

## Debatosh Guha

FNA FASc FNASc FNAE

IEEE Fellow

Abdul Kalam Technology Innovation National Fellow



**Debatosh Guha** is a Professor in Radio Physics and Electronics, University of Calcutta having more than thirty years' experience in teaching, research, and administration. He served the Indian Institute of Technology (IIT) Khargapur as the HAL Chair Professor (2015-2016) and has been serving the Malaviya National Institute of Technology Jaipur (MNIT) as an Adjunct Professor (2023-). He received the B. Tech., M. Tech., and Ph. D. degrees from the University of Calcutta in 1986, 1988, and 1994 respectively and had undertaken his post-doctoral research at the Canadian Defense University at Kingston, Ontario. He has made original contributions to developing planar antenna technology for the new generation radar and airborne systems and in recognition, he has been elected a Fellow of IEEE and also of all four Indian National Academies in Science and Engineering which include INSA (Indian National Science Academy), IASc (Indian Academy of Sciences, Bangalore), NASI (The National Academy of Sciences, India), and INAE (Indian National Academy of Engineering). He is Abdul Kalam Technology Innovation National Fellow, Govt. of India.

He has been closely connected to several universities in the North America, Europe, and Japan as a regular visitor cum collaborator and has served top three IEEE journals in his research field as the Associate Editor. He has served several Govt. and National organizations and officially represented India in multiple international fora. He has given academic leadership to a number of international organizations for building national facilities for the young scientists, engineers, and students. His idea and leadership helped creating India-centric international networks among the microwave and radio scientists through establishing international events such as IEEE Applied Electromagnetic Conference (AEMC- established in 2007), Indian Antenna Week, (IAW- established in 2010), Indian Conference on Antennas and Propagation (InCAP- established in 2018) and finally a merger of all these to form IEEE Microwaves Antennas and Propagation Conference (MAPCon- established in 2022). At present, Debatosh is holding a few key positions in promoting science and engineering at both national and international levels.

### OFFICE

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### ACADEMIC/PROFESSIONAL PREPARATION

- 1978** Madhyamik (Class X), W. B. Board of Secondary Education, 1<sup>st</sup> Division
- 1980** H. S. (Class XII), West Bengal Council of Higher Secondary Education, 1<sup>st</sup> Division
- 1983** B. Sc. Honors in Physics, University of North Bengal, 1<sup>st</sup> Class (Rank-1<sup>st</sup>)
- 1986** B. Tech. in Radio Physics and Electronics, University of Calcutta, 1<sup>st</sup> Class
- 1988** M. Tech. in Radio Physics and Electronics, University of Calcutta, 1<sup>st</sup> Class (Rank-1<sup>st</sup>)
- 1994** Ph. D. in Microwave Engineering, University of Calcutta, under the supervision of Prof. P. K. Saha
- 2004-2006** Post-Doctoral Research at the Royal Military College of Canada, Kingston, Ontario.

## APPOINTMENTS & UNIVERSITY SERVICES

### TEACHING

- 2008-** Professor, Institute of Radio Physics and Electronics, University of Calcutta  
**2004-2008** Associate Professor, Institute of Radio Physics and Electronics, University of Calcutta  
**1998-2004** Asst. Prof./Lecturer-Sr. Grade, Inst. of Radio Physics and Elect., University of Calcutta  
**1994-1998** Asst. Professor/ Lecturer, Inst. of Radio Physics and Electronics, University of Calcutta

### ADMINISTRATIVE

- 2023-** Dean (acting), Faculty of Engineering and Technology, University of Calcutta  
**2017- 2019** Director, Centre for Research in Nanoscience and Nanotechnology, University of Calcutta  
**2016-2018** Head, Institute of Radio Physics and Electronics, University of Calcutta

### ADJUNCT/ VISITING

- 2023-** Adjunct Faculty at the Malaviya National Institute of Technology (MNIT), Jaipur, India  
**2015-2016** HAL Chair Professor at the Indian Institute of Technology (IIT), Kharagpur, India  
**2004-2006** Visiting Research Professor at the Royal Military College of Canada, Kingston, Canada

