

Gourav Dhar Bhowmick

Assistant Professor

Indian Institute of Technology Khararapur

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Citations: 2380, h-index: 30, i10-index: 43 (as of 19/05/2026)



Education

August 2016 – June 2020

Doctorate (Ph.D.), *Development of Bio-Electrochemical System Assisted Advanced Hybrid Treatment Systems for Aquacultural Wastewater*

Indian Institute of Technology, Khararapur, West Bengal, India

Aug 2014 – July 2016

M.Tech, *Agricultural and Food Engineering*

Indian Institute of Technology, Khararapur, West Bengal, India

Aug 2010 – May 2014

B.Tech, *Agricultural Engineering*

Uttar Banga Krishi Vishwavidyalaya, Cooch Bihar, West Bengal, India

Professional Experience

September 2021 – Present

Assistant Professor

Agricultural and Food Engineering Department

Indian Institute of Technology, Khararapur, India

July 2020 – September 2021 (1 year and 3 months)

Post-Doc Researcher, *Development and Testing of Hollow Fiber Anion Exchange Membranes for Wastewater Treatment and Membrane-based Isotope Separation Techniques*

Zuckerberg Institute for Water Research,

Ben-Gurion University of the Negev, Sde Boker campus, Be'er Sheva, Israel

15th September 2018 – 14th October 2018 (1 month)

Exchange Research Scholar, *Integrated MFC-MBR system using low-cost, multifunctional ceramic membrane for efficient wastewater treatment and electricity recovery*

University of Bremen, Germany

1st October 2017 – 24th November 2017 (1 month and 24 days)

Exchange Research Scholar, *Integrated MFC-MBR system using low-cost, multifunctional ceramic membrane for efficient wastewater treatment and electricity recovery*

University of Bremen, Germany

Subjects Taught at IIT KGP

- ❖ Water Quality Management Practices (AG61693)
- ❖ Advanced Aquaculture Technology (AG60108)
- ❖ Planning and Design of Aquacultural Farms (AG60056)
- ❖ Open Channel Hydraulics and Coastal Engineering (AG60051)
- ❖ Design of Aquacultural Facilities and Equipment (AG60054)
- ❖ Engineering Laboratory (UG) (EN19003)

New Course Introduced

- ❖ Microcredit course on 'Fundamentals of Project Management (AG66001)' offered since December 2021.

NPTEL /SWAYAM courses developed

- ❖ NPTEL online certification course on 'Advanced Aquaculture Technology' (An AICTE-approved FDP course) offered since July 2022 (No. of Participants: More than 7000).
- ❖ NPTEL online certification course on 'Water Quality Management Practices' (An AICTE-approved FDP course) offered since Jan 2024 (No. of Participants: More than 5000).

Workshop/Symposium organized

- ❖ **Online International Training Programme on ‘Emerging Trends in Agricultural Technologies’** jointly organized by **African-Asian Rural Development Organization (AARDO) and IIT Kharagpur** on 27th March – 4th April 2023 attended by **203 delegates from 29 countries (Funding – 2,000 USD)**.
- ❖ **International Training Programme on ‘Technological Advancements in Agricultural and Food Engineering Sector in India’** jointly organized by **African-Asian Rural Development Organization (AARDO) and IIT Kharagpur** on 10th December – 19th December 2023 attended by **10 delegates from 9 countries at IIT Kharagpur, India (Funding – 15,49,812 INR)**
- ❖ **Advanced Entrepreneurship and Skill Development Training (A-SDP) on ‘Advanced Aquacultural Technologies’** from 4 – 10 February 2024 with the support of **Ministry of Micro, Small & Medium Enterprises (MSME) at IIT Kharagpur, India (Funding – 10,00,000 INR)**
- ❖ **2nd Online International Training Programme on ‘Advancements in Agricultural and Food Engineering in India’** jointly organized by **African-Asian Rural Development Organization (AARDO) and IIT Kharagpur** on 10th June – 13th June 2024 attended by **91 delegates from 21 countries (Funding – 2,000 USD)**.
- ❖ **2nd International Training Programme on ‘Emerging Trends in Agricultural Technologies’** jointly organized by **African-Asian Rural Development Organization (AARDO) and IIT Kharagpur** on 17th November – 26th November 2024 attended by **10 delegates from 10 countries at IIT Kharagpur, India (Funding – 16000 USD)**
- ❖ **National Programme on Technology Enhanced Learning (NPTEL) lab-Workshop on ‘Advanced Aquacultural Technologies’** from 2nd December - 7th December 2024 was organized with the support of NPTEL at **IIT Kharagpur, India (Funding - 2,00,000 INR)** attended by **30 delegates from different institutes and startups from India**.
- ❖ **3rd Online International Training Programme on ‘Advancements in Agricultural and Food Engineering in India’** jointly organized by **African-Asian Rural Development Organization (AARDO) and IIT Kharagpur** on 1st July – 4th July 2025 attended by **152 delegates from 25 countries (Funding – 2,000 USD)**.
- ❖ **3rd International Workshop on ‘Emerging Trends in Agricultural Technologies’** jointly organizing by **African-Asian Rural Development Organization (AARDO) and IIT Kharagpur** on 30th November – 9th December 2025 attended by **9 delegates from 8 countries at IIT Kharagpur, India (Funding – 10000 USD)**

Research Guidance

Post-Doc – Completed: 1

- ✚ **Dr. Arkajyoti Mukherjee – National Post-Doctoral Fellowship (NPDF), SERB –March, 2024 to March 2026**

No.	Name	Title	Year, University/Institution	Supervisor/s
1	Dr. Arkajyoti Mukherjee - National Post-Doctoral Fellow (NPDF), ANRF	Sustainable Management of Important Wetlands on Bird Migration Flyways: Effect of Water Quality and Heavy Metal Toxicity on the Aquatic Biota	March 2024 – February 2026, IIT Kharagpur	Prof. G. D. Bhowmick

Ph.D. - Completed: 2; Ongoing: 8

No.	Name	Title	Year, University/Institution	Supervisor/s
1	Ahmad Faisal	Development of Advanced Aquaponics System	Ongoing, IIT Kharagpur	Prof. D. K. Swain and Prof. G. D. Bhowmick
2	Rajasekar V	Advanced bioreactor assisted smart aquaponics systems for urban farming	Ongoing, IIT Kharagpur	Prof. G. D. Bhowmick
3	Arun Kumar T	Advanced oxidation processes	Ongoing, IIT Kharagpur	Prof. G. D. Bhowmick and Prof. M. M. Ghangrekar
4	Santosh Kumar	Algal-Bioelectrochemical process	Awarded on July 2025, IIT Kharagpur	Prof. M. M. Ghangrekar and Prof. G. D. Bhowmick
5	Jadhav Gorakhanath Sadashiv	Bioelectrochemical systems for wastewater treatment	Awarded on Feb 2026, IIT Kharagpur	Prof. M. M. Ghangrekar and Prof. G. D. Bhowmick
6	Arka Pramanik	Advanced bioelectrochemical systems for aquaculture wastewater treatment	Ongoing, IIT Kharagpur	Prof. G. D. Bhowmick
7	Raktim Halder	Seaweed based bio-stimulants and bioplastics	Ongoing, IIT Kharagpur	Prof. G. D. Bhowmick and Prof. Dibyendu Kamilya
8	Diptesh Goswami	Emerging contaminants removal from aquatic ecosystem	Ongoing, IIT Kharagpur	Prof. G. D. Bhowmick
9	Ajanya T K	Aquacultural wastewater treatment	Ongoing, IIT Kharagpur	Prof. Dibyendu Kamilya and Prof. G. D. Bhowmick
10	Debasmita Sarkar	Antihypertensive and Cardioprotective Effects of Salicornia: Mechanistic and Pharmacological Insights	Ongoing, IIT Kharagpur	Prof. Praveen Kumar Sappati and Prof. G. D. Bhowmick

MS by Research - Completed: 3; Ongoing: 0

No.	Name	Title	Year, University/Institution	Supervisor/s
1	Kendi Josyline (Kenya)	Design of advanced cage culture system	Awarded on December 2024, IIT Kharagpur	Prof. G. D. Bhowmick
2	Geophry Wasonga Anyango (Kenya)	Agricultural water treatment and policy making	Awarded on January 2025, IIT Kharagpur	Prof. G. D. Bhowmick and Prof. Niharika Sahoo Bhattacharya
3	Sophret Tsogolani (Malawi)	Advanced aeroponics systems for urban farming	Awarded on 20 Feb 2026, IIT Kharagpur	Prof. G. D. Bhowmick and

				Prof. Niharika Sahoo Bhattacharya
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M. Tech - Completed: 11; Ongoing: 2

No.	Name	Title	Year, University/Institution	Supervisor/s
1	Prakash S (21AG65R01)	Identification of opportunistic pathogens for effective policy making in offshore seaweed cultivation	Awarded on May 2023, IIT Kharagpur	Prof. G. D. Bhowmick and Prof. V. Nagarajan
2	Kiran KJ (21AG65R04)	Performance evaluation of aquacultural waste-based biochar as a catalyst in sediment microbial fuel cell for integrated multitrophic aquaculture systems	Awarded on May 2023, IIT Kharagpur	Prof. G. D. Bhowmick
3	Avrodeep Paul (21AG65R08)	A novel technique to characterize the scattering phenomenon from raft and oil spill and its detection	Awarded on May 2023, IIT Kharagpur	Prof. G. D. Bhowmick
4	Kishor Jadav (21AG65R02)	Indian Fish Species Recognition Using Deep Learning Techniques	Awarded on May 2023, IIT Kharagpur	Prof. G. D. Bhowmick
5	Arka Pramanik (22AG65R07)	Performance Evaluation of Fishery Waste-derived Biochar Cathode Catalyst in Constructed Wetland Microbial Fuel Cell	Awarded on May 2024, IIT Kharagpur	Prof. G. D. Bhowmick
6	Raktim Haldar (22AG65R05)	Synthesis of Anti-Biofouling Coatings using Extracts from Tilapia Skin Mucous and Dried Red Seaweed Powder for Aquacultural Facilities and Equipment	Awarded on May 2024, IIT Kharagpur	Prof. G. D. Bhowmick
7	Akarsh Upadhyay (22AG65R08)	Development and Optimization of Biodegradable Films and Paper from Red Seaweed (Kappaphycus alvarezii)	Awarded on May 2024, IIT Kharagpur	Prof. G. D. Bhowmick
8	Samarth Srivastava (22AG65R12)	Preparation of Seaweed based bio-stimulant for plant growth promoting hormones and by-product recovery	Awarded on May 2024, IIT Kharagpur	Prof. G. D. Bhowmick
9	Pratap Singh (23AG65R05)	Aquacultural waste-based biochar for bio-electrochemical systems	Awarded on May 2025, IIT Kharagpur	Dr. G. D. Bhowmick
10	Anarase Rahul Dattatraya (23AG65R06)	Microfluidic microbial desalination cell for industrial applications	Awarded on May 2025, IIT Kharagpur	Dr. G. D. Bhowmick
11	Ajanya T K (23AG65R09)	Biochar for aquacultural waste treatment	Awarded on May 2025, IIT Kharagpur	Dr. Dibyendu Kamilya and Dr. G. D. Bhowmick
12	Aditya Mandloi (24AG65R01)	Farm management software for crap farming	On-going, IIT Kharagpur	Dr. G. D. Bhowmick
13	Vaibhav Bhawar (24AG65R04)	Solar-powered recirculating aquaculture system	On-going, IIT Kharagpur	Dr, Jayraj P and Dr. G. D. Bhowmick

