Curriculum Vitae

Prof. Makarand M. Ghangrekar, Ph.D., MASCE, FNAE
Institute Chair Professor,
Professor, Department of Civil Engineering,
Former Chairperson, School of Environmental Science and Engineering,
Former Head, PK Sinha Centre for Bioenergy and Renewables,
Professor In-charge, Aditya Choubey Centre for Re-water Research,
Indian Institute of Technology, Kharagpur – 721 302. India
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Major Professional/Administrative Experience

- Head of the academic units at IIT Kharagpur (a) School of Environmental Science and Engineering, and (b) PK Sinha Centre for Bioenergy and Renewables for more than four years, and Professor In-charge Aditya Choubey Centre for Re-water Research.
- Worked as Chairman, Spring Fest for seven years, a largest Social and cultural student festival in eastern India organized by IIT Kharagpur
- Designed and Constructing 1.35 MLD Sewage treatment plant for hostels and another 300 m^3/day sewage treatment plant at IIT Kharagpur to produce potable quality treated water.
- Worked as Professor-In Charge of Water Works and Sanitation for three years at IIT Kharagpur.
- At IIT Kharagpur as a Principal Investigator could bring external funding of more than Rs. 18.33 Crores for undertaking Research & Development projects and as a Co-Investigator I am/was involved in projects over Rs. 6.65 Crores. Undertaken consultancy projects as Principal consultant of more than Rs. 2.02 Crores.
- Constructed and operating 400 m^3.day UASB reactor-based sewage treatment plant at IIT campus.
- Providing consulting for sewerage and sanitation infrastructure to various state Governments, namely Odisha, Chhattisgarh, Jharkhand, West Bengal, Assam, etc. and Government of India in National Mission for Clean Ganga.
- Provided design of more than 25 industrial wastewater treatment plants to Environmental Engineering consulting firms in India and two plants in Malaysia.
- Providing operational guidelines to effluent treatment plants to the industries.
- Worked as Assistant Warden at IIT Kharagpur and Rector at Government College of Engineering, Aurangabad.
- Experience of working in undergraduate student admissions, conducting centralized semester examinations, Centre head for common admission test (JEE/GATE) and carrier guidance.
- Associate Editor of Elsevier and Scopus Journals and Editorial board member for journals.

Education

1989 - **B.E.** (Civil Engineering, Distinction), Government College of Engineering, Karad, M.S., India.

1992 - **M.Tech.** (Environmental Engineering), VNIT (Former Visvesvaraya Regional College of Engineering), Nagpur, M.S., India.

January 1998 - **Ph.D**. (Environmental Science and Engineering), Indian Institute of Technology Bombay, Powai, Mumbai, India.

Professional Experience: 28 Years of Teaching, Research, and Consulting

Since August 2020, Institute Chair Professor, Indian Institute of Technology Kharagpur, India

March 2019 – March 2020: Chair Professor, Aditya Choubey Centre for Rewater Research, IIT Kharagpur.

Since, March 2017 – December 2021: Head/Chairperson, School of Environmental Science and Engineering, IIT Kharagpur

Since, March 2017: Professor In-Charge/ Head, PK Sinha Centre for Bioenergy and Renewables, IIT Kharagpur

Since December 2011: Professor, Department of Civil Engineering, Indian Institute of Technology, Kharagpur – 721 302 (WB), India

February 2010 to June 2010: Visiting Scientist, Ben Gurion University, Israel, under Marie Curie Fellowship by European Union.

September 2008 to December 2008: Marie Curie Fellow (Experience category), School of Chemical Engineering and Advanced Materials, University of Newcastle upon Tyne, UK.

April 2007 to November 2011: Associate Professor, Department of Civil Engineering, Indian Institute of Technology, Kharagpur – 721 302 (WB), India

January 2004 – April 2007: Assistant Professor, Department of Civil Engineering, Indian Institute of Technology, Kharagpur – 721 302 (WB), India

August 2003 – December 2003: Lecturer, Department of Civil Engineering, Government College of Engineering, Pune – 411 005, Maharashtra, India.

May 1996 – July 2003: Lecturer, Department of Civil Engineering, Government College of Engineering, Aurangabad – 431 005, Maharashtra, India.

February 1992 – December 1992: Senior Project Fellow, National Environmental Engineering Research Institute, Nagpur, India.

June 1989 – July 1990: Civil Engineer, Private contractor, Nagpur, India.

Research Experience: (31 Years)

1. Application of microbial fuel cell for wastewater treatment and electricity production. First Indian to start research in this bioelectrochemistry domain.
2. Development of knowledge base for design, operation, and maintenance of Up-flow Anaerobic Sludge Blanket Reactor.
3. Development of low cost treatment method for sewage using high rate anaerobic processes, such as, UASB reactor, anaerobic filter, anaerobic baffled reactor.
4. Studies on granulation, start-up, and performance of Up-flow Anaerobic Sludge Blanket Reactor.
5. Evaluation of Engineering, Social and Economic Aspect of Intermittent V/s Continuous Water Supply for Urban Areas. Duration: February to December 1992, at National Environmental Engineering Research Institute, Nagpur.

Current Research/ Professional Interests

- Microbial fuel cell application for wastewater treatment.
- Desalination of wastewater
- Studies on Anaerobic-aerobic package sewage treatment plant for small community.
- Design and operation of UASB reactor for organic wastewater treatment.
- Bio-energy recovery during waste treatment.
- Reuse of treated wastewater
- Water treatment for public water supply and Sewage & Industrial Wastewater Treatment.

Research Projects

Principal Investigator for following projects:

1. **Coupled advanced oxidation and membrane bioreactor technology for removal of organics to facilitate recycling of wastewater in a polyethylene terephthalate plant.** Sponsored by DST, Technology Mission Division, Ministry of Science and Technology, Government of India. (DST/TMD(EWO)/OWUIS-2018/RS-10(G) dt. 27-09-2019. Rs. 4156,400/-. Duration 24 months w.e.f. 14-10-2019.
2. **Recent developments in Electrode Synthesis for Improving the performance and Upscaling the Bio-electrochemical Systems for Wastewater Treatment and Bio-electricity recovery (ESW_SKI)**. Sponsored by Ministry of Human Resources Development, Government of India under SPARC program. Rs. 2607,180=00, Duration 15-03-2019 to 14-03-2021. Collaborator, VITO and University of Antwerp, Belgium.
3. **Aditya Choubey Centre for Re-Water Research** (CRW). Mr. Aneesh Reddy and Mr. Anant Choubey, Capillary Technologies, Singapore. Duration: 24.0 Months w.e.f. 01-07-2018. Funding: Rs. 20000,000.00.
4. Overall Indian coordinator and PI of the project **"Identifying best available technologies for decentralized wastewater treatment and resources recovery for India (SARASWATI-2.0)".** EU Water project under Horizon 2020, funded by DST India. Duration March 2020 to February 2024. Co-PI: Prof. Brajesh Dubey; Funding Rs. 2.49 crores for IIT Kharagpur. Total funding Rs. 9.3759 crores.
5. **WIN project**
6. **Development of Smart Portable Bio-Electrochemical Toilet for Harvesting Electricity during Human Waste Treatment** (SAP17_IITKGP_05) (DHT). Swachhta Action Plan (SAP), IIT Madras, IC and SR, IIT Madras, Chennai – 600036. Duration: 36 Months w.e.f. 22-01-2018. Funding: Rs. 6886,000.00.
7. **Small scale and sustainable household grey water recycling (S3HWR)** (PROJECT NO.: 5670) (SAQ). MHRD, Department Of Higher Education, New Delhi, Ministry of Urban Development, GoI,Niman Bhawan, New Delhi- 110 108, F. No.: 41-2/2015-T.S.-I (Pt.), Dt. 09-01-2016; 36.0 Months w.e.f. 05-05-2017, Funding Rs. 3192,000.00.
8. **Develop an energy - efficient combined process of microbial fuel cell (MFC) & membrane bioreactor (MBR) for high efficiency & reliable treatment of organic wastewater** (OER). Society for Research and Initiatives for Sustainable Technologies and Institutions (SRISTI), AES Boys Hostel Campus, Near Gujrat University Library and SBI, Navrangpura, Ahmedabad - 380 009, Gujrat; BIRAC SRISTI PMU - 2016/014, Dt. 04-04-2016; Duration: 24.0 Months w.e.f. 16-09-2016; Amount Rs. 1500000.00.
9. **Development of MFC Based Electro-chemical System for Sewage Treatment and Onsite Electricity Generation** (SWE). NTPC Limited, Plot No. 3, Block-E, Udhyog

Vihar, Ecotech-II, Greater Noida. Duration: 24.0 Months w.e.f. 18-07-2017. Funding: Rs. 4236,000.00.

10. **Bioelectric toilet: a novel approach for treatment of human waste & generating onsite electricity for lighting toilets** (TNO). Department of Science and Technology (DST), Government of India. DST/TSG/NTS/2015/99 , Dt. 23-11-2016; Duration: 36.0 Months w.e.f. 23-11-2016; Funding Rs. 3594,360.00.
11. **Intergrated MFC-MBR system using low cost multifunctional ceramic membrane for efficient wastewater treatment and electricity recovery (IUW)** funded by DBT, GoI jointly with EU under Inno-Indigo project. Funding Rs. 96.11 Lakhs, March 2016-March 2019 (bt/iN/inno-indigo/28/mmg/2015-16).
12. **Development of Microbial carbon Capture Cell** under DBT PAN IIT center for Bioenergy, Funded by Department of Biotechnology, Government of India. Funding Rs. 66.26 Lakhs. January 2015 to December 2019.
13. Principal Coordinator and investigator for DST-UKIERI project titled **"Development of high performance carbon nanomaterials for enhancing the cathodic oxygen reduction and performance of anode in microbial fuel cells"** Funding Rs. 18.14 Lakhs /- Rs. Duration: January 2015 to June 2016. DST/INT/UK/P-101/2014.
14. **Simultaneous removal of organic matter and dissolved inorganic salts from wastewater in microbial desalination cell.** Funded by Tata Steel Ltd., Jamashedpur, Rs. 2000,000/-; File No. IIT/SRIC/CE/OMI/2013-2014/149, Duration: February 2014 to January 2016.
15. **Supporting consolidation, replication and up-scaling of sustainable wastewater treatment and reuse technologies for India (SARASWATI)**. Under FP7-ENV-2012-one stage, Funded by DST Rs. 81.32 Lakhs (No. DST/IMRCD/SARASWATI/ 2012/(G)/II), Duration: January 2013 to September 2017.
16. "**Development of Microbial Fuel Cell for Direct Electricity Recovery During Wastewater Treatment**" Sponsored by DST under Technology system development programme. Funding Rs. 61.10 Lakhs (DST/TSG/NTS/2012/61), August 2012 to July 2015.
17. **"Treatment of steam rice effluent"** project sponsored by Aquatreat Engineering, Pvt. Ltd. Kolkata, (No. 2009-10/CE/TSRE/11) Rs. 160,000/-. April to August 2009. Completed.
18. **"Production of bioenergy during wastewater treatment"** Research project sanctioned by Ministry of Environment and Forest, New Delhi, India. Funding about Rs. 13,22,213/-. (F. No. 19-35/2005-RE). August 2007-July 2010
19. **"Software development for providing off-line operational guidelines for anaerobic treatment systems"** Project proposed by Science Traveler International, Australia.
20. "**Treatment and Reuse of Sewage from Small Community**" Research Project funded by ISIRD, IIT, Kharagpur. Duration: April 2004 to April 2007. Funding Rs. 3,00,000/-. Completed**.**
21. "**Studies on Anaerobic-Aerobic Package Sewage Treatment Plants**", funded by University Grants Commission, New Delhi, India. Duration: June 2003 to June 2006. (F.No. 14-10/2003 (SR)) Rs. 5,60,000/-. Completed.
22. "**Development of knowledge base for design, operation and maintenance of Upflow Anaerobic Sludge Blanket Reactor**", funded by University Grants Commission, New Delhi, India. Duration: April 1999 to April 2002. (F.No.14-10/98 (SR-I)), Rs. 3,64,080/- , Completed.
23. "**Development of low cost treatment method for sewage**", funded by All India Council for Technical Education, New Delhi, India. Duration: April 1999 to April 2002. (F. No.8017/ RDII/ R&D/ Deg (664) /98-99 dt. March 27, 1999 Rs. 6,00,000/-, Completed.

