance of microstrip antenna.