

**Research Interest:**

Radio Frequency Energy harvesting, Microwave Communication, Planar Monopole Antennas, UWB Antennas, Antenna Array Synthesis, Stacked Patch Antennas

Awards and achievements:

1. Elevated to the grade of IEEE Senior Member on 2014 by IEEE.
2. Advisory board member on 'National workshop on recent advancement in microwaves, antenna and spectrum' organized by 'Government Mahila Engineering College, Ajmer (TEQIP-II) on 18th September, 2015.
3. Acting as an Associate Editor in Springer Nature Journal.
4. Acting as reviewer in different international journals.
5. Awarded best paper award from different international conferences.
6. Attended different faculty development programmes throughout India.

Patent & Copyright:

Dr. A. Karmakar, "Physical Bio-Electronic System for Smart Medical Diagnostics Integrated Bioinformatics and Electronic Sensor Networks for Personalized Medicine," Indian Patent Application No. **202631070497**, filed/published on **19-06-2026**.

Dr. A. Karmakar applied for copyright registration bearing **Diary No. LD-48210/2025-CO** on **20 November 2025**.

Book Publication:

1. Puja Das, Nipa Panchal Biswas & Anirban Karmakar, 'Rectennas for RF Energy Harvesting Applications' by Notion Press, 2026.

Book Chapter Publication:

1. PUJA DAS, ANIRBAN KARMAKAR, "DIELECTRIC RESONATOR RECTENNA FOR RF ENERGY HARVESTING BASED ON FRACTAL TECHNIQUE", Wireless Technologies in Human Healthcare 2026, Edited by Ram Krishan and Manpreet Kaur.
2. Mousumi Das, Puja Das, Nipa Panchal Biswas, Anirban Karmakar, A MODIFIED CIRCULAR FRACTAL RECTENNA FOR RADIO FREQUENCY ENERGY HARVESTING APPLICATIONS, In: Frontiers in Electronic Communication: Principles, Methods, and Innovations V6S1109B1, IIP Series, Volume 6, June, 2026, pp. 115-124, Iterative International Publishers IIP, E-ISBN: 978-81-6774-297-1, DOI: <https://www.doi.org/10.58532/nbennurFECPV6B1P2C1>.

3. Anirban Karmakar, Anuradha Saha, "Fractal-Inspired Ultra-Wideband Diversity Slot Antenna for Wireless Communication Systems", Contemporary Developments in High-Frequency Photonic Devices, IGI GLOBAL 2019, ADDRESS: 701 E. CHOCOLATE AVE. HERSHEY, PA 17033, USA
4. Anirban Karmakar, Design and Analysis of an UWB Printed Monopole Antenna with Hilbert Curve Fractal Shaped Slots for Multiple Band Rejection Functionality, Handbook of Research on Advanced Trends in Microwave and Communication Engineering, edited by Ahmed El Oualkadi Abdelmalek Essaadi University, Morocco Jamal Zbitou, Hassan 1st University, Morocco.
5. Anindita Bhattacharjee, Anirban Karmakar, Anuradha Saha, Multiple Input Multiple Output (MIMO) Antennas: A Concise Review and Current State of the Art', in Innovative Smart Materials Used in Wireless Communication Technology 2023, edited by Ram Krishan Mata Sundri University Girls College, India, Manpreet Kaur, Yadavindra Department of Engineering, Guru Kashi College, Punjabi Univer-sity, India, Shilpa Mehta, Auckland University of Technology, New Zealand.
6. Utsab Banerjee, Anirban Karmakar, Anuradha Saha, 'Circularly Polarized Antennas: An Evident Advancement in Modern Wireless Communications' in Innovative Smart Materials Used in Wireless Communication Technology 2023, edited by Ram Krishan Mata Sundri University Girls College, India, Manpreet Kaur, Yadavindra Department of Engineering, Guru Kashi College, Punjabi Univer-sity, India, Shilpa Mehta, Auckland University of Technology, New Zealand.
7. Anirban Karmakar, Anuradha Saha, 'Fractal-Inspired Ultra-Wideband Diversity Slot Antenna for Wireless Communication Systems' in Contemporary Developments in High-Frequency Photonic Devices 2019, edited by Siddhartha Bhattacharyya, Pampa Debnath, Arpan Deyasi and Nilanjan Dey.