As Co-Investigator

1. **Development of a Photoelectrocatalytic (PEC) reactor and testing different photo-active catalysts for degradation of recalcitrant organic pollutants from wastewater**. Global Challenges Research Fund, Cardiff University, UK. PI: Dr. Sachin P. Nanavati, Prof. Rajakumar Anathakrishnan, Grant **£ 24,960/-. March 2020 till July 2020.**
2. **Pilot scale production of ethanol from lignocellulosic feedstock: a technological challenge** (EFC). MHRD, Department Of Higher Education, New Delhi, Ministry of Petroleum and Natural Gas, GoI, Shastri Bhawan, New Delhi, Devleela Lifesciences Pvt. Ltd.,36/395, Guru Nanesh Kripa, Civil Lines, Raipur - 492 001, Chhattis Garh; F. No. 35-13/2016-T.S. I , Dt. 12-08-2016; Duration: 36.0 Months w.e.f. 14-12-2016; Amount Rs. 153,72,400.00.
3. **Upgradation of laboratory and library facilities for renewable energy programme (ULR)**. Funded by Ministry of New and Renuable Energy, Govt. of India. Funding Rs. 50.00 Lakhs. Duration 3-05-2012 to 02-05-2017. PI: Prof. R. Banerjee, Co-PI: Prof. S. Chakraborty.
4. **Award of Fellowship under national renewable fellowships (REF)**. Funded by Ministry of New and Renuable Energy, Govt. of India. Funding Rs. 61.76 Lakhs. Duration 3-05-2012 to 02-05-2017. PI: Prof. R. Banerjee, Co-PI: Prof. S. Chakraborty.
5. "**Production of Ligonocellulosic Fuels: from Lab to Pilot Scale (PLF)**". Funded by DBT, New Delhi. Funding Rs. 345.84 Lakhs. PI: Prof. R. Banerjee, Co-PI: Prof. S. Chakraborty, Prof. S. Ray, P.K. Sinha Centre for Bioenergy, IIT Kharagpur. 26-03-2012 to 25-03-2015.
6. "**P K Sinha Centre Project (PKS)**" Project sponsored by Dr. Prabhakant Sinha for enhancing research activities on Bioenergy. USD 150,000. PI. Prof. S. Chakraborty, Co-PI: Prof. R. Banerjee and Prof. M.M. Ghangrekar.
7. "**Ganga River Basin Environmental Management Plant (GMP)**" Environmental quality work group. Rs. 3000,000/-. Sponsored by Ministry of Environment and Forest, New Delhi. PI : Prof. D.J. Sen, Co-PI: M.M. Ghangrekar, Dr. A.K. Gupta, Dr. S. Goel.
8. "Committee on Rain water harvesting" Member of the committee set-up by Department of Environment, Govt. of West Bengal from 29 September 2011.

Consultancy Projects

1. Monitoring Gross Polluting Industries for CPCB (MGPC). Central Pollution Control Board, Ministry of Environment, Forest and Climate Change, Govt of India, Parivesh Bhawan, East Arjun Nagar, Delhi. Duration May 2019 to July 2019. Amount Rs. 2150,000.00.
2. Vetting of Design and Drawing for Drainage Pumping Station at Golf Garden in Ward No. 94 under Br-X under Kolkata Municipal Corporation (TDXM). MACKINTOSH BURN LIMITED,MBL House, DD-18/8, Sector-I, Salt Lake city, Kolkata. Amount Rs. 236000.00. From 01-12-2018 to 31-01-2019.
3. Validation of Design of EPC Project – Raipur (EPCR). SMS Limited (Corporate Office),IT Park, 20 S.T.P.I., Gayatri Nagar, Parsodi, Nagpur. Duration: November 2018 till March 2019. Amount Rs. 2950,000.00.
4. Monitoring Gross Polluting Industries for CPCB (CPCB). Central Pollution Control Board, Ministry of Environment, Forest and Climate Change,Govt of India, Parivesh Bhawan, East Arjun Nagar, Delhi. Duration April 2018 to November 2018. Amount Rs. 2131,034.00.

5. Vetting of Process and Hydraulics of STP at Adityapur (VASA). Shapoorji Pallonji And Co - KIPL (JV),Project Office, Jamshedpur, Jharakhand. Duration: March 2018 to March 2019. Amount Rs. 2360,000.00. Co-PI: Prof. N. Dhang, Prof. L.S. Ramachandra.
6. Adequacy of Effluent Treatment Plant (AETP). IVL Dhunseri Petrochem Industries Private Limited,Dhunseri House, Kolkata. Duration: February – April 2018. Amount Rs. 141,600.00.
7. Study on WWTP (DP-HP) (SWDH). MCPI PRIVATE LIMITED, Vill and P.O. Bhuniaraichak, HALDIA. Duration: 28-12-2017 to 30-04-2018, Amount Rs. 118,000.00.
8. Checking of Hydraulic Design of 4 MLD STP (CHDM). M M Enviro Projects Private Limited, Nagpur. Duration November-December 2018. Amount Rs. 100,000.00
9. Solid Waste Management in Guwahati (SWMG). Office of the Commissioner, Guwahati Municipal Corporation, Panbazar, Guwahati – 01. Duration: 01-04-2017 to 31-03-2019. Amount Rs. 4298,000.00.
10. **Consultant Shapoorji Pallonji Group** for developing Water and Wastewater Treatment Processes. December 2017 to November 2019. Rs. 1.0 Lakh per month.
11. Third party inspection services for Sahibganj municipal waste water project (ISWP). Urban Development and Housing Department, Govt. of Jharkhand, State Programme Management Group, Room No.: 403, 4th Floor, Project Bhawan, Dhurwa, Rancji – 834004. Duration: 01-01-2017 to 31-12-2018. Rs. 680,000.00.
12. Third party inspection of Ranchi sewarage project (TPIR). Urban Development and Housing Department, Govt. of Jharkhand, State Programme Management Group, Room No.: 403, 4th Floor, Project Bhawan, Dhurwa, Rancji – 834004. Duration: 01-04-2017 to 31-03-2019, Amount Rs. 230,000.00.
13. Inspection of GPIS for compliance verification of effluent discharged standards (IEDS). Central Pollution Control Board, Ministry of Environment, Forest and Climate Change, Govt. of India,Parivesh Bhawan, East Arjun Nagar, Delhi - 110 032. Duration: 31-03-2017 to 30-04-2017. Amount Rs. 710,000.00.
14. DPR Review for Ganga river development work under National Mission for Clean Ganga, Government of India. Proposal Reviewed:
    a. Rajmahal and Sahebganj river front development,
    b. Solid waste management for Rajmahal and Sahebganj, Jharakhand
15. Design and Commissioning of UASB reactor for treatment of chocolate industry (CTCI). Sponsored by Industrial Water Engineering, Malaysia, Rs. 314,608; duration 24-06-2014 to 31-05-2015.
16. Review of pollution control measures at Poori (RPCM). Sponsored by Orissa Water Supply and Sewerage Board, Bhubaneshwar. Rs. 123,596; duration 01-08-2014 to 31-12-2014.
17. UASB-Biofilm hybrid reactor (UBHR). Sponsored by Tata Steel Ltd. Jamshedpur, Rs. 1125583; 01-08-2014 to 31-12-2015.
18. Technical vetting of inhouse design of biotower for media requirement (TIBR). Oil and Natural Gas Corporation Ltd., Mumbai. Rs. 50,000/-. 01-12-2012 to 31-01-2013.
19. Setting up Sewage Disposal system at NIT Silchar (SDSN). NIT Silchar. Rs. 2.20 Lakhs. Duration: 18-07-2012 to 17-07-2013.
20. Expert advice on structural disorder in the 27 MLD capacity Water Treatment Plant at Kendrapada, Odisa (EMPH). Chief Engineer, Public Health (Urban), Bhubaneshwar. Rs. 1.68 Lakhs, Duration 15-03-2012 to 14-06-2012.
21. "Development of Effluent treatment plant for Rice mills" (DETP). Qualicom solutions Pvt. Ltd. Bhubaneswar. Rs. 200,000/-; June to December 2011.
22. Checking design and drawing of UASB type sewage treatment plant (CDST). Apporv Air Control, Jaipur. (IIT/SRIC/CE/2010-2011/39. Rs. 3.25 Lakhs.
23. Study of water supply distribution/ storage and source availability for Darjeeling Municipality (No. 2007-2008/CE/SWSD/33). Amount Rs. 482,000/-. PI: Dr. V.R. Desai;

Co-PI: Dr. M.M. Ghangrekar; Dr. A. Sengupta. Sponsored by District Magistrate, Darjeeling.

24. Design of UASB reactor for bio-diesel wastewater treatment. Client: Industrial Water Engineers, **Malaysia**. Consultancy Fee Rs. 4,00,000/- (Project No. 2006-07/CE/UASB/75).
25. Adequacy of measures taken by Rourkela Steel Plant regarding the sewage treatment system of Rourkela Steel Plant Township (RSPT). Client: Rourkela Steel Plant, SAIL, Rourkela. Consultancy Fees Rs. 808,992/-. (Project No. IIT/SRIC/CE/2007-08/124).
26. Testing of Wholly Water appliances for arsenic and other pollutant removal from water. For Quality Systems & Inspection Services, Kolkata. Rs. 1,60,000/-.
27. Design of sewerage system with sewage pumping stations for Air Force Colony, Kalaikonda. Rs. 2,50,000/-.
28. Provided design of UASB reactor and operational guidelines for treatment of Brewery, Dairy, Pharmaceuticals wastewaters and Sewage treatment.
29. Extending consultancy services for design of water and wastewater treatment plants, operation and maintenance of effluent treatment plants, and water, wastewater and air quality monitoring.
30. Providing technical know-how for operation and maintenance of effluent treatment plants.