Dual Degree (MTP) – Completed: 12; On-going: 0

M.Sc. Project – Completed: 2; Ongoing: 3

No.	Name	Title	Year, University/Institution	Supervisor/s
1	Shreekrishna Mondol	Nitro-bag as efficient alternative bioreactor unit for aquaponics systems	Awarded on May 2023, School of Industrial Fisheries, Cochin University of Science and Technology	Prof. Mujeeb Rahiman and Prof. G. D. Bhowmick
2	Tirthankar Saha	Viability of superworm (<i>Zophobas morio</i>) based diet as a partial fish meal replacement in fingerlings of Asian stinging catfish (<i>Heteropneustes fossilis</i>), evaluation of growth performance and survival	Awarded on May 2024, Department of Aquatic Biology, Veer Narmad South Gujarat University	Prof. N. C. Ujjania, Prof. Nandita Soni Deshpande and Prof. G. D. Bhowmick
3	Shreya Karmakar	Development of kappa-carrageenan based smart packaging film using <i>Butea monosperma</i> derived butein, carbon nanodots and lemon essential oil for extending shrimp shelf life and early detection of spoilage.	Ongoing (May 2026), Department of Bioscience and Technology, MIT World Peace University, Pune	Prof. Shilpa S. Chapadgaonkar and Prof. G. D. Bhowmick
4	Shristy Tiwari	g-C ₃ N ₄ doped cobalt polyoxometalates as an oxygen reduction reaction catalyst for improved performance of microbial fuel cell.	Ongoing, Department of Botany, Institute of Science, Banaras Hindu University	Prof. G. D. Bhowmick
5	Tithika Dhar	A Sustainable Approach to Aquaculture: Valorization of Inulin and Fish Waste-Derived Biochar for Nutritional Improvement and Ammonia Remediation.	Ongoing, Department of Biotechnology, KIIT University, Bhu	Prof. G. D. Bhowmick

JRF/Project Scholar - Completed: 1
B. Tech Project - Completed: 11; Ongoing: 2
Internship - Completed: 35; On-going: 4

Research Experience

Current Research/ Professional Interests

- ❖ Smart 3D soil-less agriculture techniques (Aquaponics, Aeroponics, Vermiponics, Hydroponics, etc).
- ❖ Design and fabrication of different bio-electrochemical systems; including, but not limited to, microbial fuel cell, microbial carbon-capture cell, etc.
- ❖ Field-scale bio-electrochemical systems for wastewater treatment with bioenergy recovery
- ❖ Aquacultural systems and management
- ❖ Seaweed-based products for agriculture, alternate plastic, and biocementation applications
- ❖ Ion exchange membrane preparation and its applications in bioreactor technology
- ❖ Fractionation of water isotopes in hyperfiltration while using polyamide membranes
- ❖ Hybrid treatment systems for sewage & industrial wastewater
- ❖ Alternative energy solutions for households

Research Projects

- ✚ Principal Investigator of the project '*Development of Microbial Desalination Cells for Industrial Application*' sponsored by PRAJ INDUSTRIES LIMITED, Pune, India with Rs. 33,91,334/-. Duration: 24 Months w.e.f. 15-01-2024
- ✚ Principal Investigator of the project '*4D Shape Reconstruction and Pose Estimation of Underwater Fish towards Smart Aquaponic System*' Sponsored by Technology Innovation Hub of Indian Institute of Technology Kharagpur Artificial Intelligence for Interdisciplinary Cyber Physical Systems (TIH-AI4ICPS), Department of Science and Technology (DST), Government of India (TRP2NDAG4D03), Dt. 09-02-2024 Rs. 80,54,208/-. Duration – 24 Months w.e.f. 09-02-2024.
- ✚ Principal Investigator of the project '*Advanced bioreactor assisted smart aquaponics systems for urban farming*' Sponsored by Science and Engineering Research Board (SERB) of Department of Science and Technology (DST), Government of India (SRG/2022/002212), Dt. 07-11-2022 Rs. 29,85,400/-. Duration – 24 Months w.e.f. 07-11-2022. (Completed)
- ✚ Principal Investigator of the project '*Sustainable Management of Important Wetlands on Bird Migration Flyways: Effect of Water Quality and Heavy Metal Toxicity on the Aquatic Biota*' Sponsored by Science and Engineering Research Board (SERB) of Department of Science and Technology (DST), Government of India (PDF/2023/000416), Dt.12-03-2024 Rs. 26,73,600.00. Duration - 24.0 Months w.e.f.26-03-2024 upto 25-03-2026.
- ✚ Principal Investigator of the project '*Advanced bioreactor assisted smart aquaponics systems for urban farming*' Sponsored by Sponsored Research & Industrial Consultancy, IIT Kharagpur (IIT/SRIC/AG/AAU/2022-2023/288), Dt. 16-03-2023 Rs. 25,00,000/-. Duration – 36 Months w.e.f. 03-04-2023.
- ✚ Principal Investigator of the project '*Development of a microbial fuel cell-based approach for xenobiotic bioremediation and energy generation*' sponsored by Science and Engineering Research Board (SERB), Government of India with Rs. 10,05,000/-. Duration – 36 Months w.e.f. 17-10-2022.
- ✚ Principal Investigator of the project '*Engineering Scalable Bioprocess Solutions for Value-Added Fermented Probiotic Beverages*' Sponsored by Munico Foods Pvt. Ltd., Berhampur, Odisha, India, Dt. 01-11-2025 Rs. 3,60,000/-. Duration – 36 Months w.e.f. 15-01-2026
- ✚ Co-Principal Investigator of the project '*Establishment of Innovation and Agri-Entrepreneurship Cell under RKVY-RAFTAAR.*' Sponsored by Ministry of Agriculture and Farmers Welfare, Department of Agriculture, Cooperation and Farmers Welfare, (RKVY Division), Govt. of India, Krishi Bhawan, New Delhi (3-70/2018-RKVY(Pt), Dt. 31-01-2019 Rs. 2,33,00,000/-. Duration 36.0 Months w.e.f. 29-03-2019 up to 31-03-2022.

Consultancy Projects

- ✚ Principal Investigator of the project '*Design and Development of a 50 KLD CSTR - Tubular MBR Packaged Sewage Treatment Plant*' sponsored by TEXMO INDUSTRIES, Coimbatore, Tamil Nadu, India with Rs. 8,43,700/-. Duration: 24 Months w.e.f. 15-11-2024.
- ✚ Principal Investigator of the project '*Sustainable Barn Design and Innovative Milk Processing Solutions for an Integrated Agri Business Centre*' sponsored by ZEROEARTH PRIVATE LIMITED, Thiruvananthapuram, Kerala, India with Rs. 3,54,000/-, Duration: 12 Months w.e.f. 10-03-2025.

- ✚ Principal Investigator of the project ‘Performance evaluation of floating and polyculture fish feed’ sponsored by JAPFA COMFEED INDIA PRIVATE LIMITED, West Bengal, India with Rs. 6,00,000/-. Duration: 18 Months w.e.f. 06-01-2025.

Institute-level Projects

- ✚ Joint Principal Investigator for the MS by Research program in collaboration with the African-Asian Rural Development Organization (AARDO) at IIT Kharagpur.
- ✚ Co-PI of Capacity Building for Design and Entrepreneurship (CBDE) program under the aegis of the Malaviya Mission Teacher Training Program (MMTTP) at IIT Kharagpur.

Member of Scientific Societies

- ❖ International Society for Microbial Electrochemistry and Technology (ISMET) (ID: 183)
- ❖ American Society of Agricultural and Biological Engineers (ASABE) (M1056024)
- ❖ International Water Association (IWA) (1614596)
- ❖ American Society of Civil Engineers (ASCE) (12017209)
- ❖ Aquacultural Engineering Society (AES)
- ❖ Indian Society of Agricultural Engineers (ISAE) (Life member- LM-12361)
- ❖ The Bio-electrochemical Society (BES)
- ❖ World Aquaculture Society (WAS) (Individual member till 24th August 2026)

Editorial Board Member

- ❖ *Communications Sustainability*, Nature Portfolio (<https://www.nature.com/commssustain/editorial-board>) (Since 1st of July 2025)
- ❖ *Scientific Reports*, Nature (<https://www.nature.com/srep/about/editors#agriculture>) (Since 1st October 2025)
- ❖ *Green and Low-Carbon Economy*, Singapore Bon View Publishing Pte. Ltd. (<https://ojs.bonviewpress.com/index.php/GLCE/index>) (Since 18th November 2022)

Associate Editor

- ❖ *Journal of Hazardous, Toxic, and Radioactive Waste*, ASCE Portfolio (<https://ascelibrary.org/journal/jhtrbp>) (Since 2nd September 2025).

