Debatosh Guha

FNA FASc FNASc FNAE
J C Bose Grant Awardee
INAE Chair Professor
Abdul Kalam National Fellow
IEEE 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 is now INAE Chair Professor at same Institute and former HAL Chair Professor at the Indian Institute of Technology (IIT) Khargapur. He received the BTech, MTech, and PhD 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 planar antenna technology for the new generation radar, sensor, and communication systems. He is a Fellow of IEEE and also a Fellow of all four National Science and Engineering Academies which include INSA (Indian National Science Academy), IASc (Indian Academy of Sciences), NASI (The National Academy of Sciences, India), and INAE (Indian National Academy of Engineering). He is a recipient of Abdul Kalam Technology Innovation National Fellowship, Govt. of India in 2020 and also the prestigious J C Bose Grant by ANRF, Govt. of India in 2025.

He has been closely associated with several universities in the North America, Europe, and Japan as a regular visitor cum collaborator and has served as an Associate Editor/ Guest Editor for IEEE Transactions/Letters/Journal/Magazine on Antennas and Propagation. He has served several Government and National organizations as committee chair/member, and had also 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 by establishing new Societies, Chapters, and flagship conferences. At present, he is holding a few key positions in promoting science and engineering at both national and international fora.

OFFICE
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ACADEMIC/PROFESSIONAL PREPARATION

1978 Madhyamik (Class X), W. B. Board of Secondary Education, 1st Division
1980 H. S. (Class XII), West Bengal Council of Higher Secondary Education, 1st Division
1983 B. Sc. Honors in Physics, University of North Bengal, 1st Class (Rank-1st)
1986 B. Tech. in Radio Physics and Electronics, University of Calcutta, 1st Class
1988 M. Tech. in Radio Physics and Electronics, University of Calcutta, 1st Class (Rank-1st)
1994 Ph. D. in Microwave Engineering, University of Calcutta, under the supervision of Prof. P. K. Saha
2004-2006 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

2023-2025	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

2023-2025	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

HONOR & FELLOWSHIP

- **2026 INAE Chair Professor (Jan 2026- Jan 2028)**
- **2025 J C Bose Grant (**FKA: **J C Bose National Fellow),** Govt. of India (Nov 2025- Oct 2030)
- **2020 Abdul Kalam Technology Innovation National Fellow**, Govt. of India (Feb 2020-Jan 2025)
- Elected **Fellow** of all Four Indian National Academies
  - **2022 Fellow, Indian National Science Academy, INSA** (FNA)
  - **2021 Fellow, Indian Academy of Sciences, IASc** (FASc)
  - **2015 Fellow, The National Academy of Sciences, India, NASI** (FNASc)
  - **2013 Fellow, Indian National Academy of Engineering, INAE** (FNAE)
- **2017** Elected **Fellow of IEEE** 'for contributions to microstrip and dielectric resonator antennas'

OTHER AWARDS & RECOGNITIONS

International

- **Distinguished Lecturer (DL) –** Selected as an academic leader/expert by the IEEE AP-Society in 2022.
- **Elected Full Member of Sigma Xi**, The Scientific Research Honor Society, in 2021-2022
- **IEEE Raj Mittra Travel Grant Award** (Chicago) – ONE recipient per year, by IEEE AP-S, 2012.
- **URSI Young Scientist Award** (France) – selected through a global contest, awarded at Lille, France, 1996.

National

- **Lifetime Achievement Award** by the IEEE Kolkata Section, Kolkata, January 2025
- **Acharya P C Ray Memorial Award** (Kolkata), 'for distinguished achievements in innovations...., 2020
- **IETE Ram Lal Wadha Award** (New Delhi) 'for his pioneering contribution in planar antenna….', 2016
- **Fellow, West Bengal Academy of Science and Technology, WAST** (FAScT), 2015
- **Fellow, Institution of Electronics and Telecommunication Engineers, IETE,** India (FIETE), 2015