Seminar/ Training Programs Organization

- Organized International Workshop SARASWATI-2.0 EU-India annual consortium meeting, 6-7 December, Kolkata India.
- International organizing committee member for IWA SPECIALISED CONFERENCE ON WATER AND WASTEWATER MANAGEMENT WITH SPECIAL INTEREST TO DEVELOPING COUNTRIES at Murdoch University ,Western Australia, December 2023.
- Webinar on "Moving towards sustainable sanitation and efficient water use practices" organized jointly by WIN foundation and IIT Kharagpur on 3rd September 2020.
- First specialized Indo-Belgium joint workshop on "**Upscaling of Bio-electrochemical Systems for Wastewater Treatment and Bioelectricity Recovery**" at Indian Institute of Technology Kharagpur, India, February 26-27, 2020, Total participants 109.
- Coordinator for AICTE short term course title "Waste to Wealth – the paradigm, the practice and the potential, one week, Rs. 450,000/-. 25-29 November 2019., IIT Kharagpur
- Coordinator for TEQIP-AICTE short term course title "Recent Trends in Industrial Pollution Control and Regulation" 19 – 23 November 2018, IIT Kharagpur
- Convener for INDO-EU workshop on "The Recent Developments In Microbial Fuel Cell And Membrane Bioreactor Technology", February 2 – 3, 2018, IIT Kharagpur.
- Coordinator of the course on Environmental Electrochemistry under Global Initiative of Academic Network (GIAN) from 20 – 29 June 2016 at IIT Kharagpur.
- Coordinator for International Symposium on "New Horizons in Bioenergy Research" 14-16 January 2012 at IIT Kharagpur.
- Organizing committee member for International Symposium on Bioenergy, 5-7 January 2010, Bioenergy Symposium Series at IIT **Kharagpur**
- Coordinator for National Symposium on Bioenergy, IIT Kharagpur, 23rd November 2009.
- Coordinator for Short term course sponsored by A.I.C.T.E. on Waste Minimization and Bio-energy Recovery, November 22-26, 2009, Department of Civil Engineering, Indian Institute of Technology, Kharagpur – 721 302.

- Coordinator for Short term course sponsored by A.I.C.T.E. on Advanced Technologies for Water and Wastewater Treatment, November 20-25, 2006, Department of Civil Engineering, Indian Institute of Technology, Kharagpur – 721 302.
- Worked as Coordinator for short term training programme on topic Environmental Pollution Control, July 14-25, 2003, sponsored by A.I.C.T.E. & I.S.T.E, New Delhi, Department of Civil Engineering, Government College of Engineering, Aurangabad, India.
- Worked as Organizing Secretary, National Environmental Awareness Campaign, the activity sponsored by MoEF, New Delhi, India for **six** times for the years 1998 to 2003 at Government College of Engineering, Aurangabad.
- Worked as Organizing Secretary for **two** national seminars sponsored by A.I.C.T.E., New Delhi, India a) Financing, Design, Construction and Operation of Highway, February 07-08, 2002 and b) Teacher vacancies in degree and diploma level technical institutions, January 11-12, 1999, Department of Civil Engineering, Government College of Engineering, Aurangabad, India

Editorial Board Member/ Associate Editor

1. Associate Editor, Sustainable Energy Technologies and Assessments (SETA), Elsevier from January 2021.
2. Associate Editor, Journal of Hazardous, Toxic, and Radioactive Waste, A journal of ASCE, American Society of Civil Engineers since January 2019.
3. Editorial Advisory Board Member, Current Research in Wastewater Management, Trend Research Publishing from January 2021.
4. Guest Editor, Process Biochemistry, Elsevier on the thematic issue Biofuel cell, 2020
5. Guest Editor, Sustainable Energy Technologies and Assessments , Elsevier on 'Sustainable wastewater treatment: Challenges and Opportunities' 2020
6. Guest Editor, Journal of Chemistry, Volume 2018. New Trends in Monitoring and Removing the Pollutants from Water. Hindawi. https://doi.org/10.1155/2018/8394086
7. Editorial Board Member, Renewable and Sustainable Energy: An International Journal (RSEJ) (http://airccse.com/rsej/index.html)
8. Editorial Board Member of Journal of Current Pollution Reports, Springer Publication.
9. Editor, The Scientific World Journal, Hindawi Publishing Corporation, New York, USA
10. Editorial Advisory Board Member of Chemical Bulletin, Romania, series of Chemical and Environmental Engineering, ISSN 1224-6018 (http://www.chim.upt.ro/buletin_chimie/)
11. Editorial Board Member International Journal of Wastewater Treatment and Green Chemistry (IJWTGC)**,** Serials Publications, New Delhi, India.
12. Editorial Board Member Journal of Energy, Hindawi Publishing Corporation.

Conference Technical Advisor

- Organizing committee member 16th Specialist conference on Small Water and Wastewater treatment systems and 8th Specialist conference on resource oriented sanitation, 1-5 December 2019; Murdoch University, Perth, Australia.
- 4th Asia Pacific – International Society of Microbial Electrochemistry and Technology (AP-ISMET) international conference held BITs, Goa during 13 -16 November 2018.
- S2SMALL2017 International Water Association Conference, Nates, France, October 23-26, 2017.
- Scientific Committee member for ACESE'14. The first Asian Conference on Environmental Sciences and Engineering (ACESE'14) December 2014, Kuala Lumpur, Malaysia.

- Member of the Program Committee of AD13, an international conference organized by IWA, Santiago de Compostela, Spain, 14-17 July 2013.
- National Level Conference on 'Bio-Engineering Sciences" on March 1- 2, 2013. College of Engineering, Pune (COEP), India.
- National Conference on Environment Pollution and Management (EPM-2011), 28th & 29th January 2011, Government College of Engineering, Aurangabad.
- National Conference on Sustainable Water Resources Development and Management, SWRDAM-2010, 28-29 June, 2010, Government College of Engineering, Aurangabad.
- National Conference on "Sustainable Water Resources Development and Management, SWRDAM-2008", 13-14 June, 2008 at Government College of Engineering, Aurangabad.
- National Conference On Anaerobic Digestion and Renewable Energy Through Microbes (ADREM), Www.Bits-Goa.Ac.In/Adrem2009; January 13 – 15, 2009, Birla Institute of Technology and Science (BITS) – Pilani, Goa Campus
- National Conference on "Sustainable Development of Urban Infrastructure" June 2010, V.N.I.T., Nagpur.
- 12th World Congress on Anaerobic Digestion (AD12), Guadalajara, México, November 2010 Conference by International Water Association (IWA)
- "Applications of Neural Network, Fuzzy and Genetic Algorithm in Water Resources and Environmental Engineering" organized by Civil Engineering Department of Amrutvahini College of Engineering, Sangamner-422 608 on 28 – 29, Jan 2010.

Sessions Chaired During Conferences

- Chaired a session in the IWA Water Development Congress, in Srilanka, 2-5 December 2019.
- Chaired a session during 8th International Conference on Clean and Green Energy (ICCGE 2019), February 13-15, 2019 in Milan, Italy.
- Chaired a session during 4th Asia Pacific – International Society of Microbial Electrochemistry and Technology (AP-ISMET) international conference held BITs, Goa during 13 -16 November 2018.
- Chaired a session during International Conference on Biotechnological Research and Innovation for Sustainable Development (BioSD-2018), IICT, Hyderabad during 22-25 November, 2018.
- Chaired a session during Recycle conference held in Malaysia, 3-4 May 2017.
- 3rd National conference on recent advances in bio-energy research, November 22-24, 2013. SSS National Institute of Renewable Energy, Kapurthala.
- National Conference on Recent Advances in Bio-energy Research, Organized by Sardar Swaran Singh National Institute of Research, **Kapurthala**, Punjab, India, December 7-8, 2012.
- Microbes in Wastewater and Waste Treatment, IWA conference, Goa, 24-26, January 2011.
- National Conference On Anaerobic Digestion and Renewable Energy Through Microbes (ADREM), Www.Bits-Goa.Ac.In/Adrem2009; January 13 – 15, 2009, Birla Institute of Technology and Science (BITS) – Pilani, Goa Campus
- National Conference on "Sustainable Water Resources Development and Management, SWRDAM-2008", 13-14 June, 2008 at Government College of Engineering Aurangabad.
- 1st International Water Association – Asia-Pacific Regional Group (IWA-ASPIRE) Conference and Exhibition, Singapore, July 10-15, 2005

Awards/Recognitions

- **CHEMCON-2022 Distinguished Speaker Award** constituted by CSIR-CSMCRI, conferred in CHEMCON-2022 on 28th December 2022 at Kanpur.
- Elected as a **Member European Academy of Sciences and Arts**, since 2022.
- **STAIR-2021** (Science and Technology Academic, Innovations and Research) **Distinguished Professor Award**
- "**Outstanding Scientist Award**" 2021 by International Research Award on Science, Health and Engineering.
- Recipient of Vividhlaxmi Audyogik Samshodhan Vikas Kendra (**VASVIK) award** for 2020 in Environmental Science & Technology.
- **Fellow INAE**, Indian National Academy of Engineering, India, Since 1st November 2020.
- **Institute Chair Professor**, August 18, 2020, Indian Institute of Technology Kharagpur, India
- Appointed as **Research Advisor**, Nan Yang Academy of Sciences, Singapore from October 13, 2018.
- **Gandhian Young Technology Innovation (GYTI) Awards** 2018, received at President's House, New Delhi on 19th March 2018 for the project titled "Novel low-cost Polyvinyl alcohol-Nafion-Borosilicate membrane separator for microbial fuel cell treating distillery waste water".
- **Gandhian Young Technology Innovation (GYTI) Appreciation** 2018, received at President's House, New Delhi on 19th March 2018 for the project titled "Bioelectric toilet: A novel approach for treatment of human waste and generating onsite electricity for lighting toilets".
- Received award from Ministry of Drinking Water and Sanitation (Govt. of India) under **Swachhathon 1.0** (Swachh Bharat Hackathon) under the category Early decomposition of faecal matter for the project "Smart Microbial Fuel Cell-Bioelectric Toilet Technology (MFC-BTT) for human waste treatment, wastewater reuse and simultaneous electricity recovery for illuminating toilets in remote areas". 8th September 2017, New Delhi.
- **Excellent paper award** and Euro 2500 Cash prize for the paper titled "Domiciliary management of mango waste for power production using biological fuel cell-a green technology" authored by Iti Sharma and Makarand Madho Ghangrekar in the conference 23rd World Energy Congress, by the Scientific Committee and the experts of World Energy Council. 9-13 October, 2016, Istanbul, Turkey.
- **Gandhian Young Technology Innovation (GYTI) Awards** 2016, received at President's House, New Delhi on 13th March 2016.
- **Gandhian Young Technology Innovation (GYTI) Awards** 2015, received at President's House, New Delhi on 8th March 2015.
- **Rajesh P.P and Ghangrekar M.M.** Springer award-2015 for the best paper presented in International Conference on Recent Advances in Bio-energy Research (ICRABR-2015), Kapurthala, India.
- **Alexander von Humboldt Fellowship** under connect program for short visit to Germany in July 2013.
- **National Design Award 2012** for Environmental Engineering by NDRF, Institution of Engineers, India
- **Marie Curie Fellowship** under FP-7 knowledge transfer program by EU, duration February 2010 to July 2010, Ben-Gurion University of Negev, Israel.
- Receipt of the **Top reviewer award** for the year 2008, by the Elsevier Journal 'Bioresource Technology'.
- **Marie Curie Fellowship** under FP-6 program by EU, Duration September to December 2008. Worked at University of Newcastle Upon Tyne, UK.

- **Prof. R.C. Singh Medal** by Institution of Engineers (India), for the year 2007 for the paper published in the Journal of Environmental Engineering Division.
- **Mrs and Mr. Bhupesh Nandy Medal** from Institution of Engineers, India for the year 2002 for the paper Published in Jan-March 2002.
- **Prof. R.C. Singh Medal** by Institution of Engineers (India), for the year 1999 for the paper published in the issue February 1999.
- **Shri. P.V. Patki Memorial award** by Indian Water Works Association for the year 1998 for the paper published in the issue January 1998.

Achievements

1. Member, International Relations Committee, American Academy of Environmental Engineers and Scientists for year 2021-2023.

2. Professor In-charge for Aditya Choubey Centre for Re-water Research, IIT Kharagpur.

3. Member of the expert committee for TEQIP, AICTE, Government of India.

4. Task force member, Environmental Biotechnology, Department of Biotechnology, Ministry of Science and Technology, Government of India.

