

Dr. Dhrubajyoti Bhattacharya

Assistant Professor and Head, Department of Electronics and Communication Engineering (ECE)

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Ph.D.: Indian Institute of Technology, Kharagpur

Current Responsibilities

Post	Period	
	From	To
Head of the Department, Electronics and Communication Engineering, IIIT Bhagalpur	19.07.2022	Till date
Coordinator, Technical Board, IIIT Bhagalpur	Feb. 2022	Till date
Faculty advisor, ECE 2020-24 batch	2021	Till date

RESEARCH INTERESTS

- Computational Electromagnetics
- Millimeter wave technology
- Microwave Imaging and Remote Sensing
- Metamaterial
- Optimization Techniques

Educational Background

Examinations passed	Specialization	Year	Institution/University	Marks Obtained
Doctor of Philosophy (Ph.D.)	RF and Microwave	July, 2013- June, 2019	Department of Electronics and Electrical Communication Engineering, Indian Institute of Technology, Kharagpur. Ph.D. Supervisor: Prof. Bratin Ghosh.	
Master of Engineering (M.E)	Microwave Communication	2011-2013	Department of Electronics and Telecommunication Engineering, Bengal Engineering and Science University, Shibpur (Now IEST, Shibpur) M.E. Supervisor: Dr. Debasis Mitra.	81.55%
Bachelor of Technology (B.Tech)	Electronics and Communication Engineering	2006-2010	Department of Electronics and Communication Engineering, Academy of Technology, West Bengal University of Technology (WBUT).	8.11/10
10 + 2	Science	2006	West Bengal Council of Higher Secondary Education	84.2%
10	General	2004	West Bengal Board of Secondary Education	78.5%

Journal Publications

1. **Dhrubajyoti Bhattacharya**, Bratin Ghosh, Manikant Sinha, and Ahmed A. Kishk, "Mode excitation and radiation characteristics of antennas in cylindrically stratified media," *IET Microwaves, Antennas & Propagation*, vol. 14, Issue 10, August 2020.
2. D. Kundu, A. Parameswaran, H. S. Sonalikar, **Dhrubajyoti Bhattacharya** and S. Gupta, "A Low-RCS Circularly Polarized Reflectarray Antenna With a Linearly Polarized Feed," in *IEEE Transactions on Antennas and Propagation*, vol. 71, no. 8, pp. 6501-6512, Aug. 2023.
3. Bratin Ghosh, **Dhrubajyoti Bhattacharya**, Priyanka Deb Sinha, Douglas H. Werner, "Design of circular waveguide annular slot coupled two-layer DRA for linear and circular Polarizations," *IEEE Antennas and Wireless Propagation Letters*, vol. 19, Issue 6, pp. 1012-1016, April 2020.
4. **Dhrubajyoti Bhattacharya**, Bratin Ghosh, Pranab Kumar Goswami, and Kamal Sarabandi, "Evaluation of efficient Green's functions for spherically stratified media," *IEEE Transactions on Antennas and Propagation*, vol. 66, no. 3, pp. 1613 – 1618, March 2018.
5. D. Kundu, **Dhrubajyoti Bhattacharya** and R. Ruchi, "A Single-Layer Broadband Reflectarray in K-Band Using Cross-Loop Slotted Patch Elements," in *IEEE Access*, vol. 10, pp. 13490-13495, 2022.

6. **Dhrubajyoti Bhattacharya**, Bratin Ghosh, and Kamal Sarabandi, "Evaluation of efficient closed-form Green's function in a cylindrically stratified medium," *IEEE Transactions on Antennas and Propagation*, vol. 65, no. 3, pp. 1505 – 1510, March 2017.
7. T. Shaikh, B. Ghosh, **Dhrubajyoti Bhattacharya** and K. Sarabandi, "Schelkunoff formulation of the sommerfeld integral for the Hertzian dipole located in the vicinity of cylindrical structures," in *Radio Science*, vol. 57, no. 8, pp. 1-15, Aug. 2022.
8. Debasis Mitra, Sandip Paul, **Dhrubajyoti Bhattacharya**, and Sekhar Ranjan Bhadra Chaudhuri, "Radiated power enhancement of quadrupole source using metamaterials," *Microwave Optical Technology Letters*, vol. 55, no. 11, pp. 2620-2624, August 2013.

CONFERENCE PUBLICATIONS

1. **Dhrubajyoti Bhattacharya**, Bratin Ghosh, and Kamal Sarabandi, "Characteristics of a monopole antenna in the vicinity of a grounded cylindrical stratified media," in *Proc. IEEE AP-S Int. Symp.*, Boston, Massachusetts, July 8-13, 2018, pp. 109-110.
2. **Dhrubajyoti Bhattacharya** and D. Kundu, "An Analytical Approach for the Generation of Second-Order Floquet-Bloch Mode for Anomalous Reflection Using Metagratings," *2021 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting (APS/URSI)*, Singapore, Singapore, 2021, pp. 1529-1530, doi: 10.1109/APS/URSI47566.2021.9704807.
3. Bratin Ghosh, Ajay Kumar Tiwari, **Dhrubajyoti Bhattacharya**, and Pranab Kumar Goswami, "Circular waveguide feed to the multilayer DRA," in *Proc. IEEE AP-S Int. Symp.*, Fajardo, Puerto Rico, Jun. 26-Jul. 1, 2016, pp. 145 – 146.
4. **Dhrubajyoti Bhattacharya**, Bratin Ghosh, and Rivu Ghosh, "Mutual coupling of conformal slot array on a dielectric coated conducting cylinder," *IEEE Applied Electromagnetics Conference (AEMC)*, Aurangabad, India, Dec. 19-22, 2017.
5. Gopinath Samanta, **Dhrubajyoti Bhattacharya**, Debasis Mitra, and Sekhar Ranjan Bhadra Chaudhuri, "Miniaturized CPW-fed slot antenna using reactive impedance substrate," *IEEE Applied Electromagnetics Conference (AEMC)*, 2015.
6. Bratin Ghosh, Mahesh Singh, **Dhrubajyoti Bhattacharya**, and Kamal Sarabandi, "Theory of Vertical Dipole Over a Dielectric-Coated Impedance Surface," *2019 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, Atlanta, GA, USA, 2019, pp. 2193-2194.
7. D. K. Sahoo, D. Kundu, **Dhrubajyoti Bhattacharya** and A. Patnaik, "A 1-Bit Coding Reflective Metasurface for Beam Steering Along Both the Cardinal Planes Using Dual-Polarized Incident Waves," *2021 IEEE Indian Conference on Antennas and Propagation (InCAP)*, Jaipur, Rajasthan, India, India, 2021, pp. 571-574, doi: 10.1109/InCAP52216.2021.9726281.