LEADERSHIP IN PROFESSIONAL SOCIETIES

2026-	Invited to serve IEEE AP-S Chapter Activities Committee as a representative from IEEE R-10
2025-	Member, INAE Individual Membership Committee
2024-	Invited as Regional Delegate to EurAAP Antenna/AI Technique Working Group
2024-	Member, IEEE AP-S Fellow Search Committee
2023-	**Chair,** IEEE AP-S Member and Geographic Activities Committee
2022-	IEEE AP-S **Distinguished Lecturer** – selected as an international expert for delivering lectures to the Universities and Industries across the globe
2022-2023	**Chair,** IEEE Technical Committee on Antenna Measurements
2023-	**Member,** IEEE Technical Committee on Antenna Measurements

2022-2024 **Chair**, Indian National Academy of Engineering, Kolkata Chapter
2022-2024 Served the **Indian Academy of Sciences -** Sectional Committee for Engineering
2021-2023 Served **Indian National Academy of Engineering** (INAE) Sectional Committee VI
2018-2019 Served **IEEE Fields Award Committee**, as a member in Awardee Selection Process
2017-2020 **Vice-President**, West Bengal Academy of Science and Technology
2016 Founding Member, 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**, 8th European Conference EUCAP, Hague, The Netherlands
2013-2014 **Chair**, IEEE Kolkata Section, India

GOVERNMENT & SOCIETAL RESPONSIBILITIES

2024- Panel of Chairpersons**,** DRDO Recruitment and Assessment Centre, Govt. of India
2023- Chairman, 5G Expert Committee, IT & Electronics Dept., Govt.of West Bengal, India
2021- DST-SERB Programme Advisory Committee, Govt. of India
2021- INSA-INSPIRE Committee, INSA
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
2025 Advisor, Proposed Centre for RF & Microwave research, LNMIIT Jaipur

ACADEMIC/ ORGANIZATIONAL LEADERSHIP

2004 Founding Chair, IEEE AP-MTT Kolkata Chapter
2007 Founding Chair, IEEE Applied Electromagnetics Conference, CU, Kolkata
2009 General Chair, 2nd IEEE Applied Electromagnetics Conference, Hyatt Regency, Kolkata
2010 Founding Chair, Indian Antenna Week, Mayfair, Puri (1st IEEE AP-S event outside North America)
2011 General Chair, 3rd IEEE Applied Electromagnetics Conference, Hyatt Regency, Kolkata
2014 General Chair: IEEE Calcutta Chapter Conference - CALCON, Kolkata
2015 General Co-Chair: IEEE AP-S Industry Initiatives Committee Workshop, Ahmedabad
2018 Founding Chair & Course Director, Advanced School of Antennas (IEEE AP-S sponsored)
2018 Founding Member, Indian Conference on Antennas and Propagation (InCAP)
2022 Founding member, IEEE Microwaves, Antennas and Propagation Conference, MAPCON
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 receive 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	23-26 Aug	**Japan DL Series**: Hokkaido Univ., Sapporo and Kumamoto Univ., Kumamoto
	30 Oct-1 Nov	Mediterranean Microwave Symposium, **Tunisia**, Keynote Speaker
	6-10 Nov	City University of **New York** as visiting scientist
	15-17 Nov	**Genoa, Italy**: Organize and Chair a Special Session at IEEE CAMA
2024	20-23 Feb	Florida International University, **Orlando, USA**, Invited Talks
	4-6 March	Hiroshima University, **Japan**, Special Session in the IEICE Conference
	10-19 July	Summer Trip to **Europr**: University of Trento, **Italy**, Distinguished Lecture of IEEE AP-Society; **Florence, Italy**, Invited talks in IEEE AP Symp and Committee Chairs' meeting
	4-14 Oct	Vacation Trip to **USA**: **Denver** (Colorado State University); **Kanasas City** (University of Missouri), **New Jersey** (New Jersey Institute of Technology) for IEEE AP-S standing committee meeting and Distinguished Lecture Series.
2025	21-26 Feb	Cocoa Beach, **Florida, USA** (IEEE Society AdCom meeting) and Workshop at Advanced Science Research Center, **City University of New York**, USA.
	20-21 March	**Singapore**, Marina Forum on Metantennas and Antenna Systems, Invited Speaker
	12-16 July	Ottawa, **Canada,** IEEE AP Symp and Committee Chairs' meeting.

