

Dr. PRIYANKA GUPTA

DST INSPIRE Faculty (June 2023 - present)

Indian Institute of Technology Patna (21 June 2023 – 29 December 2024)

Harcourt Butler Technical University Kanpur (29 December 2024 – present)



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Ph.D. IIT Kanpur (Thesis supervisor: Prof. Nishith Verma)

Ph.D. Thesis title: Multifunctional Metal-Carbon Nanocomposite Materials for Wastewater Remediation, Bioelectricity Generation, and Synthesis of Biochemicals

EDUCATION

Degree/Course	Institute/School	Subject	Percentage/CPI
Doctor of Philosophy (2018 - 2023)	Indian Institute of Technology Kanpur, Kanpur (U.P.)	Chemical Engineering	8.50
Bachelor of Technology (2014 - 2018)	Malaviya National Institute of Technology Jaipur (Raj.)	Chemical Engineering	8.25
Senior Secondary (2014)	Maa Bharti Public Senior Secondary School, Kota, (Raj.) (RBSE Board)	Science and Mathematics	86.80 %
Secondary (2012)	Lady Anusuiya Singhanian Education Centre, Jhalawar (Raj.) (CBSE Board)	All subjects	9.80

ONGOING RESEARCH PROJECTS

1. Conversion of CO₂ to Value-Added Chemicals in a Microbial Electrosynthesis System Using Novel Z-Scheme and MOF Based Electrode (Faculty Registration No.: IFA22-ENG 345): *Total budget = 110 Lakhs* (2023 - present)
Principal investigator: **Dr. Priyanka Gupta**, Department of Chemical Engineering, IIT Patna (21 June 2023 to 29 December 2024) and HBTU Kanpur (30 December 2024 till present)
2. Photo-electrocatalytic synthesis of value-added products via CO₂ reduction using nanostructured MXenes and cerium oxide decorated over activated carbon fibre-based electrode (Project no.: ANRF/ECRG/2024/000412/ENS): *Total budget = ~66 Lakhs*
Principal investigator: **Dr. Priyanka Gupta**, Department of Chemical Engineering, HBTU Kanpur (2025 - present)

COURSES TAUGHT

1. CB 303 Mass Transfer II (2023)
2. CB 424 Numerical Methods in Chemical Engineering (2024)
3. CB 510 Advanced Numerical Methods in Chemical Engineering (2024)
4. CB 303 Mass Transfer II (2024)
5. NCH 509 Advanced Numerical Methods in Chemical Engineering (2025)
6. NCT 202 Heat Transfer Operations (2026)

PATENT GRANTED

1. A packed bed microbial fuel cell (MFC) to treat wastewater in continuous mode
(Patent no. 429748, 24 April 2023; Inventors: Komal Pandey, **Priyanka Gupta**, Nishith Verma, Shiv Singh).

BOOK CHAPTERS

1. **P. Gupta**, N. Verma. Exploring carbon surface using electron microscopy: Applications to energy, environment and health, IITK Directions, Electron Microscopy in Science and Engineering, ISBN 978-981-16-5100-7, *Springer Nature*, 6 (2022).
2. **P. Gupta**, M. T. Noori. Recent advancements in photocatalytic materials for applications in photo-assisted microbial electrosynthesis, *Emerging Trends and Advances in Microbial Electrochemical Technologies*:

PUBLICATIONS

1. S. Srivastava, A. K. Gupta, **P. Gupta**. Harnessing microbial fuel cells for drug degradation: Role of microorganisms and innovations in anode and cathode materials, *J. Water Process Eng.*, 74 (2025), 107881. (I.F.: 6.7)
2. A. Srivastava, P. Jain, **P. Gupta**. Understanding metabolic pathways for enhanced microbial electrosynthesis: A sustainable approach for carbon dioxide reduction to high-value products, *Chem. Eng. J. Adv.*, 22 (2025), 100755. (I.F.: 7.1)
3. A. Srivastava, G. L. Devnani, **P. Gupta**. Magnetic separation and degradation approaches for effective microplastic removal from aquatic and terrestrial environments, *Mater. Adv.*, 6 (2025) 3043-3057. (I.F.: 4.7)
4. M. Anwar, Y. Yu, S. Rasool, N. Akbar, J. Huang, M. Singh, **P. Gupta**, S. Wan, Q. Huang, F. Yang, M. Khalid, R. Raza, J. Wang, Y. Lu, S. Yun, B. Zhu. Insights into the proton-coupled electron transfer mechanism in fuel cells, *ACS Appl. Mater. Interfaces*, 17(12) (2025), 18371–18382. (I.F.: 8.2)
5. M. T. Noori, **P. Gupta**, K. Hellgardt, B. Min. Per- and poly-fluoroalkyl substances (PFAS): An emerging environmental challenge and (microbial)bioelectrochemical treatment strategies, *Curr. Opin. Environ. Sci. Health.*, (2024), 100588. (I.F.: 6.6)
6. **P. Gupta**, M. Singh, M. T. Noori, J. Jack. Microbial photo electrosynthesis for efficient CO₂ conversion using MXenes: Materials, mechanisms, and applications, *J. Environ. Chem. Eng.*, 12 (2024), 113063. (I.F.: 7.2)
7. **P. Gupta**, N. Verma. Conversion of CO₂ to formate using activated carbon fiber-supported g-C₃N₄-NiCoWO₄ photoanode in a microbial electrosynthesis system, *Chem. Eng. J.*, 446 (2022), 137029. (I.F.: 13.2)
8. **P. Gupta**, K. Pandey, N. Verma. Augmented complete mineralization of glyphosate in wastewater via microbial degradation post CWAO over supported Fe-CNF, *Chem. Eng. J.*, 428 (2022), 132008. (I.F.: 13.2)
9. **P. Gupta**, N. Verma. Evaluation of degradation and mineralization of glyphosate pollutant in wastewater using catalytic wet air oxidation over Fe-dispersed carbon nanofibrous beads, *Chem. Eng. J.*, 417 (2021), 128029. (I.F.: 13.2)
10. **P. Gupta**, K. Pandey, N. Verma. Improved oxygen reduction and simultaneous glyphosate degradation over iron phthalocyanine and reduced graphene oxide-dispersed activated carbon fiber electrodes in a microbial fuel cell, *J. Power Sources*, 514 (2021), 230592. (I.F.: 7.9)
11. **P. Gupta**, M. T. Noori, A. E. Nunez, N. Verma. An insight into the bioelectrochemical photoreduction of CO₂ to value-added chemicals, *iScience*, 24 (2021), 102294. (I.F.: 4.1)
12. K. Pandey, **P. Gupta**, N. Verma, S. Singh. CeO₂ sprinkled graphitic novel packed bed anode-based single-chamber MFC for treatment of high organic-loaded industrial effluent in upflow continuous mode, *J. Mater. Chem. A*, 9 (2021), 23106-23116. (I.F.: 9.5)
13. A. Awasthi, A. Arya, **P. Gupta**, R. Kumar, J. Singh, D. Datta. Adsorption of reactive blue-13, an acidic dye, from aqueous solution using magnetized activated carbon, *J. Chem. Eng. Data*, 65 (2020), 2220–2229. (I.F.: 2.1)

