Pubali Mandal

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RESEARCH INTEREST:

I am interested in novel materials and processes to address the current challenges in water-energy-nexus and public health protection. I want to explore further advanced materials development, innovative water, and wastewater treatment technologies. I am also interested in evaluating a material or treatment technology using the Life Cycle Assessment approach to understand the overall sustainability of a product or a system. I am keen to undertake studies that embrace multidisciplinary approaches with the academia-industry interface.

EDUCATION:

Ph.D., Department of Civil Engineering, Indian Institute of Technology Kharagpur (IIT Kgp), India, July 2015 – April 2021. ***9.21/10 (in course work)***
Thesis Title: "*Analysis and modeling of organics and ammonia removal from landfill leachate by electro-oxidation*".

Masters (M. E.), Department of Civil Engineering, Indian Institute of Engineering Science and Technology, Shibpur (IIEST), India, July 2013 – June 2015. ***CGPA/Marks: 86%***
Thesis Title: "*Studies on different treatment technologies of solvent, lubricant oil & mobil, emulsifier containing wastewater and composite wastewater coming out from a drum cleaning and reconditioning industry*".

Under-graduation (B. Tech), Department of Civil Engineering, West Bengal University of Technology, West Bengal, India, August 2009 – June 2013. ***CGPA/Marks: 9.16 out of 10***

PUBLICATION:

1. **Mandal, P.**, Dubey, B.K., Gupta A.K., 2017. Review on landfill leachate treatment by electrochemical oxidation: Drawbacks, challenges and future scope. ***Waste Management***, 69, 250–273. **(IF: 7.145)**

2. **Mandal, P.**, Gupta A.K., Dubey, B.K., 2018. A novel approach towards multivariate optimization of graphite/PbO_2 anode synthesis conditions: Insight into its enhanced oxidation ability and physicochemical characteristics. ***Journal of Environmental Chemical Engineering***, 6, 4438–4451. **(IF: 5.909)**

3. **Mandal, P.**, Gupta A.K., Dubey, B.K., 2020. Synthesis of graphite/PbO_2 anode: electrodeposition process modeling for improved landfill leachate treatment using RSM and ANN approach. ***International Journal of Environmental Science and Technology***, 17, 1947–1962. **(IF: 2.86)**

4. **Mandal, P.**, Gupta A.K., Dubey, B.K., 2020. Role of inorganic anions on the performance of landfill leachate treatment by electrochemical oxidation using graphite/PbO_2 electrode. ***Journal of Water Process Engineering***, 33, 101119. **(IF: 5.485)**

5. **Mandal, P.**, Yadav, M.K., Gupta A.K., Dubey, B.K., 2020. Chlorine mediated indirect electro-oxidation of ammonia using non-active PbO_2 anode: influencing parameters and mechanism identification. ***Separation and Purification Technology***, 247, 116910. **(IF: 7.312)**

6. **Mandal, P.**, Gupta A.K., Dubey, B.K., 2020. A review on presence, survival, disinfection/removal methods of coronavirus in wastewater and progress of wastewater-based epidemiology. ***Journal of Environmental Chemical Engineering***, 8, 104317. **(IF: 5.909)**

7. **Mandal, P.**, Gupta, A.K., Dubey, B.K., 2019. Modeling of effect of electrodeposition parameters of a graphite/PbO_2 anode on 2,4-dinitrophenol removal efficiency: Comparison between RSM and ANN, Presented at 2019 *ACS meeting (Chemistry for the New Frontiers)* at Orlando, Florida, USA. Published Abstract (ENVR 577)

CONFERENCE PRESENTATION:

1. **Mandal, P.**, Gupta, A.K., Dubey, B.K., 2020. Scaled-up treatment of landfill leachate by advanced oxidation processes: A short review. ***Water, Energy, and Environmental Sustainability 2020 (WEES 2020)***, NIT Durgapur, India, from January 13-15, 2020.