## MAJOR HONORS AND FELLOWSHIPS

- Elected **Fellow of IEEE** ‘for contributions to microstrip and dielectric resonator antennas’, 2017
- Elected Fellow of all Four Indian National Academies
  - i. **Fellow, Indian National Science Academy, INSA (FNA)**, 2022
  - ii. **Fellow, Indian Academy of Sciences, IASc (FASc)**, 2021
  - iii. **Fellow, The National Academy of Sciences, India, NASI (FNASc)**, 2015
  - iv. **Fellow, Indian National Academy of Engineering, INAE (FNAE)**, 2012
- **Abdul Kalam Technology Innovation National Fellow**, INAE/SERB, Govt. of India, 2020-2025
- **Fellow, West Bengal Academy of Science and Technology, WAST (FAScT)** ‘for notable contributions in the field of Radio Physics and Electronics’, 2015
- **Fellow, Institution of Electronics and Telecommunication Engineers, IETE**, India (FIETE), 2015
- **Elected Full Member of Sigma Xi**, The Scientific Research Honor Society, 2021

## OTHER AWARDS AND RECOGNITIONS

- **Distinguished Lecturer (DL)** – Selected as an academic leader/expert by the IEEE AP-Society in 2022.
- **11<sup>th</sup> Acharya P C Ray Memorial Award** (Kolkata), ‘for distinguished achievements in innovations in Science and Technology, by Institute of Pulmocare and Research (a Medical Institute), Kolkata, 2020

- **IETE Ram Lal Wadha Award** (New Delhi) ‘for his pioneering contribution in planar antenna technique which resolves cross-polar radiation along with scan-blindness issues in large arrays and provides solution to industries in realizing advanced airborne radars’, 2016
- **IEEE AP-S Raj Mitra Travel Grant (RMTG) Award** (Chicago) –Single recipient, with the award money of US\$ 1000) selected by IEEE Antennas and Propagation Society RMTG Committee based upon potential aptitude for research in the domain of Antenna Engineering, 2012.
- **URSI Young Scientist Award** (Lille, France) – selected through a global competition by the URSI, awarded in the URSI General Assembly, Lille, France in 1996.

#### **LEADERSHIP IN PROFESSIONAL SOCIETIES**

- 2024-** Invited to serve **The European Association on Antennas and Propagation (EurAAP)** as an academic leader cum technical expert
- 2024-** Invited to serve the **IEEE Fellow Search Committee** for the AP Society as a member
- 2023-** **Chair**, IEEE AP-S Member and Geographic Activities Committee
- 2022-** IEEE AP-S **Distinguished Lecturer** – selected as an international expert in the field of antenna technology for delivering lectures to the Universities and Industries across the globe
- 2022-** **Chair/Member**, IEEE Technical Committee on Antenna Measurements
- 2022-** **Chair**, Indian National Academy of Engineering, Kolkata Chapter
- 2022-** Served the **Indian Academy of Sciences - Sectional Committee for Engineering** ([https://www.ias.ac.in/About\\_IASc/Committees/](https://www.ias.ac.in/About_IASc/Committees/))
- 2021-2023** Served **Indian National Academy of Engineering (INAE)** - Sectional Committee VI for Electronics and Communication Engineering)
- 2018-2019** **IEEE Fields Award Committee**, served as a member/expert in Awardee Selection Process
- 2017-2020** **Vice-President**, West Bengal Academy of Science and Technology
- 2016** Co-founder, Indian Radio Science Society (InRaSS) (<https://www.inrass.in/>)
- 2015-** **Chair for URSI Commission B (Fields and Waves) from India**, taking part in decision making and organizing the URSI Commission-B activities across the globe.
- 2014** **Asia Liaison**, 8<sup>th</sup> European Conference EUCAP, Hague, The Netherlands
- 2013-2014** **Chair**, IEEE Kolkata Section, India

#### **GOVERNMENT & SOCIETAL RESPONSIBILITIES**

- 2023-** Chairman, 5G Laboratory and Evaluation Committee, Information Technology & Electronics Department, Government of West Bengal, India
- 2021-** DST-SERB Programme Advisory Committee, Govt. of India
- 2021-** INSA-INSPIRE Committee
- 2016-2020** INSA Joint National Committee member for COSPAR-URSI-SCOSTEP
- 2016-2019** Member, Board of Studies, Defence Institute of Advanced Tech, Govt. of India, Pune
- 2019** Commission-B Lead: URSI Asia Pacific Radio Science Conference (AP-RASC)
- 2016-** Technical Experts’ Committee for RF and Microwaves, Ministry of Electronics and Information Technology, Govt. of India