Editor of Special Issue (1)

1. ‘Engineered and Sustainable Solutions for Remediation of Emerging Pollutants from Water Environment’ in Journal ‘**Discover Water**’ Edited by Akshay Modi, Akshaya Kumar Verma, **Gourav Dhar Bhowmick**, Mohit Chaudhary. <https://link.springer.com/collections/efhbjibaa>

Edited Books (4)

1. Mukherjee, A., and **Bhowmick, G. D.** (2026). Heavy Metal Remediation from Soil and Water. *Apple Academic Press (AAP)* co-publishing with **CRC press (Taylor & Francis Group, USA)**

- Chatterjee, P., **Bhowmick, G. D.** and Ghangrekar, M. M. (2026). Bioelectrochemistry: Fundamentals and Applications. *Apple Academic Press (AAP)* co-publishing with **CRC press (Taylor & Francis Group, USA)**
- Bhowmick, G. D.**, Pasternak, G. and Anyango, G. W, (2026). Advanced Tertiary Wastewater Treatment – Techniques and Methodologies. *Springer Water (SPWA)*. Publisher: **Springer Cham**, DOI: <https://doi.org/10.1007/978-3-032-14389-1>; Number of Pages: XVIII, 347; 1st edition, 07 April 2026, <https://link.springer.com/book/10.1007/978-3-032-14389-1#accessibility-information>
- Chowdhury, M., Kushwaha, N. L. and **Bhowmick, G. D.** (2025). Smart Farming, Smarter Solutions: Revolutionizing Agriculture with Artificial Intelligence. 1st edition, Oct 2025. *Science publishers, an imprint of CRC Press (Taylor & Francis, USA)* <https://doi.org/10.1201/9781003536932>

Publication Highlights

Journal Publications (64)

- Bhowmick, G. D.**, Noori, M. T., Das, I., Neethu, B., Ghangrekar, M. M., Mitra, A. (2018). Bismuth doped TiO₂ as an excellent photocathode catalyst to enhance the performance of microbial fuel cell. *International Journal of Hydrogen Energy*, 43(15), pp.7501-7510. <https://doi.org/10.1016/j.ijhydene.2018.02.188> (IF – 8.3) (Citation: 119)
- Noori, M. T., **Bhowmick, G. D.**, Tiwari, B. R., Ghangrekar, M. M., Mukherjee, C.K. (2018). Application of Low-Cost Cu–Sn Bimetal Alloy as Oxygen Reduction Reaction Catalyst for Improving Performance of the Microbial Fuel Cell. *MRS Advances*, 3(13), pp.663-668. <https://doi.org/10.1557/adv.2018.163> (IF – 0.8) (Citation: 42)
- Neethu, B., **Bhowmick, G. D.**, Ghangrekar, M. M. (2018). Enhancement of bioelectricity generation and algal productivity in microbial carbon-capture cell using low cost coconut shell as membrane separator. *Biochemical Engineering Journal*, 133, pp.205-213. <https://doi.org/10.1016/j.bej.2018.02.014> (IF - 3.8) (Citation: 95)
- Noori, Md. T., **Bhowmick, G. D.**, Tiwari, B. R., Ghangrekar, O. M., Ghangrekar, M. M., Mukherjee, C. K. (2018). Carbon supported Cu-Sn bimetallic alloy as an excellent low-cost cathode catalyst for enhancing oxygen reduction reaction in microbial fuel cell. *Journal of the Electrochemical Society*. 165 (9), pp. F621-F628. <http://10.1149/2.0271809jes> (IF- 3.8) (Citation: 57)
- Das, I., Noori, Md. T, **Bhowmick, G. D.**, Ghangrekar, M. M. (2018). Synthesis of bimetallic iron ferrite Co_{0.5}Zn_{0.5}Fe₂O₄ as a superior catalyst for oxygen reduction reaction to replace noble metal catalysts in microbial fuel cell. *International Journal of Hydrogen Energy*, 43(41), pp.19196-19205. <https://doi.org/10.1016/j.ijhydene.2018.08.113> (IF – 8.3) (Citation: 80)
- Noori, Md. T., **Bhowmick, G. D.**, Tiwari, B. R., Das, I., Ghangrekar, M. M., Mukherjee, C. K. (2018). Utilisation of waste medicine wrappers as an efficient low-cost electrode material for microbial fuel cell. *Environmental Technology*, 41 pp.1209-1218. <https://doi.org/10.1080/09593330.2018.1526216> (IF – 2.3) (Citation: 43)
- Das, Indrasis, Noori, Md. T, **Bhowmick, G. D.**, Ghangrekar, M. M. (2018). Synthesis of Tungstate oxide/Bismuth Tungstate composite and application in microbial fuel cell as superior low-cost cathode catalyst than platinum. *Journal of the Electrochemical Society*. 165(13), pp. G146-G153. <https://doi.org/10.1149/2.0781813jes> (IF – 3.8) (Citation: 45)
- Türk, K. K., Kruusenberg I., Kibena-Pöldsepp E., **Bhowmick, G. D.**, Kook, M., Tammeveski, K., Matisen, L., Merisalu, M., Sammelselg, V., Ghangrekar, M. M. Mitra, A., Banerjee, R. (2018). Novel multi walled carbon nanotube based nitrogen impregnated Co and Fe cathode catalysts for

- improved microbial fuel cell performance. *International Journal of Hydrogen Energy*. 43(51), pp. 23027-23035. <https://doi.org/10.1016/j.ijhydene.2018.10.143> (IF – 8.3) (Citation: 74)
9. Das, Indrasis, Noori, Md. T., **Bhowmick, G. D.**, Ghangrekar, M. M. (2018). Application of low-cost transition metal based $\text{Co}_{0.5}\text{Zn}_{0.5}\text{Fe}_2\text{O}_4$ as oxygen reduction reaction catalyst for improving performance of microbial fuel cell. *MRS Advances*, 3, pp.3171-3179. <http://doi:10.1557/adv.2018.450> (Citation: 21), (IF – 0.8)
 10. **Bhowmick, G. D.**, Kibena-Pöldsepp, E., Matisen, L., Merisalu, M., Kook, M., Käärik, M., Leis, J., Sammelselg, V., Ghangrekar, M. M., Tammeveski, K. (2019). Multi-walled carbon nanotube and carbide-derived carbon supported metal phthalocyanines as cathode catalysts for microbial fuel cell application. *Sustainable Energy & Fuels (Royal Society of Chemistry)*. 3, 3525-3537 <https://doi.org/10.1039/C9SE00574A> (IF- 5.1) (Citation: 51)
 11. Ahilan, V., **Bhowmick, G. D.**, Ghangrekar, M. M., Wilhelm, M., Rezwan, K. (2019). Tailoring hydrophilic and porous nature of polysiloxane derived ceramer and ceramic membranes for enhanced bioelectricity generation in microbial fuel cell. *Ionics*, 25, pp. 5907–5918. <https://doi.org/10.1007/s11581-019-03083-5> (IF – 2.7) (Citation: 26)
 12. Ahilan, V., de Barros, C. C., **Bhowmick, G. D.**, Ghangrekar, M. M., Murshed. M., Wilhelm, M., Rezwan, K. (2019). Microbial fuel cell performance of graphitic carbon functionalized porous polysiloxane based ceramic membranes. *Bioelectrochemistry*, 129, pp.259-269. <https://doi.org/10.1016/j.bioelechem.2019.06.002> (IF – 4.5) (Citation: 36)
 13. **Bhowmick, G. D.**, Das, S., Ghangrekar, M. M., Mitra, A., Banerjee, R. (2019). Improved wastewater treatment by combined system of microbial fuel cell with activated carbon/ TiO_2 cathode catalyst and membrane bioreactor. *Journal of The Institution of Engineers (India): Series A*. 100, pp. 675–682. <https://doi.org/10.1007/s40030-019-00406-7> (Citation: 52), (IF - 1.75)
 14. e Silva, T. C. D. A., **Bhowmick, G. D.**, Ghangrekar, M. M., Wilhelm, M., Rezwan, K. (2019). SiOC-based polymer derived-ceramic porous anodes for microbial fuel cells. *Biochemical Engineering Journal*, 148, pp. 29-36. <https://doi.org/10.1016/j.bej.2019.04.004> (IF - 3.8) (Citation: 42)
 15. Neethu, B., **Bhowmick, G. D.**, Ghangrekar, M. M. (2019). A novel proton exchange membrane developed from clay and activated carbon derived from coconut shell for application in microbial fuel cell. *Biochemical Engineering Journal*, 148, 170-177. <https://doi.org/10.1016/j.bej.2019.05.011> (IF - 3.8) (Citation: 132)
 16. **Bhowmick, G. D.**, Das, S., Adhikary, K., Ghangrekar, M. M., Mitra, A. (2019). Using Rhodium as a cathode catalyst for enhancing performance of microbial fuel cell. *International Journal of Hydrogen Energy*, 44, pp. 22218–22222. <https://doi.org/10.1016/j.ijhydene.2019.06.063> (IF – 8.3) (Citation: 52)
 17. **Bhowmick, G. D.**, Chakraborty, I., Ghangrekar, M. M., Mitra, A. (2019). TiO_2 /Activated carbon photo cathode catalyst exposed to ultraviolet radiation to enhance the efficacy of integrated microbial fuel cell-membrane bioreactor. *Bioresource Technology Reports*. 7, pp.100330. <https://doi.org/10.1016/j.biteb.2019.100303> (Citation: 37), (IF - 9.5)
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Conference Proceedings (51) (* - Presented by Prof. G. D. Bhowmick)

International Conferences (51)