Journal Publications:

1. R. Ghatak, A. Karmakar and D. R. Poddar, "A Circular Shaped Sierpinski Carpet Fractal UWB Monopole Antenna with Band rejection capability," Progress In Electromagnetics Research C, vol. 24, pp. 221-234, 2011.
2. A. Karmakar, S. Verma, M. Pal, and R. Ghatak, "An Ultrawideband monopole Antenna with multiple fractal slots with Dual band rejection characteristic," Progress In Electromagnetics Research C, vol. 31, pp. 185-197, 2012.
3. Anirban Karmakar, Shashank Verma, Manimala Pal and Rowdra Ghatak, "Planar Fractal Shaped Compact Monopole Antenna for Ultrawideband Imaging Systems, "International Journal of Microwave and Optical technology, vol. 7, no. 4, pp. 262-267, July 2012.
4. Rowdra Ghatak, Anirban Karmakar and D.R. Poddar, "Hexagonal boundary Sierpinski carpet fractal shaped compact Ultrawideband antenna with band rejection functionality," AEU - International Journal of Electronics and Communications, vol. 67, no. 3, pp. 250-255, March 2013.
5. Anirban Karmakar, Rowdra Ghatak, Utsab Banerjee and D.R. Poddar, "An UWB antenna using modified Hilbert curve slot for dual band notch characteristics" Journal of Electromagnetic Waves and Applications , vol. 27, no. 13, pp. 1620-1631, 2013.

6. Avik Gorai, Anirban Karmakar, Manimala Pal and Rowdra Ghatak, "Multiple fractal shaped slots based UWB antenna with triple band notch functionality," *Journal of Electromagnetic Waves and Applications*, vol. 27, no. 18, pp. 2407-2415, 2013.
7. R. Ghatak, A. Karmakar and D. R. Poddar, "A CPW fed propeller shaped monopole antenna with super wideband characteristics," *Progress In Electromagnetics Research C*, vol. 45, pp. 125-135, 2013.
8. R. Ghatak, A. Karmakar and D. R. Poddar, "A Circular Fractal UWB Antenna based on Descartes circle theorem with band rejection capability," *Progress In Electromagnetics Research C*, vol. 37, pp. 235-248, 2013.
9. Avik Gorai, Anirban Karmakar, Manimala Pal, Rowdra Ghatak, "A superwideband chebyshev tapered antipodal Vivaldi antenna," *AEU - International Journal of Electronics and Communications*, vol. 69, no. 9, pp. 1328-1333, March 2013.
10. Anirban Karmakar, Rowdra Ghatak, D R Poddar and Utsab Banerjee, "Complementary stacked patch antenna with fractal shape defect for wideband characteristics," *Microwave and Optical Technology Letters*, vol. 56, no. 4, pp. 944-947, April 2014.
11. Balaka Biswas, R. Ghatak, A. Karmakar and D. R. Poddar, "Dual band notched UWB monopole antenna using embedded omega slot and fractal shaped ground plane," *Progress In Electromagnetics Research C*, vol. 53, pp. 177-186, 2014.
12. A. Karmakar, R. Ghatak, D. R. Poddar and R. K. Mishra, "Sierpinski Carpet Fractal based array Optimization based on Differential Evolution Algorithm," *Journal of Electromagnetic Waves and Applications*, vol. 29, no. 2, pp. 247-260, 2015.
13. Rowdra Ghatak, Anirban Karmakar & D.R.Poddar, "Evolutionary optimization of Haferman carpet fractal patterned antenna array," *International Journal of RF and Microwave Computer-Aided Engineering*, vol. 25, no. 8, pp. 719-729, 2015.
14. J.Banerjee, A. Karmakar, R. Ghatak, D. R. Poddar, "Compact CPW-fed UWB MIMO antenna with a novel modified Minkowski fractal defected ground structure (DGS) for high isolation and triple band-notch characteristic," *Journal of Electromagnetic waves and Applications*, Vol.31, pages.1550-1565, 2017.
15. P. Debnath, A. Karmakar, A. Saha, S. Huda, "UWB MIMO Slot Antenna with Minkowski Fractal Shaped Isolators for Isolation Enhancement," *Progress in Electromagnetics Research M*, Vol.75, pp. 69-78, 2018.
16. A. Karmakar, A. Bhattacharjee, A. Saha, A. Bhawal, "Design of a fractal inspired antipodal vivaldi antenna with enhanced radiation characteristics for wideband applications" *IET Microwaves Antenna and Wave propagation*, Vol.13, pp. 892-897, 2018.
17. A. Karmakar, P. Chakraborty, U. Banerjee and A. Saha, "Combined triple band circularly polarised and compact UWB monopole antenna," *IET Microwaves, Antennas & Propagation*, vol. 13, no. 9, pp. 1306-1311, vol. 24, no.7, 2019.
18. U. Banerjee, A. Karmakar, A. Saha, P. Chakraborty, "A CPW-fed compact monopole antenna with defected ground structure and modified parasitic Hilbert strip having wideband circular