CONFERENCES

1. **P. Gupta**, Microbial Electrosynthesis: Sustainable Approach Towards CO₂-neutral economy, Young Scientists Conference, 9th India International Science Festival 2023, 17-20 January, 2024, DBT THSTI - RCB Campus, Faridabad, India.

2. **P. Gupta**, Recent Advancements in Solar-Driven CO₂ Bioelectrosynthesis, Platinum Jubilee Celebration of Indian Institute of Chemical Engineers, An International Conference on Energy Transition: Challenges and Opportunities, IChE-CHEMCON 2023, 27-30 December 2023, Heritage Institute of Technology Kolkata, India. (*Best paper award*)
3. **P. Gupta**, N. Verma, An insight into semiconductor biohybrid nanomaterials and genetically engineered microbes for solar-driven CO₂ reduction to carbonaceous products, Indian Chemical Engineering Congress & 75th Annual Session of Indian Institute of Chemical Engineers, CHEMCON 2022, 27-30 December 2022, Harcourt Butler Technical University, Kanpur, India.
4. **P. Gupta**, N. Verma, Efficient conversion of aqueous carbon dioxide to formate with solar to fuel conversion efficiency of 1.48%, 7th International New York Conference on Evolving Trends in Interdisciplinary Research & Practices, 1-3 October 2022, Manhattan, New York City.
5. **P. Gupta**, N. Verma, Efficient production of formate in microbial electrosynthesis system based on novel activated carbon fiber-supported nickel-cobalt tungstate and graphitic carbon nitride z-scheme photoanode, Indian Chemical Engineering Congress & 74th Annual Session of Indian Institute of Chemical Engineers, CHEMCON 2021, 27-30 December 2021, Bhubaneswar, India.
6. **P. Gupta**, N. Verma, Efficient mineralization of glyphosate in wastewater by integrated air oxidation-microbial degradation over Fe-CNF supported beads, International Conference on Advances in Sustainable Research for Energy and Environmental Management (ASREEM), 6-8 August 2021, SVNIT Surat, India. (*Best oral presentation award*)
7. **P. Gupta**, N. Verma, Removal of glyphosate from water by catalytic wet air oxidation using Fe nanoparticles-dispersed carbon nanofibrous activated carbon beads, International Conference on Energy and Environmental Technologies for Sustainable Development (CHEM-CONFLUX20), 14-16 February 2020, Motilal Nehru National Institute of Technology Allahabad, India. (*Best oral presentation award*)

WORKSHOP ATTENDED

1. One week training program on “Use of Advanced Analytical Instruments for Energy and Coating Applications” 15 - 21 July 2023, organized by Department of Chemical and Biochemical Engineering, Indian Institute of Technology, Patna, 801106 Under SYNERGISTIC TRAINING PROGRAM UTILIZING THE SCIENTIFIC TECHNOLOGICAL INFRASTRUCTURE (STUTI), Indian Institute of Technology (ISM) Dhanbad, 826004, An initiative of Department of Science & Technology (DST), Government of India.

PEER REVIEW

1. Energy
2. Journal of Power Sources
3. Materials Today: Proceedings
4. Journal of Environmental Chemical Engineering
5. Bioelectrochemistry

ADMINISTRATIVE DUTY

1. Associate warden (Asima hostel, IIT Patna): 18 June – 27 December 2024

SCHOLASTIC ACHIEVEMENTS

1. **INSPIRE Faculty Fellowship, 2022 call**
Ministry of Science & Technology, Department of Science & Technology, Government of India
Faculty Registration No.: IFA22-ENG 345
2. **Outstanding Ph.D. Thesis award, 2023**
Department of Chemical Engineering, IIT Kanpur
3. **Prime Minister's Research Fellowship, (2020 - 2022)**
Ministry of Education, Government of India, Delhi, India
PMRF iD: 2300587

4. The PMRF Review National panel has adjudged my *Ph.D. thesis as the 2nd best in the Chemical Engineering, Textile Engineering category* for the year 2022. (<https://www.pmr.in/06-ch-commendable-research-works>)