1. **Bhowmick, G. D.**, Ghosh Ray, S., Mitra, A., Ghangrekar M. M. (2016, April). Performance evaluation of low-cost air-cathode microbial fuel cell modified with ceramic cathode assembly by titanium di-oxide nanoparticles. International Conference On Innovations in Sustainable Water and Wastewater Treatment Systems (ISWATS), Jointly Organized By India - EU Science & Technology Research Collaboration Projects, **Pune, India**.*
2. Ghosh Ray, S., **Bhowmick, G. D.**, Mitra, A., Ghangrekar M. M. (2016, September). Energy efficient combined process of microbial fuel cell (MFC) and membrane bioreactor (MBR) for high efficiency treatment of organic wastewater. 13th IWA Specialized Conference on Small Water and Wastewater Systems & 5th IWA Specialized Conference on Resources-Oriented Sanitation, **Athens, Greece**. (Citation: 3)
3. **Bhowmick, G. D.**, Ghosh Ray, S., Mitra, A., Ghangrekar M. M. (2016, December). Energy efficient combined process of microbial fuel cell (MFC) and membrane bioreactor (MBR) for effective treatment of fish processing wastewater. International Conference on Emerging Technologies in Agricultural & Food Engineering (ETAE), Agricultural & Food Engineering Department, Indian Institute of Technology Kharagpur, **West Bengal, India**.*
4. **Bhowmick, G. D.**, Ghangrekar M. M., Mitra, A. (2017, October). TiO₂/Activated carbon photo cathode catalyst exposed to ultraviolet radiation to enhance the efficacy of integrated microbial fuel cell-membrane bioreactor. General Meeting of the International Society for Microbial Electrochemistry and Technology, **Lisbon, Portugal**.*
5. Das, S., Chatterjee, P., **Bhowmick, G. D.**, Ghangrekar, M. M. (2017, October). Tungsten oxide as anode and cathode catalyst for improved power generation and wastewater treatment in a microbial

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6. Silva, T. C. A., **Bhowmick, G. D.**, Ghangrekar, M. M., Wilhelm, M., Rezwan, K. (2017, October). New polysiloxanes-based ceramic anode materials for microbial fuel cells. General Meeting of the International Society for Microbial Electrochemistry and Technology, **Lisbon, Portugal**.
 7. Ahilan, V., **Bhowmick, G. D.**, Ghangrekar, M. M., Wilhelm, M., Rezwan, K. (2017, October). Functionalized polysiloxane derived ceramic membranes for microbial fuel cells. General Meeting of the International Society for Microbial Electrochemistry and Technology, **Lisbon, Portugal**.
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 9. Noori, Md. T., **Bhowmick, G. D.**, Tiwari, B. R., Ghangrekar, M. M., Mukherjee, C. K. (2017, November-December) Application of CuSn bimetallic alloy as ORR catalyst for improving the performance of MFC. International Summit, MRS Fall Meeting and Exhibition, **Boston, USA**.
 10. **Bhowmick, G. D.**, Nath, D., Ahilan, V., Silva, T. C. A., Kruusenbergs, I., Ghangrekar, M. M., Wilhelm, M., Tammeveski, K. (2018, February). Integrated MFC-MBR system using low-cost, multifunctional ceramic membrane for efficient wastewater treatment and electricity recovery. Indo-EU workshop on The Recent Development in Microbial Fuel Cell and Membrane Bioreactor Technology, Indian Institute of Technology **Kharagpur, India**.*
 11. Silva, T. C. A., **Bhowmick, G. D.**, Ghangrekar, M. M., Wilhelm, M., Rezwan, K. (2018, February). Novel polysiloxanes-based anode materials for Microbial Fuel Cells (MFCs). Indo-EU workshop on The Recent Development in Microbial Fuel Cell and Membrane Bioreactor Technology, Indian Institute of Technology **Kharagpur, India**.
 12. Ahilan, V., **Bhowmick, G. D.**, Ghangrekar, M. M., Wilhelm, M., Rezwan, K. (2018, February). Porous polymer derived ceramic composite membranes for Microbial Fuel Cell (MFC). Indo-EU workshop on The Recent Development in Microbial Fuel Cell and Membrane Bioreactor Technology, Indian Institute of Technology **Kharagpur, India**.
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- Fuel Cell to Enhance Energy Recovery from Sanitary Wastewater. MRS Spring Meeting & Exhibit, **Pheonix, USA.**
18. Das, I., Das, S., Chakraborty, I., **Bhowmick, G. D.**, Ghangrekar, M. M. (2018, September). Lab scale to field scale application of bioelectrochemical systems: a short review on current status and problems faced. Regional Meeting of the International Society for Microbial Electrochemistry and Technology-EU, New-castle University upon Tyne, **New-castle, UK.**
 19. **Bhowmick, G. D.**, Neethu, B., Khuman, C. N., Ghangrekar M. M., Mitra, A. (2018, September) Enhanced power production from ceramic microbial fuel cell using graphitized coconut coir based anode. 4th Regional Meeting of the International Society for Microbial Electrochemistry and Technology-EU, New-castle University upon Tyne, **New-castle, UK.***
 20. Ahilan, V., Cabral, C., **Bhowmick, G. D.**, Ghangrekar, M. M., Wilhelm, M., Rezwan, K. (2018, September) A novel polymer derived ceramic composite membrane for high performance Microbial Fuel Cell. 4th Regional Meeting of the International Society for Microbial Electrochemistry and Technology-EU, New-castle University upon Tyne, **New-castle, UK.**
 21. Viswanath, A. K., **Bhowmick, G. D.**, Neethu, B., Ghangrekar, M. M., Mitra, A. (2018, November) Application of Selenium/Activated carbon as novel cathode catalyst to enhance the performance of microbial fuel cell. 4th Regional Meeting of the International Society for Microbial Electrochemistry and Technology-AP, Birla Institute of Technology and Science - Pilani, **Goa, India.**
 22. Zekker, I., **Bhowmick, G. D.**, Rikmann, E., Mandel, A., Tenno, T., Priks, H., Ghangrekar, M. M., Mitra, A. (2018, November) Deammonification nitrogen removal, ORP aided operation benefits on MFC technology. Linnaeus ECO-TECH, **Kalmar, Sweden.**
 23. Tholia, V., Neethu, B., **Bhowmick, G. D.**, Ghangrekar, M. M. (February 13-15, 2019). Enhancing the performance of microbial fuel cell by using sludge pretreated with chloroform as inoculum. International Conference on Clean and Green Energy –ICCGE, **Milan, Italy.**
 24. Viswanath, A. K., **Bhowmick, G. D.**, Ghangrekar, M. M., Mitra, A. (February 13-15, 2019). Green synthesis of silver nanoparticles from *Carica papaya* leaves as cathode catalyst to enhance the performance of microbial fuel cell. International Conference on Clean and Green Energy-ICCGE, **Milan, Italy.**
 25. e Silva, T. C. A., **Bhowmick, G. D.**, Ghangrekar, M. M., Wilhelm, M., Rezwan, K. (May 1-3, 2019). Macroporous SiOC carbon based Composite as Anodes for Microbial Fuel Cell Technology. 5th International Conference on Chemical Materials and Process (ICCMP 2019), Chulalongkorn University, **Bangkok, Thailand.**
 26. **Bhowmick, G. D.**, Ghangrekar M. M., Mitra, A. (2019, July). Microbial fuel cell and membrane bioreactor combination offering an effective treatment to fish processing wastewater for facilitating water reuse. ASABE Annual International Meeting, Boston, **Massachusetts, USA.***
 27. Lade, I., **Bhowmick, G. D.**, Silva, T. C. A., Ghangrekar, M. M., Wilhelm, M. (2019, October). Polymer derived ceramic based Co/Ni-SiOC (N) electrocatalyst to improve the performance of Microbial Fuel Cell. Global Conference of International Society for Microbial Electrochemistry and Technology, ISMET 7, **Okinawa, Japan.**
 28. **Bhowmick, G. D.**, Ghangrekar, M. M., Mitra, A. (2019, October). Pilot scale submerged ultrafiltration membrane bio-fuel cell with transverse vibration technique to mitigate membrane biofouling with enhanced power production. Global Conference of International Society for Microbial Electrochemistry and Technology, ISMET 7, **Okinawa, Japan.***
 29. Chakraborty, I., Khuman, C. N., **Bhowmick, G. D.**, Ghangrekar, M. M. (2019, December). Upflow microbial fuel cell for removal of emerging contaminant from greywater with concomitant energy recovery. IWA Water and Development Congress & Exhibition, **Srilanka.**

30. Prakash S., Chatterjee, A., **Bhowmick, G D**, Sappati, P K, Nagarajan, V (2023, 24th February) Identification of Opportunistic Pathogens for Effective Policy-making in Offshore Seaweed Cultivation. Indo-US SPARC workshop organized by Bioprocess & Bioproduct Development Laboratory, **IIT Kharagpur, India**.
31. Dnyaneshwar Gawai, Avrodeep Paul, Subhadip Dey, Avik Bhattacharya, **Gourav Dhar Bhowmick** (2023 16-21 July) CLASSIFICATION OF MARINE STRUCTURES USING SENTINEL-1 DUAL-POLARIMETRIC SCATTERING SPECTRUM-BASED SAR SIGNATURES. IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2023), **Pasadena, California, USA**.
32. Avrodeep Paul, Subhadip Dey, **Gourav Dhar Bhowmick**, Avik Bhattacharya (2023 16-21 July) A NOVEL TECHNIQUE TO CHARACTERIZE THE SCATTERING PHENOMENON FROM RAFT AND ITS DETECTION. IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2023), **Pasadena, California, USA. DOI: 10.1109/IGARSS52108.2023.10282103**
33. Arka Pramanik, **Gourav Dhar Bhowmick** (29-30 September 2023), Ultrasonic Cavitation-Assisted Constructed Wetland-Coupled Microbial Fuel Cell as a Biosensor for Advanced Wastewater Treatment. ICC Water & Wastewater Innovation Workshop, Department of Civil Engineering, **IIT Kharagpur**.
34. Ahmad Faisal, **Gourav Dhar Bhowmick** (21-23 September 2023), Memory Millet Bar. International Conference on Millets for Achieving Nutritional and Economic Security (ICMANES), **NIFTEM Kundli, Haryana**.
35. Raktim Halder, **Gourav Dhar Bhowmick** (29th Nov – 1st Dec 2024), Synthesis of red seaweed (*Kappaphycus alvarezii*)-based bio-stimulants and biochar for plant growth and soil quality enhancement. 4th International Conference on Bioprocess for Sustainable Environment and Energy (ICBSEE-2024) (Hybrid mode), Department of Biotechnology and Medical Engineering, **NIT Rourkela**.
36. Sophret Tsogolani, Denny B Justin, **Gourav Dhar Bhowmick** (December 13-15, 2024) A novel vertically oriented aqua-fogponics system for enhanced crop and fish production. International Conference on Advanced Materials and Startup Ecosystem, College of Engineering Trivandrum (CET), **Thiruvananthaapuram, Kerala**
37. Arka Pramanik, **Gourav Dhar Bhowmick** (1-2 August 2024), Performance Evaluation of Fish Waste-derived Biochar-based Cathode Catalyst in Constructed Wetland Microbial Fuel Cell. Indo-UK Workshop on Waste derived Carbon Applications in Remediation, Energy and Sequestration: Opportunities and Learning (W-CARESOL), Environmental Science and Engineering Department, **IIT Bombay**.
38. Ahmad Faisal, Dilip Kumar Swain, **Gourav Dhar Bhowmick** (28-30 April 2025), Vermi-Tea Production from Fish Waste in Vermicomposting Reactor for Enhanced Nutrient Recovery in Aquaponics System. Aquaculture Horizons. **Setubal, Portugal**.
39. Vaibhav Naik, Ahmad Faisal, **Gourav Dhar Bhowmick** (28-30 April 2025), Formulation of Sustainable Fish Feed for Aquaponics: Utilizing Poultry Droppings to Enhance Nutritional Efficiency and Environmental Sustainability. Aquaculture Horizons. **Setubal, Portugal**.
40. Srishti Mishra, **Gourav Dhar Bhowmick**, Brajesh K. Dubey, Makarand M. Ghangrekar (16-19 September 2025), Integrated Microbial Desalination and Microbial Electrolysis Cell for Improved Desalination and Wastewater Treatment. 9th World Conference of the International Society for Microbial Electrochemistry and Technology (ISMET9), Helmholtz Centre for Environmental Research, **Leipzig, Germany**.
41. Pratap Singh, Jafar Ali, Mohamad Azari, **Gourav Dhar Bhowmick** (15-19 September 2025), Integration of Microbial Fuel Cells with Simultaneous Partial Nitrification, Anammox, and Denitrification (SNAD) for Energy-Efficient Nitrogen Removal from Wastewater. 9th World Conference of the International Society for Microbial Electrochemistry and Technology (ISMET9). Helmholtz Centre for Environmental Research, **Leipzig, Germany**.*