SERVICE AS JOURNAL EDITOR

2025-2028	**Associate Editor** of ***Radio Science*, American Geophysical Union (AGU)**
2023-2024	**Section Editor** of ***IEEE Antennas and Propagation Magazine***
2016-2021	**Associate Editor** of ***IEEE Transactions on Antennas and Propagation*** (outstanding ***Associate Editor*** recognition for 2017-2018 and 2020-2021)
2015-2019	**Associate Editor** of ***IEEE Antennas and Wireless Propagation Letters***

SERVICE AS TPC CHAIR/ADVISORY BOARD MEMBER

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. Symp. Electromagnetic Theory (EMTS 2025), June 23-27, Bologna, Italy • Intl. Symp. Antennas and Propagation (ISAP 2025), Oct. 27-31, Fukuoka, Japan • Progress in Electromagnetics Research Symp (PIERS 2025), Nov.5-9, Chiba, Japan
2006	IEEE SCPGCON, Manipal Institute of Tech. Bengaluru Sept. 2026

TALKS AND SEMINARS (LAST 3 YEARS)

2026

- Prasanta Chandra Mahalanobis Memorial Lecture: "Creative Minds in Science and Engineering and a Few Questions", *8th Regional Science & Technology Congress 2025-26 (Region II)*, Kazi Nazrul University, Asansol, India, 30 Jan. 2025.
- Invited Talk: "Antenna Design: Learning the Physics and Exploring Techniques over the Last 2 Decades", Golden Jubilee Hall, Indian Institute of Science, Bangalore, India, 9 Jan. 2026.

2025

- Keynote Talk: "Low Cross-Polar Antenna Design: Learning the Physics and Exploring Techniques Over the Last Two Decades", *IEEE Microwave, Antennas and Propagarion Conference (MAPCon 2025)*, Kochi, India, 15-18 Dec. 2025.
- Keynote Talk: "AI & ML: are your innovation and profession in crisis?", *13th Intl.Con. Intelligent Embedded, MicroElectronics, Communication and Optical Networks (IEMECON 2025)*, University of Engineering & Management, Jaipur, India, 8 Dec. 2025.
- Keynote Talk: "Machine Learning and Artificial Intelligence: are your innovation and profession in crisis?", *IEEE 5th Intl Conf. on Applied Electromagnetics, Signal Processing & Communication* (AESPC 2025), Kalinga Institute of Industrial Technology (KIIT), Bhubaneswar, India, 5 Dec. 2025.
- J C Bose Birth Anniversary Lecture: "Answer to a longstanding quest", Departments of Electronics & Telecommunication Engineering and Physics, Indian Institute of Engineering Science and Technology (IIEST) Shibpur, 30 Nov. 2025.
- Invited Talk: "Machine Learning-assisted Antenna Design: An Amazing Experience", in IEEE AP-S Seminar, Tokyo University of Agriculture and Technology, Tokyo, Japan, 16 Sept 2025.
- Plenary Talk in Jiaxing Antenna Summit (virtual): "Planar Antenna free from Cross-Polar Radiations:State-of-the-Art Knowledge and Fabulous Solutions", Zhejiang, China, 7 Aug. 2025.
- Plenary Talk in IEEE SPace, Aerospace and defenCE (IEEE SPACE): "IEEE AP-S and Some Surprising Facts", Bangalore, 21 July 2025.
- Invited Talk in WAMS internship program: "Antenna with Love", The Wireless, Antenna & Microwave Symposium Society, July 2, 2025.
- Invited Talk in a Special Seminar: "Exploring Experience: IEEE AP-S, Research, and Career", IEEE Student Branch, Asansol Engineering College, June 14, 2025.
- Distinguished Lecture Series by IEEE APS Chapter, Vizag Bay Section: 'Insights and Evolutionary Thoghts: Antenna Engineering", SESI Institute of Engineering and Technology, Thadayapalli Gudem, Andhra Pradesh, June 12, 2025; "Innovation in Science and Engineering and a Few Questions", Dhanayakala Institute of Engineering and Technology, Vijayawada, Andhra Pradesh, June 13, 2025.
- Keynote talk: 'Art and Challenges in Low Cross-Polar Antenna Design", IEEE Wireless, Antenna & Microwave Symposium (WAMS 2025), Indian Institute of Information Technology, Design and Manufacturing, Kancheepuram, Chennai, June 5-8, 2025.
- Keynote talk: "Innovation in science and engineering and a few questions", National Institute of Technology, Silchar, May 23, 2025.