2. **Mandal, P.**, Gupta, A.K., Dubey, B.K., 2019. Modeling of effect of electrodeposition parameters of a graphite/PbO_2 anode on 2,4-dinitrophenol removal efficiency: Comparison between RSM and ANN. ***ACS meeting (Chemistry for the New Frontiers)***, Orlando, Florida, USA, from March 28-April 4, 2019.

3. **Mandal, P.**, Bandyopadhyay, P., 2015. Performance Evaluation of a Drum Cleaning and Reconditioning Industry Effluent Treatment Plant at Howrah (West Bengal, India). ***Indian Water Works Association (Sustainable Technology Solutions for Water Management)***, from January 30-February 1, 2015.

TECHNICAL EXPERTISE:

- **Material synthesis:** Development of PbO_2 coating onto graphite substrate by electrodeposition method for application in wastewater treatment
- **Material characterization techniques:** 3D optical microscope, AFM, CV, LSV, FTIR, Raman spectroscopy, SEM, XPS, and XRD
- **Instrument hands-on:** TOC, IC, AAS, UV-VIS Spectrophotometer, and Fluorescence Spectrophotometer
- **Design and operation:** Experimental design, designing and fabrication of batch and continuous-scale reactors; monitoring, maintenance, and control of continuous wastewater treatment system

- **Life cycle assessment:** SimaPro

TRAINING/WORKSHOP/SHORT-COURSES

- Successfully participated in the national seminar on **"Real Estate Boom-Supplementary and Complementary Infrastructure-Water Supply, Sanitation, Environment, Services, and Social Perceptions"** held on February 21, 2015, at Institute of Public Health Engineering auditorium Salt Lake, Kolkata.
- Successfully completed the Massive Open Online Course on **"Municipal Solid Waste Management in Developing Countries"** offered by Sandec/Eawag.
- Successfully participated in the short term course on **"Introduction to Life Cycle Assessment"** held on September 14-16, 2016, at IIT Kharagpur.
- Successfully participated in the GIAN course on **"Urban Water and Wastewater Management"** for India held on April 30-May 4, 2018, at IIT Kharagpur.
- Successfully completed the webinar on **"Per- and Polyfluoroalkyl Substances (PFAS) in Municipal Solid Waste and Landfill Leachate"** held on May 9, 2018 offered by National Waste and Recycling Association.
- Successfully completed the webinar on **"Innovative TOC parameter attracting many applications"** held on December 16, 2020 offered by SWAN analytical instruments.

AWARDS/FELLOWSHIPS/TRAVEL GRANT:

- Received financial support for presenting paper at national meeting of ACS *(Chemistry for the New Frontiers)*, Orlando, Florida, USA from IIT Kgp, India (March 28-April 4, 2019).
- Received Ph.D. fellowship from Ministry of Human Resource and Development (MHRD), through IIT Kgp, India (2015 – 2020).
- Received M.E. fellowship from Ministry of Human Resource and Development (MHRD), through IIEST, Shibpur, India (2013 – 2015).

WORK EXPERIENCE AS TEACHING ASSISTANT

- Worked as **Teaching Assistant** for the NPTEL online certification course "Life Cycle Assessment"
- Worked as **Teaching Assistant** for the NPTEL online certification course "Sustainable Engineering Concepts And Life Cycle Analysis"
- Worked as **Teaching Assistant** for the NPTEL online certification course "Electronic Waste Management-Issues And Challenges"

WORK EXPERIENCE AS FACULTY

- Temporary Faculty, Department of Civil Engineering, National Institute of Technology, Mizoram (August 2021-till now)

ACADEMIC REFEREES:

1. Prof. Ashok Kumar Gupta

Professor, Department of Civil Engineering
Head, School of Water Resources
Indian Institute of Technology Kharagpur, West Bengal-721302, India.
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2. Dr. Brajesh Kumar Dubey

Associate Professor, Department of Civil Engineering
Indian Institute of Technology Kharagpur, West Bengal-721302, India.
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3. Prof. Umesh Chandra Gupta

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Indian Institute of Technology Kharagpur, West Bengal-721302, India.
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DECLARATION:

I do hereby declare that the above information is true to the best of my knowledge.

Pubali Mandal