42. Ahmad Faisal, Dilip Kumar Swain, **Gourav Dhar Bhowmick** (22-25 September 2025), Biofertilizer from Aquaponic Waste: A Circular Approach to Nutrient Recovery and Environmental Sustainability. The Aquaculture Europe (AE2025) Conference and Exposition. **Valencia, Spain.***
43. Prathamesh Chaudhary, Raktim Halder, **Gourav Dhar Bhowmick** (24-27 September 2025), Mitigating the Elevated CO₂ Stress in Mustard & Radish Microgreens Using Biostimulants extracted from *Kappaphycus alvarezii*. RETASTE: Rethink Food Resources, Losses and Waste 5th International conference. **Athens, Greece.***
44. Arka Pramanik, Diptesh Goswami, Santosh Kumar, **Gourav Dhar Bhowmick** (10-13 November 2025), Performance Evaluation of Aquacultural Processing Waste-derived Biochar as a Cathode Catalyst in Constructed Wetland Microbial Fuel Cell. World Aquaculture India 2025, Hyderabad International Convention Centre, **Hyderabad, Telangana.**
45. Ahmad Faisal, Dhanush M. R., V. Rajasekhar, Dilip Kumar Swain, **Gourav Dhar Bhowmick** (10-13 November 2025), Low-cost Rope Bed Biofilm Reactor for Enhanced Nitrification and Productivity in Aquaponics Systems. World Aquaculture India 2025, Hyderabad International Convention Centre, **Hyderabad, Telangana.**
46. Rajasekar Veeramani, Sara M Pinho, **Gourav Dhar Bhowmick** (10-13 November 2025), Boosting Aquaponics Productivity with Fish Amino Acid and Seaweed-based Biostimulant Synergy. World Aquaculture India 2025, Hyderabad International Convention Centre, **Hyderabad, Telangana.**
47. Ahmad Faisal, Poonam Biswal, Dilip Kumar Swain, **Gourav Dhar Bhowmick** (22-24 November 2025), Biofertilizer from Aquaponic Waste: A Circular Approach to Nutrient Recovery and Environmental Sustainability. 16th International Conference on Environmental Science and Technology (ICEST 2025), **Sophia University, Japan.**
48. Arka Pramanik, Rahul Dattatraya Anarase, **Gourav Dhar Bhowmick** (22-23 December 2025), Bimetallic (Zr-Zn) metal-organic framework-based catalysts for improved performance of microbial fuel cells. 2nd International Conference on Pollution Control for Clean Environment (ICPCCE-2025), School of Infrastructure and School of Electrical Science, **IIT Bhubaneswar.**
49. Arka Pramanik, Diptesh Goswami, Santosh Kumar, **Gourav Dhar Bhowmick** (2nd February 2026), Performance Evaluation of Aquacultural Processing Waste-derived Biochar as a Cathode Catalyst in Constructed Wetland Microbial Fuel Cell. Indo-Japan Bilateral Workshop on Climate-smart Technologies for Sustainable Agricultural Production and Food Processing, Agricultural and Food Engineering Department, **IIT Kharagpur.**
50. Arka Pramanik, Diptesh Goswami, Arkajyoti Mukherjee, **Gourav Dhar Bhowmick** (23-26 February 2026), Biodegradable Cryogels functionalized with Biochar for Sustainable Microplastic Remediation. 4th World Ocean Science Congress (WOSC-26), CSIR-National Institute of Oceanography, **Dona Paula, Goa.**
51. Raktim Halder, Joel P., **Gourav Dhar Bhowmick** (5-7 March 2026), Development of Red Seaweed (*Kappaphycus alvarezii*) derived Carrageenan Based Biodegradable Films and its Physical Characteristics Optimisation using Response Surface Methodology. S.E.A.W.E.E.D.S. 2026 International Symposium Expo & Business Meet, Kerala University of Fisheries and Ocean Studies (KUFOS), **Kochi, Kerala.**

Conference Proceedings (4) (* - Presented by Prof. G. D. Bhowmick)

National Conference (4)

1. **Bhowmick, G. D.**, Adhikary, K., Ghangrekar, M. M., Mitra, A. (2019, 31st January-2nd February). Introducing novel hybrid ion exchange membrane and ANAMMOX to improve the efficiency of nitrogen removal from microbial fuel cell. National Environmental Conference: IIT Bombay

diamond jubilee year conference (NEC - 2019), Centre for Environmental Science and Engineering (CESE), **IIT Bombay, India.** *

2. Ahmad Faisal, **Gourav Dhar Bhowmick** (25-27 September 2024) Aquaponics for Medicinal Plants: Optimal Cultivation of Brahmi and Generating Profitable Products. National Conference on Marine Pollution and Ecotoxicology (NCMPE 24), Cochin University of Science and Technology, **Kerala, India.**
3. Ajanya T K, Mandira Saha, Arka Pramanik, Dibyendu Kamilya, **Gourav Dhar Bhowmick** (30-31 January 2026) Characterization and Nutrient Removal Potential of Biochar Produced from Agricultural Waste. GREENSHIFT 2026: National Conference on Innovative Design for Sustainability and Microplastic Mitigation, Design Innovation Center, **IIT Kharagpur, India.**
4. Raktim Halder, Nilimesh Giri, Dibyendu Kamilya, **Gourav Dhar Bhowmick** (4-6 February 2026) Enhancing the Durability and Performance Evaluation of a Bilayer Cellulose Nanocrystal-Titanium dioxide and Seaweed Biochar-based Infrared Transmitting Carrageenan Bioplastic for Agricultural Mulching Practices. 7th Annual National conference on Trend in Synthetic Biology and Sustainable Development, Midnapore City College, **Midnapore, India**

Book Chapters (17)

1. Neethu, B., **Bhowmick, G. D.**, Ghangrekar, M. M. (2019). Chapter 9 - Yeast and Algae as Biocatalysts in Microbial Fuel Cell. in book title *Waste to Sustainable Energy: MFCs – Prospects through Prognosis*, Ed. Lakhveer Singh and Durga Madhab Mahapatra. CRC Press, Taylor & Francis. London, UK. (pp. 141-168). <https://doi.org/10.1201/9780429448799-9>
<https://www.taylorfrancis.com/books/9780429828775> (**Citation: 4**)
2. Ghangrekar, M. M., **Bhowmick, G. D.**, Sathe, S. M. (2019). Chapter 12 - An overview of membrane bioreactor coupled bio-electrochemical systems. Chapter 16, in book title *Integrated Microbial Fuel Cells for Wastewater Treatment* Ed. Rouzbeh Abbassi, Asheesh K. Yadav, Vikram Garaniya, Faisal Khan. Elsevier. Cambridge, MA 02139, United States. <https://doi.org/10.1016/B978-0-12-817493-7.00012-6> (pp. 249-272).
<https://www.elsevier.com/books/integrated-microbial-fuel-cells-for-wastewater-treatment/abbassi/978-0-12-817493-7> (**Citation: 8**)
3. **Bhowmick, G. D.**, Ghangrekar, M. M., Banerjee, R. (2021). Chapter 15 - Improved Wastewater Treatment by Using Integrated Microbial Fuel Cell-Membrane Bioreactor System Along with Ruthenium/activated Carbon Cathode Catalyst to Enhance Bio-energy Recovery. In: Pandey A., Mishra S., Kansal M., Singh R., Singh V. (eds) *Climate Impacts on Water Resources in India*. Water Science and Technology Library, vol 95. Springer, Cham, (pp. 183–192). https://doi.org/10.1007/978-3-030-51427-3_15. (BT/IN/INNO-INDIGO/28/MMG/2015–16) (**Citation: 6**)
4. Chaudhary, M., Jain, N., Barman, L., **Bhowmick, G. D.** (2022). Chapter 8 - Design and principles of adsorbent-based reactors for wastewater treatment. In: *Modular Treatment Approach for Drinking Water and Wastewater*. Ed. Satinder Kaur Brar, Pratik Kumar and Agnieszka Cuprys. Elsevier. (pp. 129-148). DOI: 10.1016/C2020-0-02087-6. <https://www.elsevier.com/books/modular-treatment-approach-for-drinking-water-and-wastewater/kaur-brar/978-0-323-85421-4>. <https://www.sciencedirect.com/book/edited-volume/9780323854214/modular-treatment-approach-for-drinking-water-and-wastewater>. (**Citation: 7**)
5. **Bhowmick, G. D.**, Sathe, S. M., Ghangrekar, M. M. (2022). Chapter 16 -Tertiary Wastewater Treatment Systems. In: *Wastewater to Water: Principles, Technologies and Engineering Design*. Ed. Makarand M. Ghangrekar. Springer Nature. Publisher: Springer Nature Singapore. (pp. 693-