- polarization”, International Journal of Electronics and Communication, Vol.110, pp.1-9, 2019, <https://doi.org/10.1016/j.aeue.2019.152831>.
19. A Karmakar, A Bhattacharjee, A Saha & A Bhawal, “Design of a fractal inspired antipodal Vivaldi antenna with enhanced radiation characteristics for wideband applications” IET Microwaves, Antennas & Propagation, 2019.
 20. U.Banerjee, A.Karmakar & A.Saha “A review on circularly polarized antennas, trends and advances”, International Journal of Microwave and Wireless Technologies, pp. 1–22.2020. <https://doi.org/10.1017/S1759078720000331>
 21. U.Banerjee, A. Karmakar, A.Saha, “A review on circularly polarized antennas, trends and advances”, International Journal of Microwave and Wireless Technologies, pp.1-22, 2020, doi:10.1017/S1759078720000331
 22. Bhattacharjee, A, Bhawal, A, Karmakar, A, Saha, A. “Design of an antipodal Vivaldi antenna with fractal-shaped dielectric slab for enhanced radiation characteristics”, Microwave & Optical Technology Letters, Vol.62, pp.2066– 2074, 2020. <https://doi.org/10.1002/mop.32274>
 23. A.Bhattacharjee, A.Bhawal, A.Karmakar, A.Saha & A.Bhattacharya, “Vivaldi antennas: A historical review and current state of art, International Journal of Microwave and Wireless Technologies”, Vol.13, No.8, pp.833-850, 2020. doi:10.1017/S1759078720001415
 24. A.Karmakar, “Fractal antennas & arrays: A review and recent developments”, International Journal of Microwave and Wireless Technologies, vol.13, pp. 173-197, 2020. <https://doi.org/10.1017/S1759078720000963>
 25. P.Chakraborty, U.Banerjee, A.Saha, A.Karmakar, “A compact Ultra Wideband dielectric resonator antenna with dual-band circular polarization characteristics”. International Journal RF Microwave Computer Aided Engineering. 2021; 31:e22577. <https://doi.org/10.1002/mmce.22577>
 26. A.Bhattacharjee, A.Karmakar, A.Saha & A.Bhattacharya,”Design of a compact UWB MIMO-diversity antenna incorporating fractal inspired isolation structure with band notch characteristics”. Microwave and Optical Technology Letters, 2021; 63: 2597-2605. <https://doi.org/10.1002/mop.32927>
 27. Piyali Chakraborty, Utsab Banerjee, Anuradha Saha, and Anirban Karmakar, "A Compact Dielectric Resonator Based Dual Port Circularly Polarised MIMO Antenna for Wideband Applications," Progress In Electromagnetics Research M, Vol. 107, 51-63, 2022. doi:10.2528/PIERM21091402. <http://www.jpier.org/PIERM/pier.php?paper=21091402>
 28. Anindita Bhattacharjee, Anirban Karmakar, and Anuradha Saha, "A Compact UWB DRA MIMO Antenna Realizing Band Notch Characteristics and Fractal Inspired Isolation Mechanism," Progress In Electromagnetics Research C, Vol. 123, 213-226, 2022. doi:10.2528/PIERC22060604
 29. Huda S, Saha A, Karmakar A. *Inverted Sierpinski Carpet fractal-inspired dielectric resonator antenna for wideband applications. Microw Opt Technol Lett.* 2023; 65: 814-825. [doi:10.1002/mop.33550](https://doi.org/10.1002/mop.33550)

30. Huda S, Saha A, Karmakar A. *Ultra wideband (UWB) dielectric resonator antenna using fractal-inspired feeding mechanism*. *Int J Commun Syst*. 2023; 36(13):e5519. doi:[10.1002/dac.5519](https://doi.org/10.1002/dac.5519)
31. Chakraborty, P., Karmakar, A. & Saha, A. A Review on Dielectric Resonator Antennas: Past and Present. *Wireless Pers Commun* **134**, 1367–1388 (2024). <https://doi.org/10.1007/s11277-024-10946-2>
32. Das P, Karmakar A. *A reconfigurable wideband MIMO antenna combines RF energy harvesting*. *Int J Commun Syst*. 2024; 37(5):e5683. doi:[10.1002/dac.5683](https://doi.org/10.1002/dac.5683)
33. Tamasi Moyra Panua Nipa Panchal Biswas, Puja Das, Anirban Karmakar, A Compact Novel Fractal Based Rectenna for RF Energy Harvesting, *Progress In Electromagnetics Research C*, Vol. 162, 148–156, 2025.
34. Das, P., Karmakar, A., Halimi, Md. A., Bhowmik, P., & Huda, S. (2025). A fractal-based single band DR-rectenna for RF energy harvesting. *Journal of Electromagnetic Waves and Applications*, 39(8), 918–930. <https://doi.org/10.1080/09205071.2025.2487506>
35. P. Das, A. Karmakar, and P. Debnath, “ A Novel Miniaturized Broadband Pentaflake Fractal Based Integrated Rectenna for Ambient RF Energy Harvesting for Smart City Applications,” *Microwave and Optical Technology Letters* 68 (2026): e70671, <https://doi.org/10.1002/mop.70671>.