- Inaugural Address: 'Role of Antennas and Propagation in Electrical Engineering", Dibrugarh University IEEE Antennas and Propagation Society Student Branch Chapter under IEEE Kolkata Section, Dibrugarh University, May 9, 2025.
- Invited Talk in Marina Forum on Metantennas and Antenna Systems 'Art and Challenges in Low Crosspolar Antenna Design', Singapore, March 20-21, 2025.
- Inaugural Address: Workshop on 'Advances in Millimeter Wave and Terahertz Technologies for 6G and Future Wireless Networks', National Institute of Technology Patna in association with the Ministry of Electronics and Information Technology (MeitY), Govt. of India, Feb. 10, 2025.
- Invited Talk in Engineering Science and Technology Section: "Creativity and Innovation: Challenges in Scientific Reserach", 7th Regional Science and Technology Congress, Govt. of West Bengal, Rampurhat College, Rampurhat, 10 January 2025.

2024

- Keynote Talk: "Mastering the Art of Scientific Writing", IEEE Microwave, Antennas and Propagation Conference MAPCON 2024, Hyderabad, India, 10 December 2024.
- Keynote Talk: "No Antenna to naNo Antenna", 4th Intl. Conf. Applied Electromagnetics, Signal Processing, and Communication, KIIT University, Bhubaneswar, 29 Nov. 2024.
- Plenary talk: "Antenna: an amazing structure for scientists and engineers", 4th Intl. Conf. Signal and Data Processing, VIT Bhopal University, 21 Nov. 2024.
- IEEE AP-S/MTT-S Distinguished Instructors Workshop: "Antenna: a fantastic device that transformed the technology", hybrid mode, hosted by Ruhr-University Bochum, Germany, 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 75th Anniversary Celebratory Address: "In the light of 75th Anniversary of IEEE AP Society", IEEE SPACE, Bangalore, 22 July 2024.
- Invited Talk in the AP-S 75th 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.

EDUCATIONAL PROGRAMMES AND INNITIATIVES

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.

PhD 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 Gajera	('New approach of metallic and dielectric perturbation in cylindrical DRAs 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 (79 in IEEE; 25 in IEE/IET/OTHERS)

1. P. K. Basu, S. Sen, and **D. Guha**, "History of Wireless Education in the Last Century and the Role of University of Calcutta," *Historically speking in* ***IEEE Antennas and Propagation Mag****.:* vol. 68, no. 2, pp. xx-xx, April 2026 (to appear).
2. D. Das, S. Rafidul, R. Jana, and **D. Guha**, "An Alternate Technique Explored to Realize Half-Wave Electric Dipole Using Dielectric Resonators," ***IEEE Antennas Wireless Propagation Lett***., vol. 24, no. 7, pp. 1675 - 1678, July 2025 DOI: 10.1109/LAWP.2025.3544114
3. S. Rafidul, M. O. Akinsolu, B. Liu, C. Kumar, and **D. Guha**, "Machine Learning-Assisted Microstrip Antenna Design Featuring Extraordinary Polarization Purity," ***IEEE Antennas Wireless Propagation Lett.***, vol. 24, no. 4, pp. 1008-1012, April 2025 DOI 10.1109/LAWP.2024.3524249
4. S. Chakrabarti and **D. Guha**, "Dual-Fed DRA Subarrays Featuring Versatile Polarization Reconfigurability with High Port Isolation and Suppressed Cross-Polar Radiations," ***IEEE Open J. Antennas and Propagat***., vol. 6, no. 2, pp. 560-577, April 2025 DOI 10.1109/OJAP.2025.3538686
5. 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, no. 10, Oct. 2024, DOI 10.1029/2024RS008027

6. K. Dutta, M. O. Akinsolu, P. K. Mishra, B. Liu, and **D. Guha**, "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.
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PATENT

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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

UNDER REVIEW- 1

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

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