- 731) <https://link.springer.com/book/10.1007/978-981-19-4048-4>. <https://doi.org/10.1007/978-981-19-4048-4>. (**Citation: 30**)
6. Kiran K J, Vedant Vijay Pendse, **G D Bhowmick**, Indrasis Das, Ivar Zekker (2023). Chapter 8 - Advancements in the application of bio-electrochemical systems-based sensors. In: Advances in Environmental Electrochemistry. Ed. Dipak Jadhav, Manaswini Behera, Surajbhan Sevda and Maulin Shah. Elsevier. <https://www.elsevier.com/books/advances-in-environmental-electrochemistry/jadhav/978-0-443-18820-6>. 2024, (pp. 197-216), <https://doi.org/10.1016/B978-0-443-18820-6.00002-3>. (**Citation: 6**)
 7. Swapan Banerjee, Soumen Ghosh, **G D Bhowmick**, Digvijay Pandey, Binay Kumar Pandey, Pankaj Dadheech (2023). Chapter 23 - Biofuels & Health Hazards -A Narrative Review. In: Handbook of Research on Safe Disposal Methods of Municipal Solid Wastes for a Sustainable Environment. Ed. Prateek Srivastava, Durgaprasad Ramteke, Ankush Kumar Bedyal, Monika Gupta, Jasminder Kaur Sandhu. IGI Global. Publisher - IGI Global, 2023, (pp. 324-344) DOI: 10.4018/978-1-6684-8117-2.ch023 (<https://www.igi-global.com/chapter/biofuels-and-health-hazards/326625>). (**Citation: 4**)
 8. Kiran K J, Arka Pramanik, Pallabi Nath, **G D Bhowmick** (2023) An Overview of Different Separators/Membranes Used in Microbial Electrochemical Technologies. In: Emerging Trends and Advances in Microbial Electrochemical Technologies. Ed. Asheesh K Yadav, Md. Tabish Noori, Pratiksha Srivastava, Yifeng Zhang. Elsevier. (pp. 501–538). <https://doi.org/10.1016/B978-0-443-15557-4.00012-5> (**Citation: 2**)
 9. Gorakhanath S. Jadhav, Yogita D. Jagtap, **Gourav D. Bhowmick**, Makarand M. Ghangrekar (2023) Chapter 21 - Modelling of Bioelectrochemical Systems: Biophysicochemical Processes and Mathematical Methods. In: Microbial Electrochemical Technologies, Volume Set 2. Ed. Makarand M. Ghangrekar, Narcis M. Duteanu, Rao Y. Surampalli, Tian C. Zhang. Wiley-VCH GmbH. <https://doi.org/10.1002/9783527839001.ch21>, Volume 75, (pp. 529-554) (**Citation: 2**)
 10. Arkajyoti Mukherjee, Ved Prakash Ranjan, **Gourav Dhar Bhowmick**, Papita Das (2024) Investigation of Prevailing Directives Regarding Microplastic Pollution: Research Gaps and Recent Advancements. In: Microplastic as emerging pollutants in environment: Sources, Remediation, and Reusable strategies. Ed: Surajit Mondal, Papita Das, Arnab Mondal, and Poushali Chakraborty. CRC Press (Taylor & Francis group). Pp. 349-364 (**Citation: 2**)
 11. Geophry Wasonga Anyango, **Bhowmick, G. D.** and Veeramani Rajasekar (2024) Chapter 4 - Membrane Bioreactors and Other Emerging Membrane Technologies. In: Biological and Hybrid Wastewater Treatment Technology Recent Developments in India. Ed. Makarand M. Ghangrekar, Shalini Yadav, and Ram Narayan Yadava. Springer Nature Switzerland, (pp. 91-107). Earth and Environmental Sciences Library. Springer, Cham. https://doi.org/10.1007/978-3-031-63046-0_4. (**Citation: 4**)
 12. Faisal, A., Rajashekar, V., Biswal, P., Mukherjee, A. and **Bhowmick, G.D.** (2024) Chapter 16 - Advancing Agriculture with Aeroponics: A Critical Review of Methods, Benefits, and Limitations. In: Hydroponics: The Future of Sustainable Farming, Ed. Nitish Kumar. (pp. 311-322). https://doi.org/10.1007/978-1-0716-3993-1_16 (**Citation: 10**)
 13. Rajasekar, V., Faisal, A., Mukherjee, A., More, R., and **Bhowmick, G. D.** (2024). Chapter 15 - The Rise of Vertical Farming: A Critical Examination of Its Role in Achieving Food Security and Sustainability. In Hydroponics: The Future of Sustainable Farming, Ed. Nitish Kumar. (pp. 295-309). New York, NY: Springer US. https://doi.org/10.1007/978-1-0716-3993-1_15 (**Citation: 0**)
 14. Kendi, J., Kamau, J. N., **Bhowmick, G. D.** (2026). Chapter 4 - Adsorption in Industrial Wastewater Reclamation. In: Advanced Tertiary Wastewater Treatment, Ed. Bhowmick, G. D., Pasternak, G., Anyango, G. W. (pp. 59–88). Springer Water. Springer, Cham. https://doi.org/10.1007/978-3-032-14389-1_4. (**Citation: 0**)

15. Anyango, G. W., **Bhowmick, G. D.** (2026). Chapter 7 - Advanced Membrane Filtration Techniques. In: Advanced Tertiary Wastewater Treatment, Ed. Bhowmick, G. D., Pasternak, G., Anyango, G. W., (pp. 137–149). Springer Water. Springer, Cham. https://doi.org/10.1007/978-3-032-14389-1_7. Springer Nature Switzerland AG (**Citation: 0**)
16. Pramanik, A., Anarase, R. D., Anyango, G. W., **Bhowmick, G. D.** (2026). Chapter 11 - Innovative Applications of Membrane-Based Electrodialysis for Desalination and Wastewater Reuse. In: Advanced Tertiary Wastewater Treatment, Ed. Bhowmick, G. D., Pasternak, G., Anyango, G. W., (pp. 229–265). Springer Water. Springer, Cham. https://doi.org/10.1007/978-3-032-14389-1_11. (Project code - IIT/SRIC/CE/OIA/2023-2024/ 253) (**Citation: 0**)
17. Anyango, G. W., **Bhowmick, G. D.** (2026). Chapter 15 - Advanced Techniques for Wastewater Disinfection and Treatment. In: Advanced Tertiary Wastewater Treatment, Ed. Bhowmick, G. D., Pasternak, G., Anyango, G. W., (pp. 331–347). Springer Water. Springer, Cham. https://doi.org/10.1007/978-3-032-14389-1_15. (Project code - African-Asian Rural Development Organization (AARDO), New Delhi) (**Citation: 0**)

Patents

Provisional Patent Application

1. Oren, Y., Berenstein, R., Siebner, H., Bhowmick, G. D., **Membrane-based isotope separation** (2021). (US Patent - Submitted)
2. Tsogolani, S., Justin, D. B., Bhowmick, G. D., **Vertical Aqua-Fogponics System** (2024). (Indian Patent – Submitted, Application no. - 202431096197, Filing date – 05/12/2024, Publication No. - 03/2026, Publication date – 16/01/2026, Classification (IPC) A01G31/02, A01G31/06)
3. Ahmad Faisal, Dr. Poonam Biswal, Debasruti Bhattacharya, Diya Susan Abraham, Gourav Dhar Bhowmick, and Prof. Dillip Kumar Swain, **Vermi-Trio Reactor** (2025). (Indian Patent – Submitted - 202531040209)
4. Gourav Dhar Bhowmick, Raktim Halder, and Ahmad Faisal, **Seaweed-based Biodegradable Mulching Film** (2026). (Indian Patent – Submitted on 02/02/2026)
5. Gourav Dhar Bhowmick, Ahmad Faisal, Siddhant Ray Bharti, Raktim Halder, Dillip Kumar Swain, **Spiral Air Diffuser Cap** (2026). (Indian Patent – Submitted - Provisional Patent Application No 202531107225)

Papers Reviewed: 49 International Journals: Total 102 manuscripts.

1. ACS Applied Materials & Interfaces
2. Bioresource Technology Reports
3. International Journal of Hydrogen Energy
4. Applied Surface Science
5. ChemCatChem
6. Electrochimica Acta
7. Desalination and Water Treatment
8. Ionics
9. Biomass and Bioenergy
10. Environmental Progress & Sustainable Energy
11. Journal of Environmental Chemical Engineering
12. Coronaviruses (Bentham Science Pub.)
13. Process Biochemistry

14. Biodegradation
15. The Open Public Health Journal
16. RSC Advances
17. International Journal of Environmental Health Research
18. Environmental Research
19. Environmental Science and Pollution Research
20. Energies
21. Indian Journal of Medical Microbiology
22. Materials Today: Proceedings
23. Chemosphere
24. Membranes
25. Chemical Engineering Journal Advances
26. Journal of Materials Chemistry – A
27. Biotechnology Letters
28. Applied Water Science
29. Catalysts
30. Green and Low-Carbon Economy
31. Heliyon-Chemical Engineering Journal
32. CLEAN - Soil, Air, Water
33. Journal of Cleaner Production
34. Clean Technologies
35. GLCE
36. Journal of Hazardous, Toxic, and Radioactive Waste
37. Indian Journal of Microbiology
38. Journal of Applied Electrochemistry
39. Interactions
40. Journal of Power Sources
41. Water Quality Research Journal
42. Bioprocess and Biosystems Engineering
43. Environmental Quality Management
44. Discover Chemical Engineering
45. Discover Water
46. Scientific Reports
47. Journal of the Indian Society of Remote Sensing
48. ACS Sustainable Resource Management
49. Computers and Electronics in Agriculture

Projects reviewed

1. Reviewed project submissions for considering for **Gandhian Young Technological Innovation (GYTI) Award** – 2020 and 2024
2. Reviewed projects submitted for considering and continuing for **Prime Minister’s Research Fellowship (PMRF)** Since 2023.

