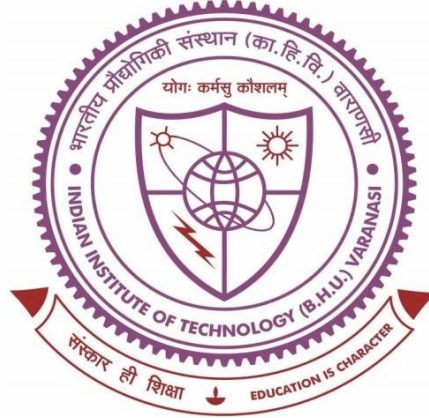


# Design and Development of Reconfigurable Antennas with Single and Hybrid Reconfigurability Functions



Thesis submitted in partial fulfillment for  
the Award of Degree

**Doctor of Philosophy**

By

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**2023**

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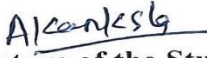


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**Date:** 29/11/2023

Akanksha  
(Akanksha Singh)



*This thesis is dedicated  
to*

**[My Beloved Parents]**

**&**

**[Family Members]**



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## List of Abbreviations

<b>DARPA</b>	Defense Advanced Research Project Agency
<b>RF</b>	Radio Frequency
<b>MEMS</b>	Micro-Electro-Mechanical System
<b>DC</b>	Direct Current
<b>MIMO</b>	Multiple Input Multiple Output
<b>CR</b>	Cognitive Radio
<b>UWB</b>	Ultra-Wide Band
<b>LOS</b>	Line-of-Sight
<b>HIS</b>	High impedance Surface
<b>PRS</b>	Partially Reflecting Surface
<b>AMC</b>	Artificially Magnetic Conductor
<b>1-D</b>	One Dimensional
<b>2-D</b>	Two Dimensional
<b>3-D</b>	Three Dimensional
<b>CP</b>	Circular polarization
<b>LHCP</b>	Left Hand Circular Polarization
<b>RHCP</b>	Right Hand Circular Polarization
<b>LP</b>	Linear Polarization
<b>WLAN</b>	Wireless Local Area Network
<b>dB</b>	Decibel
<b>AR</b>	Axial Ratio
<b>ARBW</b>	Axial Ratio Bandwidth
<b>IMBW</b>	Impedance Bandwidth
<b>QLQC</b>	Quasi-Lumped Quadrature Coupler
<b>RFIC</b>	Radio Frequency Integrated Circuit
<b>SPDT</b>	Single Pole Double Throw
<b>CMA</b>	Characteristics Mode Analysis
<b>HP</b>	Horizontal Polarization

<b>VP</b>	Vertical Polarization
<b>LC</b>	Liquid Crystal
<b>EBG</b>	Electromagnetic Bandgap
<b>RFN</b>	Reconfigurable Feeding Network
<b>LED</b>	Light Emitting Diode
<b>EM</b>	Electromagnetic
<b>HFSS</b>	High Frequency Structure Simulator
<b>SMA</b>	Sub Miniature Version-A
<b>VNA</b>	Vector Network Analyzer
<b>IoT</b>	Internet of Things
<b>5 G</b>	Fifth-Generation
<b>PIN</b>	Positive-Intrinsic-Negative
<b>PRAMC</b>	Polarization-Rotation Artificial Magnetic Conductor
<b>VLP</b>	Vertical Linear polarization
<b>HLP</b>	Horizontal Linear Polarization
<b>SP3T</b>	Single-Pole Triple-Throw