**ACADEMIC & ORGANIZATIONAL LEADERSHIP**

- 2018-** Founding Chair & Course Director, Advanced School of Antennas (IEEE AP-S sponsored)
- 2018** Founding Member, Indian Conference on Antennas and Propagation (InCAP)
- 2015** General Co-Chair: IEEE AP-S Industry Initiatives Committee Workshop, Ahmedabad
- 2014** General Chair: IEEE Calcutta Chapter Conference - CALCON, Kolkata
- 2003-2004** Founding Chair, IEEE AP-MTT Kolkata Chapter
- 2009-2011** General Chair, IEEE Applied Electromagnetics Conference, Hyatt Regency, Kolkata
- 2010** Founding Chair, Indian Antenna Week, Mayfair, Puri (1<sup>st</sup> IEEE AP-S sponsored International Workshop outside North America)
- 2007** Founding Chair, IEEE Applied Electromagnetics Conference, CU, Kolkata
- 2018** Founding Proposer/Executive Committee member, IEEE Indian Conference on Antennas and Propagation (InCAP) as the flagship IEEE AP-S sponsored conference in India.
- 2022** Founding member of the Executive Committee, IEEE Microwaves, Antennas and Propagation Conference, MAPCON as the flagship IEEE AP-S/MTT-S sponsored conference in India.
- 2024-** Representing India in the International Steering Committee, ISAP, Japan

**FOREIGN ASSIGNMENTS AND VISITS**

- 1996** 28 Aug-5 Sept URSI General Assembly, **Lille, France**, to the URSI Young Scientist Award.
- 2002** 25-26 June University of **Houston, USA**, as a Visiting Researcher, giving an invited talk
- 2005** 3-8 July IEEE AP Symposium, **Washington, D.C. USA** for presenting research papers
- 2006** 6-10 Nov The first European Conf. EuCAP 2006, **Nice, France**, to present papers
- 13-14 Nov Queen Mary, University of **London, UK**, invited talk and interactions
- 15-17 Nov University of **Bath, UK**, visiting researcher and Seminar Lectures
- 2007** 15 July-14 Aug RMC Canada, **Kingston, Ontario**, Visiting Professor for collaborative research
- 2008** 2 -28 July RMC Canada, **Kingston, Ontario**, Visiting Professor, experimental works.
- 7-16 Aug. URSI General Assembly, **Chicago** as the Indian Chair/Representative to Comm-B
- 2010** 2-4 Aug **Syracuse University, USA**, Academic visit and Collaborative research
- 16-19 Aug URSI Symp. EM Theory, **Berlin, Germany** as a Special Session organizer/Chair
- 2012** 8-14 July IEEE AP, **Chicago, USA**, as RMTG Awardee and present research papers
- 17-19 July University of Edmonton, **Alberta, Canada** as Invited Speaker to IEEE Workshop
- 20 July-15 Aug RMC Canada, **Kingston, Ontario**, Visiting Professor and collaborative research
- 2013** 2-3 March IEEE R-10 Meeting, **Chaing Mai, Thailand**, as IEEE Kolkata Section Chair.
- 2-6 July **San Diego State University, USA**, to explore collaborative programs.
- 7-13 July IEEE AP Symposium, **Orlando**, present paper and attend Chapter Chair Meeting
- 2014** 7-12 July IEEE AP Symposium, **Memphis, USA** to receive IEEE award and present papers
- 22-24 Aug IEEE Section Congress, **Amsterdam, Netherlands**, as the section Chair, Kolkata
- 25-28 Aug **Karlsruhe Institute of Technology, Germany**, Visiting Scientist
- 12-14 Sept Chuo University, **Tokyo, Japan**, Keynote Speaker in Japan Radio Science Meeting
- 15-16 Sept City University, **Hong Kong**, visiting scientist and seminar talks.
- 2016** 21-25 Aug URSI AP-RASC, **Seoul, Korea**, Invited Speaker, Indian delegation