5. Media coverage of our research work at IIT Kharagpur
https://thelogicalindian.com/exclusive/bio-electric-toilet/
Financial Express - http://www.financialexpress.com/…/iit-kharagpur-de…/1118991/
Business Standard - http://www.business-standard.com/…/iit-kharagpur-develops-s…
India Today - https://www.indiatoday.in/…/iit-kharagpur-develops-self-sus…
NDTV - https://www.ndtv.com/…/iit-kharagpur-develops-self-sustaina…
Outlook - https://www.outlookindia.com/…/iitkharagpur-develop…/1281587
Times of India - https://timesofindia.indiatimes.com/…/articles…/63572387.cms

6. Coverage of the research work by Nature publishing in Nature India on Earthen Pot fuel cell. DOI:10.1038/nindia.2010.116 published in August 2010.

7. One of the papers published in 2007 is among the Top 25 hottest article published in the Journal Bioresource Technology in year 2007 (Rank 13).

8. Working as Asia region Representative for 'Anaerobic digestion' specialist group of International Water Association.

9. Nominated as Senate Member (Academic Board, Senate), Government College of Engineering Amravati, An Autonomous Institute of Government of Maharashtra, in the year 2010.

10. Working as member for 'Water and Energy' working group of International Water Association.

11. Worked as a member of *Nature*'s Reader Panel, Nature publishing for the year 2009.

12. Invited as Chief Guest for Felicitating the winners of the Talent Search Examination conducted by Dainik Lokmat News paper at Aurangabad, 3rd January 2010.

13. Coverage of the research work done by me on microbial fuel cell in Water21, December 2007, page 64, A magazine published by International Water Association, under the heading 'Low energy treatment from fuel cells without membranes'

14. Working as a 'Reviewer' for 34 International Journals.

15. Represented Board of Studies, Civil Engineering Faculty, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad (M.S.), India, as an expert in the year 2000 to 2003.

16. Approved Ph.D. Research Guide by Dr. B.A.M. University, Aurangabad and University of Pune, Maharashtra, India.

Membership of Professional Bodies

Life Member – Indian Association for Environmental Management (LM-1495)
Life Member (MIE) – Institution of Engineers (India) – (M 123 256/2)
Life Member – Indian Society for Technical Education (LM – 38089)
Member, International Water Associate (IWA) (No. 00931025), since 2005
Member, American Society for Civil Engineers (ASCE) (No. 1044632048), Since 2020
Member, International Society for Microbial Electrochemical Technologies (ISMET) (No. 95)
Member of the International Relations Committee (2021-2023), American Academy of Environmental Engineers and Scientists (AAEES)
Elected Member, European Academy of Sciences and Arts, since March 2022.
Member, International Sustainable Development Research Society (ISDRS)
Help Forum Member, www.waterandwastewater.com

Invited Lectures / Papers

1. CSIR-CSMCRI CHEMCON Distinguished Speaker Award Lecture on 'A pilot scale demonstration of O_3/H_2O_2/UV coupled solar concentrator with membrane bioreactor and activated carbon for treatment of petrochemical wastewater, delivered on 28th December at CHEMCON 2022, Kanpur, India
2. Delivered invited lecture in National Seminar on Urban Waste Management & Air Pollution Control: Issues & Challenges on Waste Water Management: Issues and Challenges on 21st January, 2023 at The Stadel Hotel, Salt Lake, Kolkata.
3. Guest Speaker for "Research for Resurgence Conclave" under 108th Indian Science Congress on 5th January 2023 at Nagpur. Rashtrasant Tukdoji Maharaj Nagpur University, Nagpur. Delivered talk on how to execute successful research.
4. Guest Speaker for International Conference on 'Sustainable and Resilient Environment Development -2023 (ICSRED – 23) jointly organized by GH Raisoni College of Engineering and NEERI Nagpur on 17 and 18 February 2023 at NEERI Nagpur. Delivered lecture on Biological and Bioelectrochemical wastewater treatment systems.
5. Delivered invited talk on Biological and bioelectrochemical solutions for wastewater treatment in International conclave on 'Adaptation of Green Construction Practices With Focus on Water Resources' organized by VNIT, Nagpur and Indian Water Works Association, February 11-12, 2022.
6. Delivered invited talk on Biological and bioelectrochemical solutions for wastewater treatment in International Online Conference- BIOTECHSPECTRUM 2022, organized by Cochin University, February 4-5, 2022.
7. Delivered invited talk on Biological and bioelectrochemical solutions for wastewater treatment and valuables recovery, Gasification Conference India 2021, organized by Mission Energy Foundation (A not-for-profit Organisation), Thane, India. November 25-26, 2021.
8. Delivered invited lecture on "Exploiting Biological and Bio-electrochemical wastewater treatment technologies to facilitate reuse of treated water and resource recovery." in the Prof. Pitchai memorable lecture series at IIT Madras on June 05, 2021.
9. Delivered invited lecture on Applications of Bioelectrosystem for waste remediation and products recovery in Recent Advances in Environmental Biotechnology, A TEQIP-III Sponsored Online Short-Term Course organized at IIT Kharagpur on 5 – 9 October 2020.
10. Delivered invited lecture on 'Exploiting bioelectrochemical process for wastewater treatment and value added product recovery' on September 16, 2020, in a Faculty Development Program on Emerging Trends in Civil Engineering, ETCE 2020 organized by Civil Engineering Department, VSSUT Burla, Odisa.

11. Delivered invited lecture on ‘Exploiting bioelectrochemical process for wastewater treatment and value added product recovery’ on September 09, 2020, in a Faculty Development Program on “Advances in Biological Wastewater Treatment Methods: Teachingand Learning Strategies” organized by NIT Warangal, India.
12. Delivered invited lecture on ‘Exploiting bioelectrochemical process for wastewater treatment and value added product recovery’ on September 07, 2020, in a Faculty Development Program on Recent Advances in Earthquake Engineering and Environmental Engineering RAEEE-2020. NIT Silchar. India.
13. Delivered invited talk on Bioelectrochemical process for waste treatment and value added product recovery in the Interdisciplinary Faculty Development Program (FDP) on “Challenges and Opportunities in Recent Emerging Technologies” scheduled, 6th to 10th July 2020. Organized by SGGS College of Engineering and Technology, Nanded.
14. Delivered invited talk on ‘Application of Bioelectrochemical System for Sustainable Wastewater Treatment’ in the Faculty Development program organized by P P Savani University, Gujarat on 7th July 2020.
15. Delivered invited talk on Prospects of Bioelectrochemical System in the Faculty Development Course on ‘Waste to Bioenergy’ jointly organized by Sharda University, Noida and Maharashtra Institute of Technology, Aurangabad on 30-06-2020, attendance 505 participants.
16. Exploiting bio-electrochemical systems to facilitate producing reusable quality treated water and resource recovery. Keynote address in International Conference on Advances in Civil & Structural Engineering (ICACSE - 2020), May 28-30, 2020, Government college of Engineering Karad, India.
17. Makarand M. Ghangrekar (2020). “Exploiting bioelectrochemical systems to facilitate producing reusable quality treated water and resource recovery”, delivered plenary talk in Indo Bengium Workshop held at IIT Kharagpur, 26-27 February 2020.
18. Delivered invited talk on “Smart Microbial Fuel Cell based Bioelectric Toilet Technology for onsite human waste treatment and electricity recovery” SFD Week, CSE Knowledge Conclave, 2-5 April, 2019, Alwar, Rajathan.
19. Delivered invited talk on ‘Towards sustainable and reliable sanitation infrastructure to facilitate reuse of treated water for reducing stress on freshwater’ February 22-23, 2019, SIDM-2019, VNIT, Nagpur
20. Delivered invited talk on ‘Bioelectrochemical processes for conversion of waste to wealth’ in International workshop on Hybrid technologies for conversion of Lignocellulosic Biomass to Biofuels, December 11-13, 2019, Jadavpur University, Kolkata
21. Invited Talk “Bioelectrochemical Systems application in Wastewater treatment” ADTech-SAB2018: the 2nd international conference on anaerobic digestion technology: sustainable alternative bioenergy for a stable life. 4-7 June 2018, **Chaing Mai**, Thailand.
22. Delivered invited lecture on Application of Bioelectrochemical processes for wastewater treatment and value added product recovery BITs, Goa Campus, January 2018.
23. Delivered invited talk on research on Bioelectrochemical processes at IIT Kharagpur, University of Bremen, Germany on 17 September 2018
24. Delivered invited talk on Microbial fuel cell research at IIT Kharagpur, University of Tartu, Estonia, June 2017.
25. Plenary Key note speech on “Exploiting bioelectrochemical systems for waste reclamation and bioresource recovery” in International Conference on Anaerobic Digestion: AD Technology and Microbial Ecology for Sustainable Development (ADTech-2015); 3–6 February 2015, Chiang Mai, Thailand.
26. Presentation on recent research on Microbial Fuel Cell at IIT Kharagpur, 13 June 2014. Flemish Institute of Technological Research (VITO), Mol, Belgium.

27. Optimizing anodic chamber volume and power density of microbial fuel cell using polarization curves for scaling up. 3rd National conference on recent advances in bio-energy research, November 22-24, 2013. SSS National Institute of Renewable Energy, Kapurthala.
28. Ghangrekar MM (2013). Miniature to scaling up of microbial fuel cell: a critical review on recent advancement, 5th Indo-Korea Joint Workshop on Bioenergy, CSIR-National Institute for Interdisciplinary Science and Technology (NIIST), Trivandrum, September 9-10, 2013.
29. Ghangrekar MM (2013). Waste to energy approach for decentralized wastewater treatment system by microbial desalination cell. Indo-Mexican Workshop on Sustainable Water and Wastewater Management, July 25-26, 2013, NEERI, Nagpur
30. Ghangrekar M.M. (2013). Bioenergy recovery using wastewater as fuel from low cost microbial fuel cell. University of Bremen, Germany 4th July 2013.
31. Ghangrekar M.M. (2013). A low cost microbial fuel cell treating wastewater and simultaneously generating electricity for onsite applications. 5th Indo-German Frontiers of Engineering Symposium 2013 (INDOGFOE 2013). 14th to 17th March 2013, Hyderabad.
32. Ghangrekar M.M. (2013). Energy recovery during wastewater treatment. National workshop on application of different techniques for waste water management under current scenario. CEM Kolaghat, West Bengal, March 23-24, 2013.
33. Ghangrekar M.M. (2013). Resources recovery from wastewater and reuse. 2nd Workshop on Indian Water Management in 21st Century and Symposium on Sustainable Infrastructure Development, 7th-9th February 2013, IIT Bhubaneswar.
34. Ghangrekar M.M. and Manaswini Behera (2012). Application of Bio-electrochemical systems. Indo-French Seminar, Dec 3rd-6th, 2012 IIT Delhi.
35. Ghangrekar M.M. (2012). A brief review on recent advances in air-cathode microbial fuel cells. *Recent Advances in Bio-energy Research*, Organized by Sardar Swaran Singh National Institute of Research, Kapurthala, Punjab, India, December 7-8, 2012.
36. Ghangrekar M.M. and Deepak Jadhav (2012). Electrode materials used in microbial fuel cells. Lecture delivered in the AICTE sponsored short term course on 'Renewable energy materials and their industrial application' 05-16, November 2012, IIT Kharagpur.
37. Ghangrekar M.M. (2012). Bioenergy recovery during wastewater treatment. University of California, Burkeley, USA. 12th July 2012.
38. Ghangrekar M.M. (2012). Performance of clayware microbial fuel cell. University of Braunschwig, Germany, 12 May 2012.
39. M. Behera, M.M. Ghangrekar (2011). Energy Recovery Wastewater Treatment Processes. Seminar on Importance of Water Chemistry in Thermal Power Plant and Wastewater Treatment, organized by WBPDCL, Institution of Engineers India, Kolkata 10 July 2011.
40. Delivered invited lecture on "Bioenergy recovery during waste management" in Patel Institute of Technology, Bhopal on 8th July 2011.
41. Delivered invited lecture on 1. Design and Start-Up of Upflow Anaerobic Sludge Blanket (UASB) Reactor for Methane Recovery From Wastewater, and 2. Microbial Fuel Cell: A Technology For Wastewater Treatment And Renewable Energy, in a short term course on Environmental Engineering Systems Design & Optimization, VNIT, Nagpur, 4-5, December 2009
42. Invited Lecture on 'Low cost microbial fuel cell fabrication for application in wastewater treatment' July 6, 2009, University of Politehnica, Timisoara, Roamania.
43. Invited key note address on 'Microbial Fuel Cell' at National Conference on Anaerobic Digestion and Renewable Energy Through Microbes (ADREM), January 13 – 15, 2009, Birla Institute of Technology and Science (BITS) – Pilani, Goa Campus
44. Invited Lecture on 'Wastewater treatment using microbial fuel cell', University of Newcastle upon Tyne, UK, 17 November, 2008.
45. Invited lecture at NTPC, New Delhi on 'Bio-energy recovery (methane and electricity) during wastewater treatment' June 20, 2008.
46. Invited key note address on "Bioenergy recovery during treatment of organic wastes" at the National Conference on "Sustainable Water Resources Development and Management, SWRDAM-2008", 13-14 June, 2008, Aurangabad.
47. Invited paper titled 'Performance evaluation of membrane and membrane-less microbial fuel cell'. International conference on New Horizons in Biotechnology (NHBT-2007), NIST, Trivandrum, India, 26-29 November, 2007