Conference Publications

1. A. Karmakar, A. Saha, A. Bhattacharjee and A. Bhawal, "Design of a Fractal Based Wideband Antipodal Vivaldi Antenna with Improved Radiation Characteristics for Biomedical Applications," 2018 Fourth International Conference on Research in Computational Intelligence and Communication Networks (ICRCICN), Kolkata, India, pp. 38-42, 2018.
2. A. Karmakar, A. Bhattacharjee, A. Bhawal and A. Saha, "A Wideband Vivaldi Antenna with Fractal Dielectric Lens for Imaging Applications," 2018 4th International Conference for Convergence in Technology (I2CT), Mangalore, India, pp. 1-5, 2018.
3. J. Banerjee, R. Ghatak and A. Karmakar, "A compact planar UWB MIMO diversity antenna with Hilbert fractal neutralization line for isolation improvement and dual band notch characteristics," 2018 Emerging Trends in Electronic Devices and Computational Techniques (EDCT), pp. 1-6, 2018.
4. J. Banerjee, A. Karmakar, A. Saha, P. Chakraborty, A. Bhattacharjee, P. Debnath, "A compact printed UWB monopole antenna with triple band notch characteristics," 2018 3rd International Conference on Microwave and Photonics (ICMAP), Dhanbad, pp. 1-2, 2018
5. J. Banerjee, A. Karmakar and R. Ghatak, "A Compact Printed UWB MIMO Monopole Antenna with Modified Complementary Fractal for Isolation Improvement and Triple Band Notch Characteristics," 2018 Fifteenth International Conference on Wireless and Optical Communications Networks (WOCN), pp. 1-5, 2018
6. A. Bhattacharjee, A. Bhawal, A. Karmakar, A. Saha, "Design of a Wideband Antipodal Vivaldi Antenna with Dielectric Fractal Lens for Biomedical Imaging Applications", *Proceedings of the*

2nd International Conference on Information Systems & Management Science (ISMS), Tripura University, Agartala, Tripura, India 2020.

7. J. Banerjee, A. Karmakar and R. Ghatak, "An Ultra-wideband Diversity Antenna with Novel Fractal Neutralization Line for Isolation Improvement and Dual Band Rejection Attributes," 2018 IEEE MTT-S International Microwave and RF Conference (IMaRC), 2018, pp. 1-4, doi: 10.1109/IMaRC.2018.8877375.
8. A. Karmakar, A. Saha, A. Bhattacharjee and A. Bhawal, "Design of a Fractal Based Wideband Antipodal Vivaldi Antenna with Improved Radiation Characteristics for Biomedical Applications," 2018 Fourth International Conference on Research in Computational Intelligence and Communication Networks (ICRCICN), 2018, pp. 38-42, doi: 10.1109/ICRCICN.2018.8718737.
9. A.Karmakar, Fractal antennas and its applications”, CCSN 2018.
10. A. Bhattacharjee, A. S. Chowdhuri, A. Saha, A. Karmakar and D. Bhattacharya, "Compact Fractal Shaped MIMO Antenna for Portable UWB Applications," 2020 IEEE Region 10 Symposium (TENSYP), 2020, pp. 1600-1603, doi: 10.1109/TENSYP50017.2020.9231040.
11. A.Karmakar, ” Ultra-wideband dielectric resonator antennas: Understanding of modal analysis”, INSET 2021.
12. S. Huda, A. Karmakar and A. Saha, "Minkowski Fractal Dielectric Resonator Antenna for UWB Application," 2021 6th International Conference for Convergence in Technology (I2CT), 2021, pp. 1-7, doi: 10.1109/I2CT51068.2021.9418205.
13. A. Karmakar,” A wideband MIMO antenna with modified Hilbert shaped isolation structure for wireless communication applications”, MICRO 2021.
14. Puja Das, Anirban Karmakar, Pankaj Sarkar, “A design of Dielectric resonator Rectenna for Radio Frequency Energy Harvesting: A Renewable Source of Energy” ISDCS 2025.
15. MOUSUMI DAS, PUJA DAS, NIPA PANCHAL BISWAS, ANIRBAN KARMAKAR, “A CIRCULAR FRACTAL RECTENNA WITH RF ENERGY HARVESTING MECHANISM” WRFER INTERNATIONAL CONFERENCE 2025.