- 2017** 9-15 July IEEE AP Symposium, **San Diego, USA**, IEEE Fellow felicitation, YSC judge  
19-26 Aug URSI General Assembly, **Montreal**, Indian representative, India Comm-B Chair  
28 Aug-8 Sept Royal Military College of Canada, **Ontario**, Visiting Professor
- 2018** 8-14 July IEEE AP Symposium, **Boston, USA**, technical talks and editorial board meetings  
15-29 July Royal Military College of Canada, **Ontario**, Visiting Professor  
30-31 July Waterloo Institute of Nanotechnology, **Canada**, to execute a MoU with CU
- 2022** 25-26 Nov **University of Pisa, Italy**, invited for IEEE Distinguished Lecture Series  
27-28 Nov Sapienza University, **Rome, Italy**, invited for IEEE Distinguished Lecture Series
- 2023** 23-24 Aug **Hokkaido University, Sapporo, Japan**, invited for IEEE Distinguished Lecture  
25-26 Aug **Kumamoto University, Japan**, invited for IEEE Distinguished Lecture Series  
30 Oct-1 Nov Mediterranean Microwave Symposium, **Tunisia**, Keynote Speaker  
6-10 Nov City University of **New York, USA**, visiting scientist  
15-17 Nov IEEE Intl. Conf. CAMA, **Genoa, Italy**, Organize and Chair a Special Session
- 2024** 20-23 Feb Florida International University, **Orlando, USA**, Invited Talks  
4-6 March **Hiroshima University, Japan**, Special Session in the IEICE Conference  
10-13 July **University of Trento, Italy**, invited Distinguished Lecture of IEEE AP-Society  
14-19 July IEEE AP Symp., **Florence, Italy**, Invited talks and Committee Chairs' meeting  
4-14 October Denver (**Colorado State University**); Kanasas City (**University of Missouri**),  
New Jersey (**New Jersey Institute of Technology**), **USA**: IEEE meeting/  
Distinguished Lecture Series.

#### **SERVICE AS JOURNAL EDITOR**

- 2015-2019** Associate Editor of *IEEE Antennas and Wireless Propagation Letters*  
**2016-2021** Associate Editor of *IEEE Transactions on Antennas and Propagation*  
(outstanding performance award in 2017-2018 and 2020-2021)  
**2023-2024** Section Editor of *IEEE Antennas and Propagation Magazine*

#### **SERVICE AS TPC CHAIR/MEMBER (major international events)**

- 2013** PIERS- Progress in Electromagnetics Research Symposium, Stockholm, Sweden  
**2013** Advances in Computational Methods in Electromagnetics (ACME), Helsinki, Finland  
**2013** URSI-EMTS - Commission B Intl. Symp. Electromagnetic Theory, Hiroshima, Japan  
**2014** Advances in Computational Methods in Electromagnetics (ACME), Bologna, Italy  
**2014** Intl. Workshop on Antenna Technology (iWAT), Sydney, Australia  
**2020** IEEE AP-S/URSI Symposium, Montreal, Canada  
**2021** IEEE AP-S/URSI Symposium, Singapore  
**2023** URSI GASS, Sapporo, Japan  
**2024** Atlantic Radio Science Meeting (AT-RASC) 2024, Gran Canaria, Spain  
**2024** IEEE AP-S/URSI Symposium, Florence, Italy  
**2025** 25th Intl. Symposium on Electromagnetic Theory (EMTS 2025), Bologna, Italy