48. Invited Lecture on "Design of UASB reactor" at Indian Water Works Association Nagpur centre on 26th December 2006.
49. Delivered a Lecture at Hong Kong University on 'Application of microbial fuel cell for wastewater treatment and electricity generation' April 7, 2006.
50. Invited lectures on 'Anaerobic treatment of chemical industry wastewater' Ciba Specialist Chemicals Pvt. Ltd. Goa. February 17-18, 2006.
51. Delivered Lectures (2 Lectures) at Govt. College of Engineering, Amaravati, in the short term training programme on Energy and Environment, on 15th and 16th December 2005. Lecture titles 1) Design and start-up of UASB reactor, and 2) Microbial Fuel Cell: A New Approach of Wastewater Treatment with Power Generation
52. Delivered Lectures (4 hrs) at V.N.I.T., Nagpur in the short term training programme on Environmental Engineering System Optimization, December 13 – 23, 2004, on the theme 'Optimizing design and performance of UASB reactor'.
53. Wastewater Reuse and secondary treatment of wastewater using UASB reactor. Invited Paper in the Proceedings of one-day workshop on Reuse, Recycling and conservation of Industrial Wastewater, 10th July 2004, S.G.G.S. College of Engineering, Nanded – 431 606. India.
54. Design and start-up of UASB reactor. Invited paper presented in Indo-French Seminar on *"Emerging Technologies for Water and Wastewater Management"* 9-12 February 2004, IIT Delhi.
55. Cost efficacy and performance of UASB reactor for sewage treatment. Invited Paper presented at Workshop on "Ponds systems and UASB reactor treatment for sewage", Sponsored by Swedish International Development Authority, at IIT, Mumbai, 24-25 January, 2002.
56. Anaerobic Treatment of sewage and industrial waste for pollution control. Invited lecture at Institution of Engineers, India, Aurangabad local center April, 2003.

Countries Visited

Singapore, Malaysia (Kuala Lumpur and Johar), Hong Kong, Thailand (Bangkok, Chiang Mai (twice), Phuket), Canada (Moncton), England (Newcastle, London, Edinburgh), Romania (Timisoara, Sinaia, Brashov, Bucharest), Israel (Beer Sheva, Sde Boker), Germany (Frankfurt, Braunschweig, Bremen (twice), Augsburg), The Netherlands (Amsterdam, TU Delft), Greece (Athens, Crete), France (Paris, Nantes), USA (Berkeley, San Francisco), Belgium (Brussels, Mol), Italy (Rome, Milan, Venice), Estonia (Tallinn, Tartu), Okinawa and Tokyo (Japan), Colombo (Srilanka), Norway (Narvik).

Patents

Filed Indian patent on

1. Fabrication of Low Cost Microbial fuel cell using Earthen pot as a proton exchange material. Patent application No. 1198/KOL/2009 date 24/09/2009. Patent No. IN200901198I2. Published 2013-06-28. Ghangrekar Makarand Madhao | Behera Manaswini | Jana Partha Sarathi.
2. Earthen material based cathode separator assembly for bioelectrochemical system. Provisional Patent application No. 805/KOL/2013. Date 05/07/2013.
3. Development of cost effective membrane cathode assembly for a single chambered microbial fuel cell. Indian Patent Application No.: 1302/KOL/2013 dated 14/09/2013. Granted: Patent No. 355538. Inventors: Soumya Pandit, Shantimoyi Khilari, D. Das, M.M. Ghangrekar, D. Pradhan.
4. Anode, Cathode and Separator in Microbial Fuel Cell (MFC) for Treatment of Wastewater and Electricity Generation. Provisional Patent filed in March 2014.
5. Enhancing organic matter removal from malt based distillery wastewater by Aspergillus awamori pretreatment, for Chitosan recovery, and electricity recovery in microbial fuel cell. Indian Patent Application No.: 822/KOL/2014 dated August 4, 2014. Patent No.

IN201400822I2. Published 2016-08-26. RAY Sreemoyee Ghosh | Ghangrekar Makarand Madhao.

6. A system for simultaneous treatment of wastewater and waste gas using a microbial carbon capture cell reactor. Indian Patent Application No.: 0471/KOL/2015 dated April 28, 2015.
7. Yellow laccase mediated delignification of Lignocellulosic biomass. Provisional Indian Patent file No. 201631005954.
8. In situ microbial fuel cell based waste water treatment system. Provisional Patent Application No.: 201831031356 and dated August 21, 2018. Patent No. IN201831031356A published on 28-02-2020. Das Indrasis | Ghangrekar Makarand Madhao.

Course Developed

Wastewater Management, NPTEL web based course for Masters in Environmental Engineering (http://www.nptel.ac.in/courses/105105048/)

Waste to Energy: Biotechnological solutions, a post graduate level course at IIT Kharagpur

Research Papers/ Book Chapters/ Articles/Conference papers: Total: 598
H-Index: 51, Total citation = 8327 (As per Scopus data base)
H-Index: 54, Total citation = 10332, i10-index-187 (As per google-scholar data base)

JOURNALS: 262 (Indian = 16, International = 246)

1. Anil Dhanda, Rishabh Raj, S. M. Sathe, B.K. Dubey, M.M. Ghangrekar (2023). Graphene and Biochar-based Cathode Catalysts for Microbial Fuel Cell: Performance Evaluation, Economic Comparison, Environmental and Future Perspectives. Environmental Research.
2. Monali Priyadarshini; Azhan Ahmad; Indrasis Das, Makarand M. Ghangrekar, B.K. Dutta (2023). Efficacious degradation of ethylene glycol by ultraviolet activated persulphate: Reaction kinetics, transformation mechanisms, energy demand, and toxicity assessment. Environmental Science and Pollution Research. In press.
3. Azhan Ahmad; Monali Priyadarshini; Makarand Madhao Ghangrekar; Rao Y. Surampalli (2023). Optimization of electro-charge loading in electrocoagulation using response surface methodology for the abatement of salicylic acid from wastewater. Journal of Environmental Engineering, ASCE.
4. Rajarshi Bhar, Abhisek Mondal, Brajesh K. Dubey, M.M. Ghangrekar (2023). A Review on the Scope of Remediating Chlorinated Paraffin Contaminated Water Bodies and Soils/Sediment. Science of the Total Environment
5. Monali Priyadarshini, Azhan Ahmad, Makarand M. Ghangrekar (2023). Efficient upcycling of iron scrap and waste polyethylene terephthalate plastic into Fe_3O_4@C incorporated MIL-53(Fe) as a novel electro-Fenton catalyst for the degradation of salicylic acid. Environmental Pollution.
6. Debkumar Chakraborty, M.M. Ghangrekar (2023). Lactate and acetate extraction from LBR leachate and process optimization using RSM. Environmental Technology.
7. Laxmi Pathi Thulluru, Makarand M. Ghangrekar, Shamik Chowdhury (2023). Progress and perspectives on microbial electrosynthesis for valorisation of CO_2 into value-added products. Journal of Environmental Management.
8. Ankesh Ahirwar, Swati Das, Sovik Das, Yung-Hun Yang, Vandana Vinayak, Makarand M. Ghangrekar (2023). Photosynthetic microbial fuel cell for bioenergy and valuable production: A review of circular bio-economy approach. Algal Research.
9. Rishabh Raj, Swati Das, Sovik Das, M.M. Ghangrekar (2023). Environmental Aspects of Endocrine Disrupting Compounds in the Aquatic Ecosystem and the Application of Electrochemical Technologies for their Abatement. Groundwater for Sustainable Development.
10. Choudhary Yasser Bashir, Rishabh Raj, Sovik Das, M.M. Ghangrekar (2023). Application of bimetallic cathode catalysts for enhancing the performance of microbial fuel cell: A review. Journal of Water, Air, & Soil Pollution.
11. Swati Das, Rishabh Raj, Sovik Das, M.M. Ghangrekar (2023). Evaluating application of photosynthetic microbial fuel cell to exhibit efficient carbon sequestration with concomitant value-added product recovery from wastewater: A review. Environmental Science and Pollution Research.
12. Azhan Ahmad, Monali Priyadarshini, Rishabh Raj, Sovik Das, M.M. Ghangrekar (2023). Appraising efficacy of existing and advanced technologies for the remediation of beta-blockers from wastewater: A review. Environmental Science and Pollution Research. In Press.
13. Swati Das, Rishabh Raj, Sovik Das, M.M. Ghangrekar (2023). A sustainable approach for the production of green energy with the holistic treatment of wastewater through microbial electrochemical technologies: A review. Frontiers in Sustainability, section Sustainable Chemical Process Design.
14. Santosh Kumar, Monali Priyadarshini, Azhan Ahmad, M. M. Ghangrekar (2023). Advanced biological and non-biological technologies for carbon sequestration, wastewater treatment, and concurrent valuable recovery: A review. Journal of CO_2 Utilization. 68, 102372.
15. Azhan Ahmad, Monali Priyadarshini, Indrasis Das, Makarand M. Ghangrekar, Rao Y. Surampalli. (2022). Surfactant aided electrocoagulation/flotation using punched electrodes for the remediation of salicylic acid from wastewater. Journal of Environmental Chemical Engineering. 11(1), 109049.

