

# DR. Prakash Ranjan

Assistant Professor, Associate Dean (Alumni & Institutional Relations)  
IIIT Bhagalpur

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**Additional Responsibility:** F/I Guest House, Boys Hostel Warden

## TEACHING EXPERIENCE: Science 2019

### Theory Courses Taken:

- Electromagnetic Theory.
- Microwave Antenna Engineering.
- Analog Communication.
- Digital Communication.
- Recent Trend in wireless Communication
- Engineering Physics

### LAB Courses Taken:

- Microwave & Antenna Lab.
- Analog Communication Lab.
- Digital Communication Lab.

**AREAS OF INTEREST:** Metasurface, Metamaterial Absorber, Multilayer Absorber, Evolutionary Algorithm

## Externally Sponsored R & D Project[s] as PI/Co-PI

Title of Project	Period (in months)	Sponsoring Organistaion	Amount[in lakhs]	Co- Investigator[s],if any	Role
Electromagnetic Energy Harvesting Systemfor WirelessSensor Node and IoT	12	iHUB Divyasampark,I ITRoorkee	14.35	Dr. Chetan Barde	PI
Design and Development of MetasurfaceSensors forHuman Machine InterfacingUsing Binary ArachnidaSalticidadeOptimization Techniques	12	iHUB Divyasampark,I ITRoorkee	12.1	Dr. Prakash Ranjan	CO-PI

## PUBLICATIONS:

### Patents:

1. Chetan Barde, Debolina Das, **Prakash Ranjan**, Arvind Choubey, Rashmi Sinha, Komal Roy and Sanjay Kumar. "Multifunctioning Metamaterial Absorber Used for Medical Applications". Application number: 202231060699 (Grant).
2. Arvind Choubey, **Prakash Ranjan**, Chetan Barde, Santosh Kumar Mahto and Rashmi Sinha, "Zeroth Order Resonator (ZOR) Antenna using Slotted Metamaterial Structure", Indian Patent, Appl. No.: TEMP/E-1/29503/2020-KOL. 2020. (Published and FER Filled).
3. Komal Roy, Rashmi Sinha, Arvind Choubey, Chetan Barde, **Prakash Ranjan**. "Wideband metamaterial microwave absorber for c and s band Application". Application number: 202331041316. (Published).
4. Vishnu D, T A Shahul Ahmeed, Chetan Barde and **Prakash Ranjan** "Meta-surface frequency reconfigurable antenna optimizes Using neural network algorithms for wireless applications". Application number: 202341041273. (Published).

**Journals:**

S.No.	Author(s)	Title	Name of Journal	Volume	Page	Year
1.	Komal Roy, Chetan Barde, Prakash Ranjan, Rashmi Sinha, Debolina Das	A wide angle polarization insensitive multi-band metamaterial absorber for L, C, S and X band applications	Multimedia Tools and Applications	82	-	2023
2.	Chetan Barde, Neelesh Kumar Gupta, Prakash Ranjan, Komal Roy, Rashmi Sinha	Angle-independent wideband metamaterial microwave absorber for C and X band application	International Journal of Microwave and Wireless Technologies	NA	-	2023
3.	Komal Roy, Rashmi Sinha, Debolina Das, Arvind Choubey, Chetan Barde and <b>Prakash Ranjan.</b>	A Recent Survey on Zeroth-Order Resonant (ZOR) Antenna	Analog Integrated Circuits and Signal Processing. (SCI)	-	-	2022
4.	Chetan Barde, <b>Prakash Ranjan</b> , Arvind Choubey, Rashmi Sinha and Komal Roy.	Linear-to-linear polarization conversion using metasurface for X, Ku and K band applications.	Frequenz (SCI)	-	-	2022
5.	<b>Ranjan Prakash</b> , Chetan Barde et.al	A novel untrathin pixelated cross-polarizer using WDO	Microsystem Technology (SCI)	-	-	2022
6.	<b>Ranjan Prakash</b> , Santosh Kumar Mahato, Arvind Choubey and et. al.	The Synthesis of Pixelated Metamaterial Cross Polarizer using Binary Wind Driven Optimization Algorithm	Journal of Computational Electronics (SCI)	-	-	2021
7.	Peraza-Vázquez Hernán, Adrián Peña-Delgado, <b>Prakash Ranjan</b> , Chetan Barde, Arvind Choubey et. al.	A Bio-Inspired Method for Mathematical Optimization Inspired by Arachnida Salticidae	Mathematica, MDPI (SCI)	10.1	102	2021
8.	<b>Ranjan, Prakash</b> , Chetan Barde, Arvind Choubey and et. al.	A wideband metamaterial cross polarizer conversion for C and X band applications	Frequenz (SCI)	76.1-2	63-74.	2021
9.	Chetan Barde, <b>Ranjan Prakash</b> , Arvind Choubey	A Compact Wideband metamaterial absorber for Ku band	Journal of Material Science: Materials in	31(19)	16898-16906	2020