**SELECTED INVITED SEMINARS AND KEYNOTE TALKS (LAST 2 YEARS)**

**2024**

- IEEE AP-S and MTT-S Education Committees Joint Distinguished Instructors Workshop: “ANTENNA: a fantastic device that transformed the technology”, Hybrid Seminar, 28 Oct. 2024.
- IEEE Distinguished Lecture: “Antenna Science and Engineering in the light of IEEE AP-S 75th Anniversary”, New Jersey Institute of Technology (NJIT), NJ, USA, 14 October 2024.
- Invited talk: “Antenna Science and Engineering: in the light of IEEE AP-S 75th Anniversary”, University of Kansas, Kansas City, USA, 11 October 2024.
- Invited talk: “Uniformly Low Cross-Polar Design of Planar Antennas: New Engineering and Insights”, University of Missouri-Kansas City, USA, 10 October 2024.
- Prenary Talk: “Antenna Design and Measurements: Experience, Learning, Advancement”, IEEE Workshop, Tunisia, 10-11 September 2024.
- Distinguished Lecture- IEEE AP-S: “Art and Challenges in Low Cross-Polar Antenna Design”, University of Delhi, South Campus, New Delhi, 9 Sept. 2024.
- Invited Talk: “Antenna Science and Engineering in the light of IEEE AP-S 75th Anniversary” Defence Institute of Advanced Technology, IEEE AP-S Joint Chapter, Pune, 25 Aug 2024.
- IEEE AP-S 75<sup>th</sup> Anniversary Celebratory Address: “In the light of 75<sup>th</sup> Anniversary of IEEE AP Society”, IEEE SPACE, Bangalore, 22 July 2024.
- Invited Talk in the AP-S 75<sup>th</sup> Anniversary Celebratory Special Session ‘Understanding Our History’: “Defected Ground Structure (DGS) based Antennas”, 2024 IEEE Intl. Symp. Antennas and Propagation and ITNC-USNC-URSI Radio Science Meeting, Florence, Italy, 18 July 2024.
- Distinguished Lecture- IEEE AP-S: “Uniformly low cross-polar design of planar antenna and arrays: advances in engineering and new insights”, University of Trento, Italy, 12 July 2024.
- Keynote Talk: “Role of antenna science and engineering: in the light of 75th Anniversary of IEEE AP Society”, IEEE Hyderabad Section, Hyderabad, 28 June 2024.
- Keynote Talk: “75th Anniversary of IEEE AP Society - a landmark on the Journey”, IEEE Kerala Section, Trivandrum, 19 April 2024.
- Keynote Talk: “ IEEE, Our Profession, and Beyond”, IEEE Faculty Conclave, Bangalore Section,, 16 March 2024.
- Keynote Talk: “Defected Ground Structure (DGS): A Versatile Technique for Improved Antenna Design”, IEEE AP-S Special Session in IEICE 2025 Conference, Hiroshima, Japan, 5 March 2024.
- Invited talk: “Defected Ground Structure (DGS) Based Antenna Design”, Florida International University, Miami, USA, February 21, 2024.
- Invited Talk: “IEEE and AP-S Society-the Professional Aspects and Benefits” and “Wireless: a magical blend of Science and Engineering”, IEEE APS SBC, Manipal University, IEEE AP-S Chapter, Jaipur, January 25, 2024.
- Lecture Series: Indian Radio Science Society (InRaSS) Lecture Series (Online), “Creativity and Innovation: Challenges in Scientific Research”, January 14 and 28, 2024.

**2023**

- Keynote Talk “Antenna Measurements: Art and Challenges” Special Session SPS10 in IEEE International Conference on Antennas and Applications (2023 IEEE CAMA), Genoa, Italy, 15-17 Nov. 2023.
- Lecture Series “On engineered surface and applications to antenna engineering” Advanced Science Research Center, City University of New, USA 6-10 Nov. 2023.
- Keynote Talk “Some Challenges in Microstrip Antenna Design and State-of-the-art Solutions” Mediterranean Microwave Symposium , Tunisia, 1 Nov. 2023.
- Distinguished Lecture Series in Japan: “Mysteries in Dielectric Resonator Modes and Some Techniques for Advanced Antenna Designs” Kumamoto University, Kumamoto, Japan, 25 Aug. 2023.

- Distinguished Lecture Series in Japan: “Is antenna made of mathematics? - Search for a missing link between Maxwell’s theory and Practice” Hokkaido University, Sapporo, Japan, 23 Aug. 2023.
- Invited Talk: ‘Is it difficult to Measure an Antenna?’, URSI YS School, Sapporo, Japan, Aug. 19-20, 2023.
- Invited Talk: ‘Electronics- when and how?’ National Institute of Technology Jaipur, 29 April, 2023.
- Invited Talk: ‘Is Antenna made of Mathematics?’, IEEE APS SBC, IIT Kharagpur, March 29, 2023.
- Distinguished Lecture at SRM University ‘Challenges in Antenna Research’, Chennai, 25 March 2023.
- Distinguished Lecture at SASTRA Deemed University ‘It is Antenna Engineering which transformed the Technology’, Thanjavur, 25 March 2023.
- Distinguished Lecture at SASTRA Deemed University ‘Metallodielectric Resonator Antenna and its Challenges’ Thanjavur, 24 March 2023.
- Distinguished Lecture at DRDO, Bangalore Section of IEEE, ‘In Search of Science behind Some Antenna Innovations’ Bangalore, 23 March 2023.
- Invited Talk: ‘Power of EM Simulation Tools: my little experience’, at the Department of Electronics Engineering, Indian Institute of Technology, BHU, Varanasi, Jan. 6, 2023.