16. Swati Das, Sovik Das, M.M. Ghangrekar (2022). Enzymatic cell disruption followed by application of imposed potential for enhanced lipid extraction from wet algal biomass employing photosynthetic microbial fuel cell. Bioresource Technology. 363, 127924.
17. Azhan Ahmad, Monali Priyadarshini, Shraddha Yadav, Makarand M. Ghangrekar, Rao Y. Surampalli (2022). The potential of biochar-based catalysts in advanced treatment technologies for efficacious removal of persistent organic pollutants from wastewater: A review. Chemical Engineering Research and Design. 187, 470-496.
18. Monali Priyadarshini, Azhan Ahmad, Sovik Das, Makarand M. Ghangrekar (2022). Application of innovative electrochemical and microbial electrochemical technologies for the efficacious removal of emerging contaminants from wastewater: A review. Journal of Environmental Chemical Engineering. 10(5),108230
19. Debkumar Chakraborty, Sankar Ganesh Palani, M. M. Ghangrekar, N. Anand, Pankaj Pathak (2022). Dual role of grass clippings as buffering agent and biomass during anaerobic co-digestion with food waste. Clean Technologies and Environmental Policy. 24(9), 2787-2799. https://doi.org/10.1007/s10098-022-02355-5
20. G. D. Bhowmick, M. M. Ghangrekar, Ivar Zekker, K. Tammeveski, M. Wilhelm, R. Banerjee1 (2022). Ultrafiltration membrane bio-fuel cell as an energy-efficient advanced wastewater treatment system. International Journal of Energy Research. 46(14), 20216-20227.
21. Monali Priyadarshini, Indrasis Das, Makarand M. Ghangrekar, Lee Blaney (2022). Advanced oxidation processes: performance, advantages, and scale-up of emerging technologies. Journal of Environmental Management. 316, 115295. IF: 6.789.
22. Knawang Chhunji Sherpa, Debajyoti Kundu, Subhodeep Banerjee, Makarand Madhao Ghangrekar, Rintu Banerjee (2022). An integrated biorefinery approach for bioethanol production from sugarcane tops. Journal of Cleaner Production, 352, 131451, doi: https://doi.org/10.1016/j.jclepro.2022.131451.
23. Swati Das, Sovik Das, M.M. Ghangrekar (2022). Efficacious Bioremediation of Heavy Metals and Radionuclides from Wastewater Employing Aquatic Macro and Microphytes. Journal of Basic Microbiology, 62 (3-4), 260-278.
24. Anamika Yadav, Deepak Jadhav, M.M. Ghangrekar (2022). Effectiveness of constructed wetland integrated with microbial fuel cell for domestic wastewater treatment and to facilitate power generation. Environmental Science and Pollution Research. 29(34), 51117-51129. IF: 4.23.
25. Azhan Ahmad, Monali Priyadarshani, Sovik Das, M. M. Ghangrekar (2022). Role of bioelectrochemical systems for the remediation of emerging contaminants from wastewater: A review. Journal of Basic Microbiology. 62(3-4), 201-222. IF: 1.909.
26. Monali Priyadarshini, Azhan Ahmad, Sovik Das, M. M. Ghangrekar (2022). Application of microbial electrochemical technologies for the treatment of petrochemical wastewater with concomitant valuable recovery: A review. Environmental Science and Pollution Research. 29(41), 61783-61802. IF: 4.223
27. Azhan Ahmad, Monali Priyadarshini, Sovik Das, Makarand Madhao Ghangrekar (2022). Electrocoagulation as an efficacious technology for the treatment of wastewater containing active pharmaceutical compounds: A review. Separation Science and Technology (IF: 1.718). 57(8), 1234-1256. https://doi.org/10.1080/01496395.2021.1972011
28. S.V. Ambekar, Makarand Ghangrekar (March 2022). Performance evaluation of microbial fuel cell using novel anode architecture and with low cost components. Journal of Environmental Engineering and Science. 17(4), 157-163. DOI: 10.1680/jenes.21.00071
29. Abhishek Singhal, A.K. Gupta, Dubey B., M.M. Ghangrekar (2022). Seasonal characterization of municipal solid waste for selecting feasible waste treatment technology for Guwahati city, India. Journal of the Air and Waste Management Association. 72(2), 147-160.
30. S. M. Sathe, Indrajit Chakraborty, Manikanta Doki, B. K. Dubey, M. M. Ghangrekar (2022). Waste-

derived iron catalyzed bio-electro-Fenton process for the cathodic degradation of surfactants. Environmental Research. 212, 113141 (1-9).

31. Deb Kumar Chakraborty, Obulisamy Parthiba Karthikeyan, J.W.C. Wong, M.M. Ghangrekar (2022). Two-phase anaerobic digestion of food waste: Effect of semi-continuous feeding on acidogenesis and methane production. Bioresource Technology, 346,126396.
32. Rajesh P.P., Christine, P., Ghangrekar M.M. (2022). Optimum dose of Chaetoceros for controlling methanogenesis to improve power production of microbial fuel cell. Water Science and Technology, 85(1), 257-264.
33. Mohd Jahir Khan, Sovik Das, VandanaVinayak, Deepak Pant, M.M. Ghangrekar (2022). Live diatoms as potential biocatalyst in a microbial fuel cell for harvesting continuous diafuel, carotenoids and bioelectricity. Chemospere, 291,132841.
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21. Environmental Science & Technology
22. Biochemical Engineering Journal
23. Chemical Papers, Czech Republic
24. Energy & Fuels
25. Practice Periodical of Hazardous, Toxic, and Radioactive Waste Management, ASCE Publication.
26. Journal of Applied Microbiology
27. Journal of Industrial Microbiology and Biotechnology
28. Bioelectrochemistry,
29. Journal of Biological Research'
30. Biofouling
31. Renewable Energy - an International Journal
32. International Journal of Chemical Reactor Engineering
33. Journal of Soils and Sediments
34. Journal of Ecology and Natural Environment (JENE)
35. International Journal of Environmental Science and Technology
36. Chemosphere
37. Journal of Renewable and Sustainable Energy
38. Applied Energy
39. Journal of Basic Microbiology
40. Journal of Environmental Science and Engineering,
41. Journal of Power Sources,
42. International Journal of Global Warming, Inderscience publication.
43. Journal of Scientific and Industrial Research.
44. Environmental Progress and Sustainable Energy
45. Separation Science and Technology, Taylor and Francis
46. BMC Biotechnology
47. Environmental Engineering and Management Journal
48. Journal of King Saud University (Science), Elsevier Journal
49. Fuel
50. Journal of Biometrics and its Applications
51. Chemical Engineering Journal
52. Journal of Microbial & Biochemical Technology
53. Process Biochemistry

54. Journal of the Taiwan Institute of Chemical Engineers
55. Chemical Engineering Research and Design
56. Journal of Water Process Engineering
57. Sadhana - Academy Proceedings in Engineering Science
58. International Biodeterioration & Biodegradation
59. Separation and Purification Technology
60. Journal of Renewable Energy
61. Journal of Environmental Chemical Engineering
62. Scientific Reports
63. Journal of Nanomaterials
64. Journal of the Air & Waste Management Association
65. PLOS ONE
66. Desalination and Water Treatment
67. The Electrochemical Society Journals
68. Journal of Biological Engineering
69. Frontiers in Energy
70. Polymers for Advanced Technologies.
71. RSC advances
72. Materials Science and Engineering B
73. Journal of Bioscience and Bioengineering
74. Archaea, Hindawi publisher
75. Water and Environment Journal
76. International Journal of Chemical Engineering, Hindawi Publication
77. Journal of Electroanalytical Chemistry
78. International Journal of Energy Research
79. Applied Surface Science
80. Engineering in Life Sciences
81. Energy
82. Journal of Alloys and Compounds
83. Algal Research
84. Microbial Biotechnology
85. Biosensors and Bioelectronics
86. Journal of Chemistry
87. IONICS
88. Journal of Chemical Technology & Biotechnology
89. Hydrometallurgy
90. Journal of Cleaner Production
91. Journal of Hazardous, Toxic, and Radioactive Waste
92. International Journal of Technology (IJTech)
93. Journal of Cleaner Production
94. Environment International
95. Bioresource Technology Reports
96. Environmental Sustainability
97. Biotechnology Advances
98. Environmental Chemistry Letters.
99. Environmental Technology & Innovation,
100. Indian Journal Of Experimental Biology.
101. SN Applied Sciences, Springer Nature
102. ChemCatChem, Wiley-VCH
103. Frontiers in Energy Research
104. Renewable and Sustainable Energy: An International Journal (RSEJ)

105. Reviews in Biotechnology and Biochemistry
106. Biotechnology reports
107. Biotechnology for Biofuels
108. Bioresources and Bioprocessing
109. npj Biofilms and Microbiomes
110. Progress in Energy and Combustion Science
111. Chemical and Biochemical Engineering Quarterly
112. Alexandria Engineering Journal
113. Biomass Conversion and Biorefinery
114. International Journal of Infectious Diseases
115. Periodica Polytechnica Chemical Engineering
116. Journal of Applied Electrochemistry
117. Materials Chemistry and Physics
118. Energy Reports
119. Environmental Pollution
120. 3Biotech, Springer Journals
121. Enzyme and Microbial Technology
122. Sustainable Energy Technologies and Assessments
123. Environmental Research
124. Current Research in Microbial Sciences
125. Environmental Science and Pollution Research
126. Frontiers in Chemical Engineering
127. Journal of the Indian Chemical Society
128. Water Environment Research
129. Journal of Industrial and Engineering Chemistry
130. Biocatalysis and Agricultural Biotechnology.

Book Reviewed

- Pearson Education, South Asia;
- Taylor & Francis publishing group, UK;
- Tata McGraw-Hill Education;
- Elsevier;
- Springer

Proposal Reviewed

- Reviewing proposals for DBT, BIRAC, DST, IMPRINT, SPARC, Dutch Research Council (NWO)
- August 2015. Reviewed two proposals under new RSOP for Central Power and Research Institute, Government of India undertaking.
- June 2015. Reviewed proposal for National Science centre (Narodowe Centrum Nauki) seated in Krakow, ul. Krolewska 57, 30-081, Krakow, Poland
- May 2015. Reviewed a proposal for BIRAC.
- September 2014. Sustainable energy, Microbial Fuel Cell, Waste water treatment, Electricity generation. By Md. Abdullah-Al-Mamun. Sultan Qaboos University, Oman.
- August 2014. Waste2Food - Recovery of resources from waste sludge, organic biological waste and manure as high-efficiency fertilizers for food production. By P. Vanrolleghem. Natural Sciences and Engineering Research Council of Canada.
- June 2014. Solid phase purification of mixed salts item RO rejects at leather industries-process development (No. DST/TSG/ROR/2013/99). DST, India

- June 2014. Characterization of mixed salts from RO rejects at leather industries (No. DST/TSG/ROR/2013/98). DST, India
- March 2014. Reviewed 12 project proposals submitted to BIRAC by different researchers.
- January 2013. Advancing a Novel Sludge-bed Anaerobic Membrane Bioreactor Treatment of Industrial Wastewaters: Effluent Post-treatment and Recovery of Valuable Products Natural Sciences and Engineering Research Council of Canada.
- March 2013. Project Title "influence of chlorine disinfectant and natural organic matter gradients on disinfection by-product Formation in drinking water of some Indian cities", SERC, DST, India
- August 2013. Semi-centralized, Energy intelligent Wastewater Treatment and Reuse. DST India; 2+2 mode of Partnership.
- January 2012. Advances in Municipal Wastewater Treatment. Natural Sciences and Engineering Research Council of Canada.
- August 2012. Analysis of metabolically active bacterial species in anaerobic digesters, CSIR, HRDG, New Delhi.
- December 2012. Development of 1-D Transient Conservative pollutant transport model for meso-scale application by Bhabagrahi Sahoo, ISIRD, , IIT Kharagpur.
- September 2011. Production of bioelectricity from sludge and domestic wastewater using microbial fuel cell, sponsored by MoEF, New Delhi.
- July 2010. Modified electrode materials for microbial fuel cell, DST, India

Research Guidance: Ph.D. completed: 23; Ongoing: 17

Ph.D.