Awards

- ★ Awarded among the top 15 innovators as **Young Indian Scientists** for the year 2016 and facilitated by **BIRAC-SRISTI Gandhian Young Technological Innovation (GYTI) Award** at Rastrapati bhavan, New Delhi by the **President of India** for the innovation of “Energy efficient combined

process of microbial fuel cell (MFC) and membrane bioreactor (MBR) for high efficiency and reliable treatment of organic wastewater.”

- ★ **All India Rank (AIR)-57** at Graduate Aptitude Test in Engineering (GATE) organised by Ministry of Human Resource Development (MHRD), 2014.
- ★ **Best presentation award** in Research Scholar Day of PK Sinha Centre for Bioenergy and Renewables, IIT Kharagpur, 2020.
- ★ **Best Presentation Award** - Thamires Canuto de Almeida e Silva, **Gourav Dhar Bhowmick**, Makarand Madhao Ghangrekar, Michaela Wilhelm and Kurosch Rezwan, Macroporous SiOC-Carbon-based Composite as Anodes for Microbial Fuel Cell Technology, 5th International Conference on Chemical Materials and Process (ICCMP 2019), **Bangkok, Thailand**, May 1-3, 2019.
- ★ Awarded with **prestigious Blaustein Center for Scientific Cooperation (BCSC) Postdoctoral Fellowship** for 2020-2021 to join as a **Postdoctoral Researcher** in Zuckerberg Institute for Water Research, Department of Desalination and Water Treatment, Jacob Blaustein Institutes for Desert Research, **Ben-Gurion University of the Negev, Israel**.
- ★ Awarded with the **second prize along with a cash prize of INR 31000** along with my research scholars, Ms. Antara Chatterjee and Mr. Ahmad Faisal from the Agricultural and Food Engineering Department based on our research on '**Millet Memory Bar**', combining the wholesome goodness of millets with the cognitive-enhancing properties of Brahmi (*Bacopa monnieri*) at the **International Conference on Millets for Achieving Nutritional and Economic Security (ICMANES), held from September 21 to 23, 2023, at NIFTEM Kundli, Haryana**, established under Ministry of Food Processing Industries (MoFPI), Government of India.
- ★ Awarded with the **3rd position** Award to Ahmad Faisal, **G. D. Bhowmick** and D. K. Swain in the Agrivation event conducted during Prakriti Agri & Food Innovation Fest organised by the department of Agricultural and Food Engineering Department, **IIT Kharagpur** held from 24 March to 26 March 2023.
- ★ '**Best Poster Presentation Award**' to Ahmad Faisal, **G. D. Bhowmick** and D. K. Swain at the National Conference on Marine Pollution and Ecotoxicology (NCMPE 24) (Theme- Seafood Safety and Sustainable Aquaculture) organized by the Department of Marine Biology, Microbiology & Biochemistry, **Cochin University of Science and Technology, Kerala, India**. The presentation title was 'Aquaponics for Medicinal Plants: Optimal Cultivation of Brahmi and Generating Profitable Products', held from 25 September to 27 September 2024
- ★ Awarded with the **DAAD KOSPIE Scholarship 2024-2025** to Pratap Singh work under the supervision of Prof. **G. D. Bhowmick, IIT Kharagpur** and Prof. **M. Azhari, KIT Germany**
- ★ Awarded with the Chanakya Fellowship to Vaibhav Naik work under the supervision of Prof. **G. D. Bhowmick, IIT Kharagpur**
- ★ '**Best Poster Presentation Award**' to Arka Pramanik, Diptesh Goswami, Santosh Kumar and **G. D. Bhowmick** at the World Aquaculture India 2025 organized by the World Aquaculture Society, **Hyderabad International Convention Centre, Hyderabad, India**. The presentation title was 'Performance Evaluation of Aquacultural Processing Waste-derived Biochar as a Cathode Catalyst in Constructed Wetland Microbial Fuel Cell', held from 10-13 November 2025
- ★ Awarded with the **2nd position** in the poster presentation session to Arka Pramanik, Diptesh Goswami, Santosh Kumar, **Gourav Dhar Bhowmick**, for the titled 'Performance Evaluation of Aquacultural Processing Waste-derived Biochar as a Cathode Catalyst in Constructed Wetland Microbial Fuel Cell' at the Indo-Japan Bilateral Workshop on Climate-smart Technologies for Sustainable Agricultural Production and Food Processing organized by the Agricultural and Food Engineering Department, **IIT Kharagpur** in collaboration with the Global Research Centre for Advanced Sustainability Science (GRASS), University of Toyama, held on 02 February 2026
- ★ Awarded with the **2nd position** in the poster presentation session Rajasekar Veeramani, Sara M Pinho, **Gourav Dhar Bhowmick**, for the titled 'Aquaponics as a Circular Resource System: Nutrient Supplementation via Waste-to-Value Conversion of Fish and Seaweed Biomass' at the

SPARC Workshop on Advancing Circular Resource Systems via Organic Waste Recovery Technologies organized by the Department of Civil Engineering, **IIT Kharagpur**, India, held from 05-07 February 2026

Invited Lectures/Talks

- ★ Expert talk on ‘Bio-electrochemical Systems-supported 3D-Agriculture: Future of Soilless Farming’ in **Faculty Development Program (Online) on “Smart Solutions for Wastewater: Advances in Bioelectrochemical Treatment Technologies”** from 28th July to 1st August 2025 at the **Department of Biotechnology, NIT Warangal**.
- ★ Panelist in the technical Session at State level multi-stakeholder convergence workshop for establishing linkages of Jalaj centers with a larger market platform under the **National Mission for Clean Ganga (NMCG)**, Ministry of Jal Shakti sponsored project “Jalaj” held on 12th August 2025 at the **Biswa Bangla Convention Center, Kolkata**.
- ❖ Invited as a Distinguished Panelist at **Look East AgTech Summit 2025**, to discuss on ‘The next Aquaculture Hub- Building the Roadmap with aquaculture experts’ to shed light on strengthening the aquaculture space of North-Eastern India and making it profitable, resilient and sustainable for future generations’ - organized by **The Bengal Chamber of Commerce and Industry and ThinkAg**, at the **Biswa Bangla Convention Centre (BBCC) Kolkata**, West Bengal on 14th May 2025.
- ❖ Invited as a Keynote Speaker at **W-CARESOL 2.0** – ‘Waste Derived Carbon Applications in Remediation, Energy, and Sequestration: Opportunities and Learning’ on ‘From waste to catalyst: Biochar for water remediation and electrochemical applications’ – organized by **IIT Bombay** on 28-29 February 2025.
- ❖ Invited Distinguished Speaker of **Faculty Development Program at Ramakrishna Mission Vivekananda Centenary College (RMVCC)**, Rahara, on 20th of February 2025 to share on “3D Agri-Aquacultural Systems: Future of Sustainable Food Production” funded by ANRF, **Government of India**.
- ❖ **Expert talk on ‘Will biochar help the plants to grow in your garden or is it just a hoax?’** at the workshop on "Waste derived carbon applications in Remediation, Energy and Sequestration: Opportunities and Learning (W-CARESOL)" on 1st and 2nd of August, 2024 at **IIT Bombay Campus** jointly organised by **IIT Bombay and University of Leeds**.
- ❖ **Delivered an online lecture on ‘Hybrid aerobic wastewater treatment systems’** on 25th of March 2024 to the Final year UG students of Civil Engineering of **University of Maine, USA**.
- ❖ **Expert talk on ‘Design and implementation of freshwater quality studies and monitoring Programmes’ and ‘New Development of Water Quality Monitoring with Real-Time Data and IoT’** at the three-day Residential Training Programme for **CPCB officials 2023-24** on "Water Quality Monitoring (Surface, Ground, Wastewater quality assurance and data interpretation)" held from 4th to 6th March 2024 at Chemical Engineering Department, **Indian Institute of Technology (IIT) Jammu**.
- ❖ **Speaker at a two-day summit on "ICC Water and Wastewater Innovation - Innovate, Collaborate & Achieve"** hosted by the **Indian Chamber of Commerce (ICC)**, in association with the Start Up India- a GOI initiative and TERI-NTCoE on February 21st and 22nd, 2024, at Stein Auditorium, **India Habitat Centre, New Delhi**.
- ❖ **Delivered a lecture on ‘Membrane materials used in MFCs Worldwide’** at the one-week **SERB sponsored high-end workshop (Karyashala)** on ‘Microbial fuel cells: a sustainable technology for clean water and green energy’ from 4th to 9th March 2024 organized by the

Department of Chemical Engineering, **National Institute of Technology (NIT), Tiruchirappalli, India.**

- ❖ **Speaker at the Advanced Entrepreneurship and Skill Development Training on ‘Waste to Wealth’** on 14th February 2024 hosted by Prof. Rintu Banerjee supported by the Ministry of Micro, Small & Medium Enterprises (MSME) at **IIT Kharagpur, India.**
- ❖ **Invited speaker cum trainer for more than 350 Saphapatis of Panchayet Samitis** with the **Department of Panchayets and Rural Development, Government of West Bengal** for ‘Upskilling leadership qualities of saphapatis for rural transformation and modern agricultural practices’ in September to December 2023 at BRAIPRD (BR Ambedkar Institute of Panchayats and Rural Development), Kalyani.
- ❖ **Invited speaker at Kerala Urban Dialogue series**, August edition of the discourse focusing on **Sustainable, Resilient, and Inclusive Future Development of Regions** organized by Kerala Institute of Local Administration (KILA), India from 2.00 to 5.00 pm on August 26, 2023.
- ❖ Invited as **Resource Person and delivered as Keynote speaker** on ‘Sustainable development goals and advancements in 3-D aquaculture technologies’ at international training program on ‘Climate resilient technologies for sustainable aquaculture production in developing countries’ at **University of Zambia, Lusaka, Zambia** from 19th to 25th June 2023.
- ❖ Delivered as **Keynote Speaker** on ‘Advanced Agriculture Technologies’ to the **International workshop on ‘Emerging Trends in Agricultural Technologies’, IIT Kharagpur, India** on 2nd April 2023.
- ❖ Delivered an **invited talk** on ‘Opportunities in Aquaculture sectors for the entrepreneurs from the coastal regions of India’ to the **MO CHASHI BHAI**, an Initiative by Maruti Foods Training Centre (MFTC) and Maruti Foods, **Odisha, India** on 14th August 2021.
- ❖ Delivered an **invited talk** on ‘Carbon capture and storage technologies and their impact on environmental ecology’ on Environmental outreach programme webinar series at the **University of Calcutta, India** on 11th July 2021.
- ❖ Delivered a **short lecture** on the ‘Recent activities on Bio-Electrochemistry research in India’ at Advanced Ceramics Group, **University of Bremen, Germany** on 22nd November 2017.

