

# Faculty Profile-Dr. Dipyaman Mohanta

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<b>Designation</b>	Assistant Professor
<b>Qualification</b>	NET, SLET(NE), GATE, Ph.D.
<b>Area of Specialization</b>	Organic Chemistry
<b>Research Interests</b>	Material chemistry, Heterogeneous catalysis, Environmental and bio-sensing
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<b>Google Scholar Link</b>	<a href="https://scholar.google.com/citations?user=I3OQXGMAAAAJ&amp;hl=en">https://scholar.google.com/citations?user=I3OQXGMAAAAJ&amp;hl=en</a>



## Educational Profile

No.	Degree	Major subject/Area	Institute/University	Year
1.	B.Sc.	Chemistry Honours	Srikishan Sarda College, Hailakandi, Assam	2012
2.	M.Sc.	Chemistry (Organic)	Assam University Silchar, Assam	2014
3.	Ph.D.	Chemistry (Thesis title: Development of Engineered Tin Oxide Based Nanostructured Materials for Remediation of Some Selected Water Contaminants, Sensing of Hazardous Substances and Water Oxidation)	NIT Silchar, Assam	2021

## Teaching/Research/Administrative Experience

No.	Name of the post	Institution	From	To
1	Assistant Professor	Cachar College, Silchar, Assam	24/09/2022	Till date

## Academic Achievements

No.	Name of award/scholarship	Awarding agency	Year
1.	UGC scholarship for rank holders (First class 2 <sup>nd</sup> in B.Sc.)	University Grant Commission	2012
2.	First class 2 <sup>nd</sup> in M.Sc.	Assam University Silchar	2014
3.	GATE AIR-391	NCB-GATE, MHRD	2014
4.	SLET (NE)	SLET Commission, Assam	2015
5.	NET LS AIR-16	CSIR-UGC	2016
6.	Best Doctoral Award	NIT Silchar	2021

## Publication Statistics

No. of publications: 18

No. of Citations: 408

## Research Papers Published in National and International Journals

- [1] **Mohanta, D.**, Gupta, S. V., Gadore, V., Paul, S., & Ahmaruzzaman, M. (2022). SnO<sub>2</sub> Nanoparticles–CeO<sub>2</sub>Nanorods Enriched with Oxygen Vacancies for Bifunctional Sensing Performances toward Toxic CO Gas and Arsenate Ions. *ACS Omega* (**IF: 4.132**)
- [2] Raha, S., **Mohanta, D.**, & Ahmaruzzaman, M. (2021). Novel CuO/Mn<sub>3</sub>O<sub>4</sub>/ZnO nanocomposite with superior photocatalytic activity for removal of Rabeprazole from water. *Scientific reports*, 11(1), 1-19 (**IF: 4.996**)
- [3] **Mohanta, D.**, & Ahmaruzzaman, M. (2021). Facile fabrication of novel Fe<sub>3</sub>O<sub>4</sub>-SnO<sub>2</sub>-gC<sub>3</sub>N<sub>4</sub> ternary nanocomposites and their photocatalytic properties towards the degradation of carbofuran. *Chemosphere*, 285, 131395 (**IF: 7.086**)
- [4] **Mohanta, D.**, Mahanta, A., Mishra, S. R., Jasimuddin, S., & Ahmaruzzaman, M. (2021). Novel SnO<sub>2</sub>@ ZIF-8/gC<sub>3</sub>N<sub>4</sub>nanohybrids for excellent electrochemical performance towards sensing of p-nitrophenol. *Environmental Research*, 197, 111077 (**IF: 8.431**)
- [5] **Mohanta, D.**, & Ahmaruzzaman, M. (2021). Au–SnO<sub>2</sub>–CdS ternary nanoheterojunction composite for enhanced visible light-induced photodegradation of imidacloprid. *Environmental Research*, 201, 111586 (**IF: 8.431**)
- [6] **Mohanta, D.**, Barman, K., Jasimuddin, S., & Ahmaruzzaman, M. (2021). Encapsulating band