No.	Name	Title	Year, University	Supervisor/ Co-supervisor
1	D.G. Regulwar	Multi objective multi-reservoir optimization in fuzzy environment for river sub-basin development and management	Awarded on 11-12-2006; N.I.T. Warangal	Supervisor: Dr. P. Anand Raj Co-supervisor: Dr. M.M. Ghangrekar
2	Mr. J.J. Sakle	Evaluation of performance of UASB process at various loading rates for effluent treatment	Awarded on 16 December 2008; Dr. S.R.T. Marathwada University	Supervisor: Dr. Shivanikar S.V. Co-supervisor: Dr. M.M. Ghangrekar
3	Mr. Puspendu Bhunia	Studies on sludge granulation in UASB reactor treating low strength wastewater	I.I.T. Kharagpur, Awarded June 2008	Supervisor: Dr. M.M. Ghangrekar
4	Ms. Manaswini Behra	Performance of microbial fuel cells under different operating conditions and employing earthenware as a separator	Awarded April 2012 Kharagpur	Supervisor: Dr. M.M. Ghangrekar
5	Sudhir V. Ambekar	Evaluation of performance of microbial fuel cell for organic wastewater treatment and electricity generation	April 2014, VNIT, Nagpur	Supervisor: Prof. V.A. Mhaisalkar Prof. M.M. Ghangrekar
6	Ms. Sajana T.K.	Sediment microbial fuel cell for remediation of aquaculture wastewater and energy recovery	Awarded June 2014, IIT Kharagpur	Joint Supervision: Dr.Arunabha Mitra Dr. M.M. Ghangrekar
7	Girija Mishra	Phytoremediation of wastewater and recovery of biomass as feedstock for bioethanol generation	Awarded April 2015, IIT Kharagpur	Joint Supervision: Dr.Arunabha Mitra Dr. M.M. Ghangrekar
8	Shomya Pandit	Improvement on the performance of microbial fuel cell by	Awarded, November 2014, IIT Kharagpur	Joint Supervision: Dr. D. Das

		optimizing different operational parameters		Dr. M.M. Ghangrekar
9	Anil Ghadge (11CE91Q04)	Scaling-up of microbial fuel cells for wastewater treatment and development of ceramic separator using mineral cation exchanger	Awarded May 2016, IIT Kharagpur	Supervisor: Dr. M.M. Ghangrekar
10	Harapriya Pradhan (11CE91R07)	Organic matter and dissolved solids removal from wastewater in microbial desalination cell	Awarded January 2017, IIT Kharagpur	Supervisor: Dr. M.M. Ghangrekar
11	Pritha Chatterjee (13CE91P01)	Decentralized wastewater treatment plants as a sustainable impact mitigation system	Awarded March 2017, IIT Kharagpur (October 2016)	Supervisor: Dr. M.M. Ghangrekar Prof. Surampalli Rao
12	Sreemoyee Ghosh Ray (12AT91P02)	Development of two-stage fungal and bio-electrochemical processes for enhancing organic matter removal from distillery wastewater to meet discharge norms	Awarded September 2017, IIT Kharagpur	Supervisor: Dr. M.M. Ghangrekar
13	Deepak Jadhav (12WM92R01)	Performance Enhancement of Microbial Fuel Cells through Electrode Modifications along with Development of Bioelectric Toilet	IIT Kharagpur, Awarded, July 2017	Supervisor: Dr. M.M. Ghangrekar
14	Rajesh P.P. (13AT91P01)	Improving performance of microbial fuel cell by enhancing the bio-catalytic activity of anodic inoculum and electrodes	Awarded, November 2017 IIT Kharagpur	Supervisor: Dr. M.M. Ghangrekar
15	Iti Sharma (12AT92P06)	Rapid electrogenic activity determination of anodic inoculum and customized microbial fuel cells treating selected household organic waste	Awarded, July 2018, IIT Kharagpur	Supervisor: Dr. M.M. Ghangrekar
16	Knawang Chhunji Sherpa ()	Biotransformation of renewable lignocellulosic (Sugarcane Tops) for 2G bioethanol production: A sustainable eco-friendly process development	Awarded, January 2019	Supervisor: Dr. R. Banerjee Dr. M.M. Ghangrekar
17	Bikash Ranjan Tiwari (13CE90J01)	Improved treatment of high strength distillery wastewater assisted with bio-electrochemical system for enhancing energy recovery	Awarded, November 2018, IIT Kharagpur	Supervisor: Dr. M.M. Ghangrekar
18	Md. Tabish Noori (13AG90J02)	Low-cost cathode catalyst and biofouling control in microbial fuel cells to enhance electricity recovery for onsite use while treating wastewater	Awarded, June 2018, IIT Kharagpur	Supervisor: Dr. M.M. Ghangrekar Prof. C.K. Mukharjee
19	Neethu B. (15CE92P01)	Development of low cost microbial carbon-capture cell for simultaneous wastewater treatment, electricity generation and algal production	Awarded, January 2020, IIT Kharagpur	Supervisor: Dr. M.M. Ghangrekar
20	Gourav Dhar Bhowmik (16AG90J10)	Development of bio-eletrochemical system assisted advanced hybrid treatment systems for aquacultural wastewater	Awarded October 2020	Supervisor: Dr. M.M. Ghangrekar Dr. R. Banerjee
21	Indrasis Das (17CE90J01)	Bioelectric toilet: for onsite treatment of blackwater to facilitate reuse of treated water	Awarded November 2020, IIT Kharagpur	Supervisor: Dr. M.M. Ghangrekar

		and electricity generation for onsite applications		
22	Indrajit Chakraborty (17CE91R05)	Reinventing tertiary treatment of sewage using biochar with a focus on removal of complex organic compounds and disinfection to facilitate safe reuse	Awarded, October 2021, IIT Kharagpur	Supervisor: Dr. M.M. Ghangrekar Dr. B.K. Dubey
23	Sovik Das (17CE90J01)	Microbial electrosynthesis of acetic acid from biogas produced from small-scale anaerobic digester	Awarded, December 2021, IIT Kharagpur	Supervisor: Dr. M.M. Ghangrekar
24	Sathe Shreeniwas Madhav Geeta (18CE92R07)	Advanced secondary and tertiary treatments of municipal wastewater for the removal of surfactants and wastewater sludge valorisation	Thesis submitted August 2022, IIT Kharagpur	Supervisor: Dr. M.M. Ghangrekar Dr. Brajesh Dubey
25	Dibyojyoti Nath (17EF91P01)	Application of plant metabolites for enhancing microbial electrogenesis and use of cement as low-cost option for fabrication of microbial fuel cell	Ongoing, IIT Kharagpur	Supervisor: Dr. M.M. Ghangrekar
26	Aiswarya Rastogi (18EF91R01)	Microbial water treatment	Ongoing, IIT Kharagpur	Supervisor: Dr. Manoj Tiwari Dr. M.M. Ghangrekar
27	Sandipan Bhowmick (19BE91P02)	Algal Bio-process	Ongoing, IIT Kharagpur	Supervisor: Dr. R. K. Sen Dr. M.M. Ghangrekar
28	Swati Das (19BE91P03)	Algal based wastewater treatment	Ongoing, IIT Kharagpur	Supervisor: Dr. M.M. Ghangrekar
29	Azhan Ahmad (19CE91R02)	Electrocoagulation-electro-oxidation processes	Ongoing, IIT Kharagpur	Supervisor: Dr. M.M. Ghangrekar Prof. Surampalli Rao
30	Monali Priyadarshini (19CE91R02)	Advaned oxidation processes	Ongoing, IIT Kharagpur	Supervisor: Dr. M.M. Ghangrekar
31	Santosh Kumar (19BE92P02)	Algal bioprocess	Ongoing, IIT Kharagpur	Supervisor: Dr. M.M. Ghangrekar
32	Mario Vino Lincy G (19EF92R01)		Ongoing, IIT Kharagpur	Supervisor: Dr. Shamik Chowdhury Dr. M.M. Ghangrekar
33	Arun Kumar T (20EF91S01)	Tertiary Wastewater treatments	Ongoing, IIT Kharagpur	Supervisor: Dr. M.M. Ghangrekar
34	Mahendra Mulkalwar (20EF92W01)	Evaluation of tertiary treatment process and economics of sewage treatment plant	Ongoing, IIT Kharagpur	Supervisor: Dr. M.M. Ghangrekar
35	Shradhha Yadav (20EF92R03)		Ongoing, IIT Kharagpur	Supervisor: Dr. M.M. Ghangrekar
36	Akash Tripathy (20CE91R01)		Ongoing, IIT Kharagpur	Supervisor: Dr. M.M. Ghangrekar
37	Rishabh Raj (20EF91R05)		Ongoing, IIT Kharagpur	Supervisor: Dr. M.M. Ghangrekar
38	Jadhav Gorakhanath Sadashiv (21EF91R02)	Microbial Fuel Cells	Ongoing, IIT Kharagpur	Supervisor: Dr. M.M. Ghangrekar
39	Thulluru Lakshmi Pathi (21EF91R06)			

40	Doki Manmadha Manikanta (21CE91P01)			
41	Anil (21CE91R04)			

M.Tech. Project guidance: Total 54

Completed Project Details:

No.	Name	Title	Year	Supervisor/ Co-supervisor
1	Mr. Nand Kishor	Treatment and reuse of sewage for aquaculture	2005	Supervisor: Dr.Arunabha Mitra Co-supervisor: Dr. M.M. Ghangrekar
2	Mr. V. B. Shinde	Treatment of wastewater and production of electricity using microbial fuel cell	2006	Supervisor: Dr. M.M. Ghangrekar
3	Mr. P. Chandra Kiran	Sustainable onsite domestic sewage treatment using anaerobic baffled reactor	2006	Supervisor: Dr. M.M. Ghangrekar
4	Mr. Shridhar	Performance evaluation of MFC for wastewater treatment and electricity generation under different operating conditions	2007	Supervisor: Dr. M.M. Ghangrekar
5	Mr. Dipti Prakash Mahapatra	Sewage fed aquaculture after treatment by using anaerobic reactor and polishing ponds	2007	Supervisor: Dr.Arunabha Mitra Co-supervisor: Dr. M.M. Ghangrekar
6	Jadhav Gorakhanath S.	Performance evaluation of microbial fuel cell subjected to variation in operating parameters and design alteration	2008	Supervisor: Dr. M.M. Ghangrekar
7	A. Siva Ramanjula Reddy	Methane production from kitchen waste using UASB reactor	2008	Supervisor: Dr. M.M. Ghangrekar
8	S.S.R. Murthy	Effect of operating temperature and sulfate concentration on the performance of microbial fuel cell	2008	Supervisor: Dr. M.M. Ghangrekar
9	Biju Abrahim	Treatment of organic waste by UASB and algal and duckweed pond and reuse for aquaculture	2008	Supervisor: Dr.Arunabha Mitra Co-supervisor: Dr. M.M. Ghangrekar
10	More T.T.	Effect of surface area of electrode and sonication pretreatment of inoculum on performance of microbial fuel cell	2009	Supervisor: Dr. M.M. Ghangrekar
11	Deepak Meshram	Bioenergy recovery during sewage treatment and reusing treaterd wastewater for aquaculture	2009	Supervisor: Dr.Arunabha Mitra Co-supervisor: Dr. M.M. Ghangrekar
12	Satavase Krishnaraj S.	Biotreatment of wastewater for recovery of bioethanol and use of treated water in pisciculture	2010	Supervisor: Dr.Arunabha Mitra Co-supervisor: Dr. M.M. Ghangrekar
13	Lalita Mohan Mohapatra	Application of microbial fuel cell for wastewater treatment and feasibility of fish culture in treatment system	2010	Supervisor: Dr.Arunabha Mitra Co-supervisor: Dr. M.M. Ghangrekar
14	Bhavya P.R.	A Cost Effective MFC using Earthen Pot as A Proton Exchange Membrane and Evaluating the Performance Using Different Substrates, pH and Electrodes	2010	Supervisor: Dr. M.M. Ghangrekar
15	Shivaram Satyam	Scale-up studies on microbial fuel cell	2011	Supervisor: Dr. M.M. Ghangrekar
16	Deepak Jadhav	Energy recovery from fresh water sediments using sediment microbial fuel cell	2012	Prof. Uwe Schroder (Germany) Prof. M.M. Ghangrekar
17	Mypati Sreemannarayana	Performance evaluation of composite method for wastewater treatment and electricity generation combining wetland treatment technology with sediment microbial fuel cell	2013	Supervisor: Dr. M.M. Ghangrekar
18	Pritha Chatterjee	Performance of air-breathing microbial fuel cell under different operating conditions using earthenware separator	2013	Supervisor: Dr. M.M. Ghangrekar
19	Subrata Mondal	Bioelectricity generation from kitchen waste using low cost microbial fuel cell	2013	Supervisor: Dr. M.M. Ghangrekar