### **INNOVATIVE EDUCATIONAL PROGRAMMES**

**2010 Indian Antenna Week** (IAW, as IEEE AP-S sponsored International Summer School) – was designed and introduced by Prof. Guha in 2010 as an annual international antenna workshop with the direct association of and sponsorship from the IEEE AP-Society. The purpose was to train the young scientist and research students with the advanced technology and innovations.

**2018 Advanced School of Antennas** (ASA, as IEEE AP-S sponsored International Summer School) – a yearly residential summer school designed and organized at the national level (under the umbrella of IEEE) to offer a 2-credit equivalent course to a maximum of 75 young scientists, faculty members, researchers, and PG level students from different parts of the country. Prof. Guha has served as the founder and course director for all the editions since 2018.

### **INDUSTRY AND RESEARCH COLLABORATIONS**

2021-	James Watt School of Engineering, University of Glasgow, UK
2021-	HCL Technologies Limited, Chennai, India
2007-	U R Rao Satellite Centre, Indian Space Research Organization (ISRO)
2017-2020	Indian Institute of Technology Kharagpur
2005-2007	SPOTWAVE (www.spotwave.com), Canada
2004-2019	Royal Military College of Canada, Ontario

### **RESEARCH CONTRIBUTIONS**

- **Conceived and introduced Defected Ground Structure (DGS)** integration techniques to planar antennas for mitigating cross-polarized radiations and mutual coupling in array elements [*IEEE AWPL*, 4, 455-458, 2005]. This has been eventually established it as an attractive and industry-qualified technique.
- **Introduced a new radiating mode** ( $HEM_{12\delta}$ ) in cylindrical shaped Dielectric Resonator Antenna (DRA) and successfully resolved the challenges of its excitation by innovating a series of novel feeds [*IEEE TAP*, 60 (1), 71-77, 2012]. This overall approach enables cylindrical DRA qualified for on-chip implementation.

- **Developed glue-free mount for Dielectric Resonator Antennas** [*IEEE AWPL*, 16, 2440-2443, 2017] for the first time. This is going to solve the major weakness of using this antenna on vibrating platforms like air-borne and space-borne systems.
- The **sources of cross-polar fields** in printed antennas have been thoroughly **identified** and the first-time solution to the high cross-polar fields across the skewed radiation planes has been reported [*IEEE TAP*, 68 (6), 4950 - 4954, 2020], [*IEEE AWPL*, 19 (1), 99-103, 2020]. This enables major improvements of SAR antennas and is already in process for the practical applications.
- **A new class of metalodielectric hybrid subarray has been introduced** with the aim of achieving maximum advantage out of minimum feed and element requirements [*IEEE TAP*, 69 (7), 3778 - 3787, 2021].
- **A new theory** of ‘open cavity resonant antenna’ along with an AI-based design has been developed to substitute traditional Fabry-Perot cavity [*IEEE AWPL*, 20 (5) 678-682, 2021]. A unique feed for satellite-borne reflectors has been developed in collaboration with ISRO.