- gap engineered  $\text{CoSnO}_3$  mixed metal oxide nanocomposite in rGO matrix: A novel catalyst towards LED light induced photoelectrocatalytic water oxidation at neutral pH. *Journal of Electroanalytical Chemistry*, 880, 114830 (**IF: 4.598**)
- [7] **Mohanta, D.**, & Ahmaruzzaman, M. Novel  $\text{Ag-SnO}_2\text{-}\beta\text{C}_3\text{N}_4$  ternary nanocomposite based gas sensor for enhanced low-concentration  $\text{NO}_2$  sensing at room temperature. *Sensors and Actuators B: Chemical*, 326, 128910 (**IF: 8.42**)
- [8] **Mohanta, D.**, & Ahmaruzzaman, M. (2020). A novel  $\text{Au-SnO}_2\text{-rGO}$  ternary nanoheterojunction catalyst for UV-LED induced photocatalytic degradation of clothianidin: Identification of reactive intermediates, degradation pathway and in-depth mechanistic insight. *Journal of Hazardous Materials*, 122685 (**IF: 14.224**)
- [9] **Mohanta, D.**, & Ahmaruzzaman, M. (2020). Biogenic synthesis of  $\text{SnO}_2$  quantum dots encapsulated carbon nanoflakes: An efficient integrated photocatalytic adsorbent for the removal of bisphenol A from aqueous solution. *Journal of Alloys and Compounds*, 828, 154093 (**IF: 6.371**)
- [10] Ahmaruzzaman, M., **Mohanta, D.**, & Nath, A. (2019). Environmentally benign fabrication of  $\text{SnO}_2\text{-CNT}$  nanohybrids and their multifunctional efficiency as an adsorbent, catalyst and antimicrobial agent for water decontamination. *Scientific reports*, 9(1), 1-19 (**IF: 4.996**)
- [11] Devi, T. B., **Mohanta, D.**, & Ahmaruzzaman, M. (2019). Biomass derived activated carbon loaded silver nanoparticles: an effective nanocomposites for enhanced solar photocatalysis and antimicrobial activities. *Journal of Industrial and Engineering Chemistry*, 76, 160-172 (**IF: 5.278**)
- [12] **Mohanta, D.**, Raha, S., Gupta, S. V., & Ahmaruzzaman, M. (2019). Bioinspired green synthesis of engineered  $\text{CuSnO}_3$  quantum dots: An effective material for superior photocatalytic degradation of Rabeprazole. *Materials Letters*, 240, 193-196 (**IF: 3.423**)
- [13] **Mohanta, D.**, Raha, S., & Ahmaruzzaman, M. (2018). Biogenic green synthetic route for Janus type  $\text{Ag: SnO}_2$  asymmetric nanocomposite arrays: Plasmonic activation of wide band gap semiconductors towards photocatalytic degradation of Doripenem. *Materials Letters*, 230, 203-206 (**IF: 5.278**)
- [14] **Mohanta, D.**, & Ahmaruzzaman, M. (2018). Bio-inspired adsorption of arsenite and fluoride from aqueous solutions using activated carbon@  $\text{SnO}_2$  nanocomposites: isotherms, kinetics, thermodynamics, cost estimation and regeneration studies. *Journal of environmental chemical*

*engineering*, 6(1), 356-366 (**IF: 7.968**)

- [15] **Mohanta, D.**, Barman, K., Jasimuddin, S., & Ahmaruzzaman, M. (2017). MnO doped SnO<sub>2</sub> nanocatalysts: Activation of wide band gap semiconducting nanomaterials towards visible light induced photoelectrocatalytic water oxidation. *Journal of colloid and interface science*, 505, 756-762 (**IF: 9.965**)
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#### **Review article/ Book chapters**

- [1] **Mohanta, D.**, & Ahmaruzzaman, M. (2020). Addressing Nanotoxicity: Green Nanotechnology for a Sustainable Future. *The ELSI Handbook of Nanotechnology: Risk, Safety, ELSI and Commercialization*, 103-112.
- [2] **Mohanta, D.**, & Ahmaruzzaman, M. (2018). Advanced Tin-Oxide Nanostructures: Green Synthesis, Prospects and Challenges for Clean Energy and Environmental Sustainability. *Green Metal Nanoparticles: Synthesis, Characterization and Their Applications*, 513-552.
- [3] **Mohanta, D.**, & Ahmaruzzaman, M. (2016). Tin oxide nanostructured materials: an overview of recent developments in synthesis, modifications and potential applications. *RSC advances*, 6(112), 110996-111015 (**IF: 4.036**)
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#### **Presentations in National/International Seminars**

- [1] **Mohanta, D.**, & Ahmaruzzaman, M., A novel Au-SnO<sub>2</sub>-rGO ternary nanoheterojunction catalyst for UV-LED induced photocatalytic degradation of clothianidin, Poster presentation at International Conference on Nano Science and Technology (ICONSAT 2020) held on 5-7 March 2020 at Biswa Bangla Convention Centre, Kolkata.
- [2] **Mohanta, D.**, & Ahmaruzzaman, M., Biogenic synthesis of SnO<sub>2</sub> quantum dots encapsulated carbon nanoflakes: An efficient integrated photocatalytic adsorbent for the removal of bisphenol A from aqueous solution, Oral presentation at Recycle 2020, 3rd International Conference on Waste Management held on 13-14 February 2020 at IIT Guwahati, Assam.
- [3] **Mohanta, D.**, & Ahmaruzzaman, M. Band gap engineered CoSnO<sub>3</sub>-rGO nanocomposite: A novel dual functional photo(electro)catalyst towards water oxidation, Flash presentation at 6th

International Conference on Advanced Nanomaterials and Nanotechnology (ICANN 2019) held on 18-21 December 2019 at IIT Guwahati, Assam.

- [4] **Mohanta, D.**, & Ahmaruzzaman, Bio-inspired adsorption of arsenite and fluoride from aqueous solutions using activated carbon@ SnO<sub>2</sub> nanocomposites, Poster presentation at International Conference Nano for Energy and water & Indo-French Workshop on water networking, 2017 at University of Petroleum and Energy Studies, Dehradun.
- [5] **Mohanta, D.**, & Ahmaruzzaman, MnO doped SnO<sub>2</sub> nanocatalysts: Activation of wide band gap semiconducting nanomaterials towards visible light induced photoelectrocatalytic water oxidation, Poster presentation at Materials Research society of India symposium on Advanced Materials for sustainable application 2016 organized by CSIR-NEIST Jorhat.

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#### **Members of Professional/ Administrative Bodies and Committees**

<b>No.</b>	<b>Role</b>	<b>Name of the body or committee</b>	<b>Time period</b>
1	Member	Enrollment and result analysis committee	22/11/2022- Till date