20	Bikash Tiwari	Performance comparison of microbial fuel cell with different pretreatments for sludge inoculum	2013	Supervisor: Dr. M.M. Ghangrekar
21	Md. Tabish Noori	Energy recovery during fish processing waste water treatment using microbial fuel cell	2013	Supervisor: Dr.Arunabha Mitra Co-supervisor: Dr. M.M. Ghangrekar
22	Piya Chakraborty	Wastewater Treatment by Hydroponic System	2013	Supervisor: Dr.Arunabha Mitra Co-supervisor: Dr. M.M. Ghangrekar
23	Swagatam Das	Performance evaluation of a septic tank incorporated with microbial fuel cell	2013	Supervisor: Dr. M.M. Ghangrekar
24	K.Thanmayi	Comparative assessment of different pretreatment methods of sludge inoculum on MFC performance	2013	Supervisor: Dr. M.M. Ghangrekar
25	Ranjita Bhande	Kinetics of degradation of cellulose and its influence on bacterial growth in sediment microbial fuel cell	2014	Supervisor: Dr.Arunabha Mitra Co-supervisor: Dr. M.M. Ghangrekar
26	Simpal Kumari	Comparative study on electricity generation and waste treatment using cellulose as substrate in microbial fuel cell	2014	Supervisor: Dr.Arunabha Mitra Co-supervisor: Dr. M.M. Ghangrekar
27	Suma Raj	Development of low cost microbial fuel cell as organic matter sensor and application of polysiloxane derived materials as anode	2014	Supervisor: Dr. M.M. Ghangrekar
28	Anamik Yadav	Performance assessment of constructed wetland-microbial fuel cell for electricity production and wastewater treatment	2014	Supervisor: Dr.Arunabha Mitra Co-supervisor: Dr. M.M. Ghangrekar
29	Niralee Verma	Performance of novel air cathode microbial fuel cell using pvc battery separator as a membrane	2015	Supervisor: Dr. M.M. Ghangrekar
30	Litan Berman	Effect of sulphur content in sediment on the performance of SMFC	2015	Supervisor: Dr.Arunabha Mitra Co-supervisor: Dr. M.M. Ghangrekar
31	Ritu Prem	Application of Electro-Coagulation for in-situ Remediation of Aquaculture Water	2015	Supervisor: Dr.Arunabha Mitra Co-supervisor: Dr. M.M. Ghangrekar
32	Gourav Dhar Bhowmik	Performance evaluation of a two-stage wastewater treatment process combining microbial fuel cell and aerobic membrane bioreactor	2016	Supervisor: Dr.Arunabha Mitra Co-supervisor: Dr. M.M. Ghangrekar
33	Pankaj Kumar Gautam	Study of different operating parameters on performance of low cost Clayware microbial carbon capture cell	2016	Supervisor: Dr. M.M. Ghangrekar
34	Pramod Kumar	Application of MEC for electrochemical reduction of Carbon dioxide to Formate	2016	Supervisor: Dr. M.M. Ghangrekar
35	Diplina Paul	Enhancing the Performance of Microbial Fuel Cell using Zeolite Mediated Anode and Ag-Pt Nanoalloy Catalyzed Cathode	2016	Supervisor: Dr.Arunabha Mitra Co-supervisor: Dr. M.M. Ghangrekar
36	Pratik Kumar	Improving cathode performance using biotic and abiotic cathodes and controlling cathode fouling using anti scaling agents	2016	Supervisor: Dr. M.M. Ghangrekar
37	Sovik Das	Resource Recovery from wastewater using bioelectrochemical system	2017	Supervisor: Dr. M.M. Ghangrekar
38	Sudip Dutta	Scaling up and performance assessment of sediment microbial fuel cell.	2017	Supervisor: Dr. Arunabha Mitra Co-supervisor: Dr. M.M. Ghangrekar
39	Anusha Ganta	Application of low cost catalysts in bioelectrochemical systems to enhance the performance	2018	Supervisor: Dr. M.M. Ghangrekar
40	Niranjit Kuman	Upflow hydroponic constructed wetland microbial fuel cell with low cost clayware	2018	Supervisor: Dr. Arunabha Mitra Co-supervisor: Dr. M.M. Ghangrekar

		separator for wastewater treatment and bioelectricity generation		
41	Koushik Adhikari	Improving treatment efficacy of microbial fuel cell using novel cathode catalysts and use of hybrid membrane for facilitating nitrogen removal from fish processing wastewater	2018	Supervisor: Dr. Arunabha Mitra Co-supervisor: Dr. M.M. Ghangrekar
42	Kailash Patel	Wastewater treatment and simultaneous recovery of value added products using up-flow anaerobic sludge blanket and microbial fuel cell	2018	Supervisor: Dr. M.M. Ghangrekar
43	Harish Kumar Verma	Improved wastewater treatment efficacy as well as bioenergy recovery of Microbial Fuel Cell by using conductive ink printed Co_3O_4 and Fe_3O_4 as cathode catalyst	2018	Supervisor: Dr. M.M. Ghangrekar
44	Ashish Mishra	In-situ production of hydrogen peroxide for disinfection using suitable cathode catalysts in microbial fuel cell	2019	Supervisor: Dr. M.M. Ghangrekar
45	Ashwini Viswanath	Exploring novel cathode catalyst selenium and green synthesized silver nanoparticles for improving efficiency of microbial fuel cell treating fish market wastewater	2019	Supervisor: Dr. M.M. Ghangrekar
46	Viswajeet Tholia	Effect of anodic inoculum pretreatment using chloroform and lipid extracted algae on the performance of microbial carbon capture cell	2019	Supervisor: Dr. M.M. Ghangrekar
47	Ashutosh Gupta	Optimal cathodic imposed potential and appropriate catalyst for the synthesis of hydrogen peroxide in microbial electrolysis cell	2020	Supervisor: Dr. M.M. Ghangrekar
48	Rajneesh Verma	Application of novel N/S and N/P co-doped graphene aerogel as a superior cathode catalyst in microbial fuel cell	2020	Supervisor: Dr. M.M. Ghangrekar
49	Rohan Dixit	Relationship between cathodic and anodic resistances of cylindrical clayware MFCs with electrode surface area and substrate loading	2020	Supervisor: Dr. M.M. Ghangrekar
50	Anil Dhanda	Use of graphitic carbon nitride as a cathode catalyst in Microbial fuel cell and Coulombic efficiency required to make microbial fuel cell beneficial to anaerobic treatment	2021	Supervisor: Dr. M.M. Ghangrekar
51	Pawan Kumar Singh	Empowering secondary treatment of wastewater through design automation and quasi-mechanisation of sequencing batch reactor	2021	Supervisor: Dr. M.M. Ghangrekar
52	Hema Jha			
53	Chandrasekhar			
54				

Ph. D. Thesis Examination: 52

Participation in Department and Institute Activities at I.I.T., Kharagpur

- Constructing 1.35 MLD Sewage treatment plant for hostels and another 300 m^3/day sewage treatment plant at IIT Kharagpur to produce potable quality treated water. 2020
- Head, School of Environmental Science and Engineering, March 2017
- Head, PK Sinha Centre for Bioenergy and Renewables, April 2019
- Professor In Charge, Centre for Re-water Research
- Constructed 400 m^3/day capacity UASB reactor based sewage treatment facility at IIT Kharagpur in 2014.
- Chairman, Spring Fest 2010, 2011, 2012, 2013.
- Co-chairman Spring Fest 2007, 2009.
- Participated in the conduct of JEE 2004, 2005 and GATE 2005, 2006, 2007, 2011, 2012 examination, JMET 2008, 2010, 2011 and JEE counseling for the year 2005 and 2006.
- Participated in other institute activities such as, member anti-ragging committee 2005, 2009, 2013 member discipline committee of Spring Fest, 2005 and 2006.
- Laboratory In-charge, Environmental Engineering Laboratory, Dept. of Civil Engg., I.I.T., Kharagpur, July 2004 to June 2007.
- Section In-charge, Environmental Engineering and Management Section July 2007-June 2010.
- Faculty Adviser, B.Tech., Civil Engineering students, 2005 batch.
- Assistant Warden, M.S. Hall, I.I.T., Kharagpur, August 2005-September 07.

(Prof. M.M. Ghangrekar)

Some Glimpses of the media coverage

https://educlasses.co.in/interview-makarand-ghangrekar-professsor-environmental-engineering-iit-kharagpur.html

https://thelogicalindian.com/exclusive/bio-electric-toilet/

https://www.outlookindia.com/newsscroll/iitkharagpur-develops-selfsustainable-biotoilet/1281587

https://timesofindia.indiatimes.com/city/kolkata/iit-kgp-builds-bio-toilet-wins-pms-swachh-bharat-award/articleshow/63572387.cms

https://citytoday.news/iit-kharagpur-develops-self-sustainable-bio-toilet/

https://nmcg.nic.in/writereaddata/fileupload/16_31_003_EQP_S&R_02.pdf

https://www.theweek.in/news/sci-tech/2018/08/18/IIT-Kharagpur-to-set-up-centre-to-replenish-and-rejuvenate-water-resources.html

https://www.newsbytesapp.com/news/india/iit-kharagpur-to-set-up-re-water-research-center/story

https://ngobox.org/full-news_IIT-Kharagpur-Develops-Self-Sustainable-Bio-Toilet_22066

https://swachhindia.ndtv.com/water-conservation-iit-kharagpur-to-steer-a-european-union-funded-project-for-treatment-reuse-of-wastewater-37236/

https://www.business-standard.com/article/pti-stories/iit-kharagpur-to-set-up-re-water-research-center-118081800261_1.html

https://indianexpress.com/article/education/iit-kharagpur-to-lead-project-to-tap-waste-water-treat-it-5913816/

http://www.millenniumpost.in/kolkata/heavy-rain-batters-bengal-leaves-arterial-roads-waterlogged-443679?infinitescroll=1

https://twitter.com/iitkgp/status/978588844420485121