8. D. Kundu, **Dhrubajyoti Bhattacharya** and D. Pathak, "Simultaneous Transmission and Reflection Mode Linear-to-Circular Polarization Conversion Using a Single Metasurface," *2021 IEEE Indian Conference on Antennas and Propagation (InCAP)*, Jaipur, Rajasthan, India, India, 2021, pp. 591-594, doi: 10.1109/InCAP52216.2021.9726192.

Patent Filed

Debidas Kundu, A. Parameswaran, H. S. Sonalikar, **Dhrubajyoti Bhattacharya**, and S. Gupta, "A Low Radar Cross Section Circularly Polarized Reflectarray" (patent filed: 202211057030).

FDP/Short term course/ Workshop/ Webinar organized

S.NO	FDP/Short term course/ Workshop	Year
1	Five days online hands-on workshop on Metamaterial and its Applications using HFSS from 27 th -31 st Jan 2021. (MAU-HFSS-2021) Role: Coordinator	2021
2	Five days short term course on Recent Trends and Applications of RF and Microwave Engineering from 17 th - 21 st Dec 2021. Role: Coordinator	2021
S.no	Webinar	Year
1	Conducted webinar on "Full-wave Green's function analysis and Design of Dielectric Resonator Antenna" on 16 th October 2020 at Department of Electronics & Communication Engineering, IIIT Bhagalpur Resource person: Prof. Bratin Ghosh, Professor, IIT Kharagpur Role: Coordinator	2020

OVERVIEW OF RESEARCH ACTIVITIES

Research activities in Ph.D.

Ph.D. Thesis Title: Evaluation of Efficient Full-Wave Green's Function for Cylindrical and Spherical Stratified Media

Ph.D. Supervisor: Prof. Bratin Ghosh.

- Evaluated an efficient closed-form full-wave Green's function technique with the extraction of the spatial singularity for the analysis of cylindrical multilayer antenna configurations.
- Evaluated an efficient full-wave Green's function technique for the analysis of spherical multilayer antenna configurations.
- Designed a circular waveguide annular slot coupled two layer hemispherical dielectric resonator antenna (DRA) for broadband operation.
- Studied the behavior of mutual coupling between two conformal slot antennas embedded on a dielectric coated conducting cylinder.
- Characterized a monopole antenna in the vicinity of a cylindrical stratified media.

Research activities in M.E.

M.E. Supervisor: Prof. Debasis Mitra.

Master of Engineering (M.E.) Dissertation Title: Miniaturization of Antenna Using Reactive Impedance Surface

- Proposed a miniaturization technique using the Reactive Impedance Surface (RIS) for a CPW-fed rectangular slot antenna.
- Proposed the technique of radiated power enhancement for an infinitesimal quadrupole source using metamaterial shell.

Industrial Experience Details

Industry/Organization	Start Date	End Date	Designation
Wolfram Research Inc.	15 th Jan, 2019	3 rd June, 2019	Wolfram Technology Engineer

Present Academic Experience

Institute	Designation	Department	Period (Date)	
			From	To
Indian Institute of Information Technology Bhagalpur	Assistant Professor Level 11, 7000 AGP	Electronics and communication Engineering	19.05.2023	Continuing till date

Past Academic Experience

Institute	Designation	Department	Period (Date)	
			From	To
Indian Institute of Information Technology Bhagalpur	Assistant Professor Level 10, 6000 AGP	Electronics and communication Engineering	01.10.2020	18.05.2023
Kalinga Institute of Industrial Technology (KIIT), Deemed to be University	Assistant Professor (II) in the School of Electronics Engineering	Electronics and Telecommunication Engineering	1.07.2019	24.09.2020

Experience for Short-Term Courses during Ph.D.:

Successfully conducted laboratory classes and tutorials to the scientists and several government organizations and to the teachers of AICTE approved Engineering colleges for the Continuing Education Program of Indian Institute of Technology, Kharagpur from 2014-2017.

HONOURS

- Qualified Graduate Aptitude Test in Engineering (GATE), 2011
- Ph.D. fellowship during July, 2013- July, 2018

Extra-Curricular Activities

- Served as the Vice-Chair of the IEEE Antenna Propagation-Microwave Theory and Techniques (AP-MTT) student branch chapter of IIT Kharagpur for the session (2016-2017).
- Joint Secretary (Social and cultural) JCB Hall, IIT KGP for the session (2014-2015).

References

1.

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2.

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3.

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