Media Coverages

- ✚ How to shift into COVID-19 research: Scientists who aren’t virologists or vaccinologists can still make crucial contributions to the global effort to battle SARS-CoV-2. Career Feature. Published online on 20th November 2020 by **Nature**. <https://www.nature.com/articles/d41586-020-03298-x>
- ✚ Danger of coronavirus spreading through untreated sewage water. Published online on 7th July 2020 by **NatureIndia**. doi:10.1038/nindia.2020.107
Link: <https://jwp-nindia.public.springernature.app/en/nindia/article/10.1038/nindia.2020.107>
- ✚ Media coverage for GYTI award-2016:
 - ✚ Techpedia - <http://gyti.techpedia.in/news-detail/31>
 - ✚ The Statesman - <https://www.thestatesman.com/bengal/iit-kharagpur-shines-in-innovation-contest-130045.html>
 - ✚ The Times of India - <https://timesofindia.indiatimes.com/home/education/news/IIT-Kharagpur-wins-laurels-at-innovation-awards/articleshow/51409405.cms>
 - ✚ The Economic Times - <https://economictimes.indiatimes.com/industry/services/education/iit-kharagpur-wins-maximum-number-of-laurels-at-innovation-awards/articleshow/51408291.cms?from=mdr>

- ✦ The HANS India - <https://www.thehansindia.com/posts/index/Education-and-Careers/2016-03-15/IIT-Kharagpur-shines-at-innovation-awards/213918>
- ✦ Business Standard - https://www.business-standard.com/article/pti-stories/iit-kgp-wins-maximum-number-of-laurels-at-innovation-awards-116031500414_1.html
- ✦ Mathrubhumi - <https://english.mathrubhumi.com/education/news/news-updates/iit-kgp-wins-max-number-of-laurels-at-gyti-english-news-1.930946>
- ✦ Collegedekho - <https://www.collegedekho.com/news/innovation-awards-see-iit-kharagpur-win-maximum-laurels-3629/>
- ✦ Brainbuxa - <https://www.brainbuxa.com/education-news/iit-kharagpur-outshines-every-institution-at-gyti-2016-4826>
- ✦ NDTV India - <https://khabar.ndtv.com/news/career/iit-kharagpur-wins-maximum-number-of-laurels-at-innovation-awards-1287553>
- ✦ The New Indian Express - <https://www.newindianexpress.com/nation/2016/mar/15/IIT-Kharagpur-Wins-Maximum-Number-of-Laurels-at-Innovation-Awards-911938.html>
- ✦ Business Insider - <https://www.businessinsider.in/iit-kharagpur-shows-how-to-innovate-bags-maximum-laurels-at-innovation-awards/articleshow/51409735.cms>

Internships/Workshops/Symposium attended

1. **WORKSHOP AT GLOBAL CONFERENCE OF INTERNATIONAL SOCIETY OF MICROBIAL ELECTROCHEMISTRY, OIST, OKINAWA, JAPAN**
Duration: 7th – 11th October, 2019
Title: Microbial Electrochemistry
2. **GLOBAL INITIATIVE OF ACADEMIC NETWORKS (GIAN), IIT KHARAGPUR, INDIA**
Duration: 20th – 29th June, 2016
Title: Environmental Electrochemistry
3. **GLOBAL INITIATIVE OF ACADEMIC NETWORKS (GIAN), IIT KHARAGPUR, INDIA**
Duration: 07th - 12th December, 2015
Title: Probability Safety Assessment (PSA)
4. **INTERNATIONAL SUMMER AND WINTER TERM, IIT KHARAGPUR, INDIA**
Duration: 01st – 12th June, 2015
Title: Modelling River Catchment Analysis.
5. **SOIL CONSERVATION TRAINING CENTRE, DAMODAR VALLEY CORPORATION (DVC), HAZARIBAG, JHARKHAND, INDIA**
Duration: 01st – 30th June, 2013
Project title: Practical Training on Soil and Water Conservation
6. **CENTRAL FARM MACHINERY TRAINING AND TESTING INSTITUTE MINISTRY OF AGRICULTURE (GOVERNMENT OF INDIA), BUDNI, INDIA**
Duration: 7th May – 1st June, 2012
Project title: Practical Training Course of Agriculture Engineering on Academic Level

Start-ups

Establish two start-ups along with the students on 3-D Agriculture systems and Seaweed based Product Recovery which are already incubated in Agri-Business Incubation Foundation (ABIF), Agricultural and Food Engineering Department, IIT Kharagpur.

Positions of Responsibility

- ★ **Played pivotal role in signing Memorandum of Understanding (MoU) between Indo–Japan academic partnership, 2026.**
- ★ **Warden, Dr. B. R. Ambedkar Hall of Residence, IIT Kharagpur, since 1st January 2026.**
- ★ **Warden, Vikram Sarabhai Residential Complex – 2 (Gents Block), IIT Kharagpur, (1st October 2025 - 31st December 2025).**
- ★ **Rector’s nominee for the Social and Cultural group of Technology Students’ Gymkhana (TSG) to coordinate socio-cultural events in IIT Kharagpur (5th Sep. 2023 – 15th August 2025).**
- ★ **Convenor, Core Committee, Inter-IIT Cultural Meet 6.0 organized by IIT Kharagpur, 26-29 December 2023.**
- ★ **Co-Convener, Sports Fest ‘Shaurya’ at IIT Kharagpur, 10-12 January 2025.**
- ★ **Department Professor In-charge, International Students, Agricultural and Food Engineering Department (Since 2024).**
- ★ **Member-Secretary of the committee on the preparation of ‘Sustainable policy’ for QS and NIRF ranking of IIT Kharagpur.**
- ★ **Played pivotal role in signing Memorandum of Understanding (MoU) between Land Revenue and Disaster Management Department, Government of Sikkim and Indian Institute of Technology Kharagpur, 2023.**
- ★ **Played pivotal role in signing Memorandum of Understanding (MoU) between Praz Industries and Indian Institute of Technology Kharagpur, 2023.**
- ★ **Played pivotal role in signing Memorandum of Understanding (MoU) between Government of Tamilnadu and Indian Institute of Technology Kharagpur, 2023 for the preparation of regional plans for Sivagangai district.**
- ★ **Played pivotal role in signing Memorandum of Understanding (MoU) between Munico Foods Pvt. Ltd. and Indian Institute of Technology Kharagpur, 2025.**
- ★ **Played pivotal role in signing Memorandum of Understanding (MoU) between African Asian Rural Development Organization (AARDO) and Indian Institute of Technology Kharagpur, 2022.**
- ★ **Member, Agri-Business Incubation Foundation (ABIF) selection and monitoring committee, IIT Kharagpur.**
- ★ **Major Contribution in preparing the comprehensive report on 'Dharati Putra: A Study of Krishi Kalyan Schemes in India 2022' for the Government of India.**
- ★ **Faculty advisor of Under-graduate batch – 2021-2025, Agricultural and Food Engineering Department, IIT Kharagpur, India.**
- ★ **Faculty advisor of Post-graduate batch – 2022-2024 and 2023-2025, Aquacultural Engineering Specialization, Agricultural and Food Engineering Department, IIT Kharagpur, India.**
- ★ **Election Officer of Hall Council Member (HCM) election 2022-23 at LBS Hall of residence, IIT Kharagpur.**
- ★ **Convener-Member, 68th and 69th Convocation Lunch and Pre-dinner at IIT Kharagpur.**
- ★ **Professor in-charge, Prakriti - Agri and Food Innovation Fest 2023 at Agricultural and Food Engineering Department, IIT Kharagpur, India.**
- ★ **Mentoring the start-ups for the NABARD-funded Agri Business Incubation Foundation IIT Kharagpur for the promotion of Agri-business in the eastern part of India.**
- ★ **Selection and Monitoring Committee (ASMC) Member for the NABARD-funded Agri Business Incubation Foundation (ABIF)**
- ★ **Honorable judge for the Krishi Manthan event of PRAKRITI-2022 (Agri-tech fest) at IIT Kharagpur.**
- ★ **Assistant Warden – Lal Bahadur Shastri Hall of Residence, IIT Kharagpur – From 1st January 2022 to 31st December 2023.**

- ★ **Organizing committee member** - for TEQIP-AICTE short term course title “Recent Trends in Industrial Pollution Control and Regulation” 19 – 23 November 2018, IIT Kharagpur, India.
- ★ **Organizing Head, IUWMM-2018** - First INDO-EU joint workshop on “The Recent Developments in Microbial Fuel Cell and Membrane Bioreactor Technology” at Indian Institute of Technology Kharagpur, India. February 2 – 3, 2018.
- ★ **Choreographer-Member, Technology Dance Society, IIT Kharagpur**, Silver medal at Centrifuge dance competition, Spring Fest-2015, IIT Kharagpur, India.
- ★ **Choreographer-Member, Technology Dance Society, IIT Kharagpur**, Representing IIT Kharagpur in Antaragini-2014 at IIT Kanpur, India.
- ★ **Coordinator, Event management team, Social-2013** held in Uttar Banga Krishi Viswavidyalaya, India.
- ★ **School dramatics society**, for State Youth Parliament Competition (School level)-2008 (representing Darjeeling district) held at Saltlake Stadium, Kolkata, India.
- ★ **School quiz team**, Gold Medal in Interaction-2008, Siliguri Utsav-2005, 2006, 2010 held at Siliguri, India.

Positions of Responsibilities (Outside IIT Kharagpur)

- ❖ **Honorary member, Board of Studies (MoS)**, Department of Biotechnology, School of Sciences, Woxsen University Hyderabad, India (Since May 2023).
- ❖ **Invited Guest plus jury member, National Children Science Congress – 2022** at Kendriya Vidyalaya - IIT Kharagpur.
- ❖ **Honorary member of Advisory committee of WINGS - Wildlife Information and Nature Guide Society**, Durgapur, West Bengal, India.