**PH. D. STUDENTS SUPERVISED (18 Awarded; 5 Under Supervision)**

- **Jawad Y. Siddiqui** (‘Theoretical and experimental studies on some microstrip antennas of different, configurations’, 2005)
- **Manotosh Biswas** (‘Computer aided design and experimental studies of some microstrip antennas with conventional and modified ground structures’, 2008)
- **Sudipta Chattopadhyay** (‘Theoretical and experimental studies of some aspects of a rectangular microstrip patch antenna’, 2011)
- **Chandrakanta Kumar** (‘Investigations into cross-polarized radiations from probe-fed microstrip antennas and their suppression using defected ground structure’, 2012)
- **Bidisha Gupta** (‘On some novel wideband and ultrawideband monopole type dielectric resonator antennas’, 2013)
- **Sujoy Biswas** (‘Design and characterization of some new defected ground structures and their applications to microstrip/Dielectric resonator antennas’, 2014)
- **Archita Banerjee** (‘Novel technique to excite new radiating mode in practical dielectric resonator antennas’, 2015)
- **Halappa R. Gajera** (‘New approach of metallic and dielectric perturbation in cylindrical dielectric resonator antennas to control the modal fields and the radiation characteristics’, 2017)
- **Koushik Dutta** (‘New concept, theory, and advanced design of resonance cavity antenna’, 2017)
- **Satyajit Chakrabarti** (‘On some novel techniques to realize multi polarization/multi frequency shared aperture antenna’, 2018)
- **Debarati Ganguly** (‘Ultrawideband (UWB) antennas: innovative technique for time domain characterization and some novel designs of UWB monopoles’, 2019)
- **Chandreyee Sarkar** (‘Novel feeds and mounts for advanced microstrip and dielectric resonator antenna designs’, 2019)
- **Poulomi Gupta** (‘On some novel techniques to realize unconventional higher order radiating modes in cylindrical dielectric resonator antennas’, 2019)
- **Suvadeep Choudhury** (‘Substrate integrated waveguide inspired planar and 3D antennas for microwave and millimeterwave applications’, 2019)
- **M. Intiyas Pasha** (‘Novel designs of defected ground structure-integrated microstrip antennas and arrays for improved radiation characteristics, 2020)



- B. Pavan Kumar** ('Advanced design of active spherical phased array antenna and elements for satellite application', 2021)
- Debi Dutta** ('Planar and non-planar techniques to mitigate cross-polarization issue in microstrip antennas', 2024)
- Sk Rafidul** ('Identification of possible cross-polar sources in microstrip and dielectric resonator antennas and novel mitigation techniques, 2024)

### **BOOKS - MONOGRAPHS**

- D Guha, C. Kumar, and S. Biswas, **Defected Ground Structure Based Antennas, IEEE PRESS-WILEY (USA), 2023**
- D. Guha and Y. Antar (Ed.), **Microstrip and Printed Antennas, WILEY INT. SCI. (UK) , 2011**

### **JOURNAL PAPERS** (75 in IEEE, 25 in IEE/IET/Radio Sc./other Journals)

1. D. Dutta, C. Kumar, and **D. Guha**, "Rectangular Microstrip with Co-Planar Corner Loading: Advanced Antenna and Array Design for High Cross-polar Isolation across All Radiation Planes," *Radio Science*, vol. 59, Oct. 2024 (DOI: 10.1029/2024RS008027).
2. K. Dutta, M. O. Akinsolu, P. K. Mishra, B. Liu, and **D. Guha**, "Paper Title: Application of Machine Learning-Assisted Global Optimization for Improvement in Design and Performance of Open Resonant Cavity Antenna," *IEEE Open J. Antennas and Propagat.*, Vol. 5, No. 3, pp. 693-704, June 2024 (DOI: 10.1109/OJAP.2024.3385675).
3. C. Sarkar, S. Rafidul, C. Kumar and **D. Guha**, "A Way to Address Inherent Weakness in Conceiving the Ground Plane Geometry for a Microstrip Antenna," *IEEE Open J. Antennas and Propagat.*, Vol. 5, No. 2, pp. 516-524, Apr. 2024 (DOI: 10.1109/OJAP.2024.3366694).
4. Sk. Rafidul, C. Kumar, and **D. Guha**, "A Technique to Realize Aperture Coupled Microstrip Patch as a Truly Low Cross-polar Antenna by Mitigating the Major Issues over its Skewed Radiation Planes," *IEEE Open J. Antennas and Propagat.*, Vol. 4, pp. 754-763, 2023, (DOI: 10.1109/OJAP.2023.3295423) .
5. Sk. Rafidul, **D. Guha**, and C. Kumar, "Sources of Cross-polarized Radiations in Microstrip Patches: Multi-Parametric Identification and Insights for Advanced Engineering," *IEEE Antennas and Propagation Mag.*, Vol. 65, no. 2, pp. 92-103, April 2023.
6. D. Dutta, **D. Guha**, and C. Kumar, "A Concept of Advanced Design Governed by Theoretically Predicted Current Distributions on the Ground Plane Beneath an Aperture-Fed Microstrip Antenna," *IEEE Open J. Antennas and Propagat.*, vol. 4, pp. 461-471, 2023 (DOI: 10.1109/OJAP.2023.3267299).
7. Sk. Rafidul, P. Mishra, R. Bose, and **D. Guha**, "Uniformly Improved Cross-polar Discrimination in a Dielectric Resonator Antenna by Conduction Current Control," *IEEE Trans. Antennas and Propagat.*, Vol. 71, No. 3, pp. 2820- 2825, March 2023.
8. R. K. Chakraborty and **D. Guha** "DRA Induced Conduction Current on the Metallic Ground Plane: Interesting Observations on its Impact and Usefulness," *IEEE Antennas and Propagation Mag.*, vol. 65, no. 1, pp. 49-59, Feb. 2023.
9. C. Kumar, C. Sarkar, and **D. Guha**, "Radiating Mode Induced Cross-Polar Source in Microstrip Patch: Identification and Solution," *IEEE Antennas Wireless Propagation Lett.*, Vol. 21, No. 10, pp. 2080- 2084, Oct. 2022.
10. D. Dutta, **D. Guha**, and C. Kumar, "Microstrip patch with grounded spikes: a new technique to discriminate orthogonal mode for reducing cross-polarized radiations," *IEEE Trans. Antennas Propagat.*, Vol. 70, No. 3, pp. 2295 - 2300, March 2022.
11. C. Sarkar, **D. Guha**, and C. Kumar, "Source of Cross-Polar Fields in a Triangular Patch: Insight and Experimental Proof," *IEEE Antennas and Wireless Propagation Letters* Vol. 20, No. 12, pp. 2437 - 2441, Dec. 2021.