	and et. al.	applications.	Electronics (SCI)			
10.	<b>Ranjan Prakash</b> , Chetan Barde, Arvind Choubey and et. al.	Wide band polarization insensitive metamaterial absorber using lumped resistors	SN Applied Sciences (SCI)	02	1061	2020
11.	<b>Ranjan Prakash</b> , Santosh Kumar Mahto, and Arvind Choubey	BWDO algorithm and its application in antenna array and pixelated metasurface synthesis	IET Microwaves, Antennas & Propagation (SCI)	13.9	1263-1270	2019
12.	<b>Ranjan Prakash</b> , Santosh Kumar Mahto, and Arvind Choubey	A novel ultrathin wideband metamaterial absorber for X-band applications	Journal of Electromagnetic Waves and Applications (SCI)	33.17	2341-2353	2019
13.	<b>Ranjan Prakash</b> , Arvind Choubey, and Santosh Kumar Mahto	A novel approach for optimal design of multilayer wideband microwave absorber using wind driven optimization technique	AEU-International Journal of Electronics and Communications (SCI)	83	81-87	2018
14.	<b>Ranjan Prakash</b> , Arvind Choubey, and Santosh Kumar Mahto	A six-band ultra-thin polarization-insensitive pixelated metamaterial absorber using a novel binary wind driven optimization algorithm	Journal of Electromagnetic Waves and Applications (SCI)	32.18	2367-2385	2018
15.	<b>Ranjan Prakash</b> , Arvind Choubey, and Santosh Kumar Mahto	An ultrathin five-band polarization insensitive metamaterial absorber having hexagonal array of 2D-bravais-lattice	Progress In Electromagnetics Research (Scopus)	87	13-23	2018
16.	<b>Ranjan, Prakash</b> , Arvind Choubey, and Santosh Kumar Mahto	Wide-angle polarization independent multilayer microwave absorber using wind driven optimization technique.	International Journal of Applied Engineering Research (Scopus)	12	8016-8025	2017

#### Conferences/Book Chapter:

1. Sinha, Rashmi, Arvind Choubey, Chetan Barde, Santosh Kumar, and **Prakash Ranjan**. "A Compact Wideband Metamaterial Absorber for Various Application of Ku Band." Available at SSRN 3573495 (2020).

2. Barde Chetan, Arvind Choubey, Rajnish Kumar, Rashmi Sinha, Santosh Kumar, and **Prakash Ranjan**. "A Novel Circular Shape ZOR Antenna for X-Band Application." Available at SSRN 3572560 (2020).
3. Sinha Rashmi, Arvind Choubey, Santosh Kumar Mahto, **Prakash Ranjan**, and Chetan Barde. "Synthesis of Linear Array Antenna using Hybrid IWO/WDO Algorithm." In 2019 PhotonIcs & Electromagnetics Research Symposium-Spring (PIERS-Spring), pp. 4144-4151. IEEE, 2019.
4. Barde Chetan, Arvind Choubey, Rashmi Sinha, Santosh Kumar Mahto, and **Prakash Ranjan**. "A novel ZOR-inspired patch antenna for vehicle mounting application." In Ambient Communications and Computer Systems, pp. 47-53. Springer, Singapore, 2019.
5. Barde Chetan, Arvind Choubey, Rashmi Sinha, Santosh Kumar Mahto, and **Prakash Ranjan**. "A Low Profile Pentagonal Shape Zeroth Order Resonator Antenna for Ka Band Applications." In 2019 PhotonIcs & Electromagnetics Research Symposium-Spring (PIERS-Spring), pp. 3614-3618. IEEE, 2019.
6. Sinha Rashmi, Arvind Choubey, Santosh Kumar Mahto, and **Prakash Ranjan**. "Quantum Behaved Particle Swarm Optimization Technique Applied to FIR-Based Linear and Nonlinear Channel Equalizer." In Advances in Computer Communication and Computational Sciences, pp. 37-50. Springer, Singapore, 2019.
7. Mahto, Santosh Kumar, Arvind Choubey, Rashmi Sinha, and **Prakash Ranjan**. "Sidelobe Minimization of Uniform Linear Array by Position-and Amplitude-Only Control Using WDO Technique." In Advances in Computer Communication and Computational Sciences, pp. 309-321. Springer, Singapore, 2019.

#### **WORKSHOP/FDP CONDUCTED:**

1. "Metamaterial and its Applications using HFSS (MAU-HFSS-2021)", 27-31 January, 2021.
2. "Recent Trends and Applications of RF and Microwave Engineering", 7-11 December, 2021.

#### **ADMINISTRATIVE POSITION AND ADDITIONAL RESPONSIBILITIES:**

- Faculty In-charge Guest House, IIIT Bhagalpur (Aug 2019-Till date).
- Faculty In-charge Security, IIIT Bhagalpur (March 2020-July 2022).
- Faculty advisor Electronics and Communication Department, 2017-21, IIIT Bhagalpur

#### **OTHER TECHNICAL EXPERIENCE:**

- Reviewer of Progress in Electromagnetic Research.
- Reviewer of AEU - International Journal of Electronics and Communications.
- Reviewer of Journal of Electromagnetic Waves and Applications.

#### **ACADEMIC QUALIFICATIONS:**

<b>Degree</b>	<b>Year</b>	<b>Institution</b>	<b>CGPA/Percentage</b>
Ph.D Electronics & Communication Engineering (Microwave)	2014-2019	National Institute of Technology Jamsshedpur	
M.Tech Electronics & Communication Engineering	2010-2012	YMCA University of Science and Technology - Faridabad	7.9/10
B.E Electronics & Communication Engineering	2005-2009,	Anna University - Chennai	75.8/100

**TECHNICAL SOCIETY MEMBERSHIP:**

- Member of IEEE Technical Society.
- Memeber MTTTS.

**PERSONAL DETAILS:**

**Name: Prakash Ranjan**

**Father's Name: Raj Kishore Singh**

**Language: Hindi and English**

**REFERENCES:**

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**Dr. Prakash Ranjan**