12. P. Gupta, **D. Guha**, and C. Kumar, "Dual-Mode Cylindrical DRA: Simplified Design with Improved Radiation and Bandwidth," *IEEE Antennas and Wireless Propagation Lett.*, Vol. 20, No. 12, pp. 2359 - 2362, Dec. 2021.
13. C. Sarkar, **D. Guha**, and C. Kumar, "Hybrid Subarray Using a New Concept of Feed for Advanced Antenna and Array Designs," *IEEE Trans. Antennas Propagat.*, vol. 69, no. 7, pp. 3778 - 3787, July 2021.
14. D. Dutta, **D. Guha**, and C. Kumar, "Mitigating Unwanted Mode in a Microstrip Patch by a Simpler Technique to Reduce Cross-Polarized Fields over the Orthogonal Plane," *IEEE Antennas and Wireless Propagation Lett.*, Vol. 20, No. 5, pp. 678 - 682, May 2021.
15. K. Dutta, P. Mishra, S. Manna, A. Pal, and **D. Guha**, "Geometrical Optics Based Advanced Design of an Open Cavity Resonant Antenna," *IEEE Antennas and Wireless Propagation Lett.*, Vol. 20, No. 3, pp. 322-326, March 2021.
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**CONFERENCE ARTICLES 175+** (not listed here)

**PATENTS** GRANTED -3, UNDER REVIEW-1

1. **Patent No 520544 (application no 201731000973)** (India) Granted with effect from 10 Jan 2017  
Inventors: D. Guha, C. Sarkar, C. Kumar, S. Biswas  
Title: Novel Dielectric Resonator Antenna and Array Structure to avoid adhesive or glue
2. **Patent No 525590 (application No.: KOL/201831003527)** (India) Granted with effect from 30 Jan 2018  
Inventors: S. Choudhury, A. Mohan, and D. Guha  
Title: A Millimeter Wave Horn Antenna
3. **Patent No 523964 (application No.: KOL/201831037619)** (India) Granted with effect from 04 Oct 2018  
Inventors: S. Choudhury, A. Mohan, and D. Guha  
Title: A Substrate Integrated Waveguide based Multi-Horn Antenna
4. **Patent Application No.: 201931008444** (India)  
Inventors: D. Guha, M. Pasha, and C. Kumar.  
Title: Microstrip Patch with Reduced Cross Polarized Radiations over Entire Skewed Radiation Planes

**STUDENTS' PROFILE**

- National Science and Engineering Academy Fellows (1)
  - URSI Young Scientist and equivalent Award winners (6)
  - Professors at the Universities and Institutes in India (5)
  - ISRO Scientist (5)
  - Other Govt. Laboratories (2)
  - US Industries (2)
  - Industry Leader (1)
  - Post-Doctoral Research Fellow in the US/Canada/Europe (6)
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