



SILDA CHANDRASEKHAR COLLEGE

CURRICULUM VITAE

Name : Dr. PRASENJIT BHUNIA

Designation with Department : Assistant Professor and HOD, Chemistry

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Date of Joining : 17-08-2020

Address : Vill – Rajnagar, P.O – Jalpai, P. S – Nandakumar, Dist – Purba Medinipur, Pin – 721652, West Bengal.

Educational Qualification :

Degree	Institution	Year of Passing/Award
BSc(Hons)	Vidyasagar University (Mahishadal Raj College)	2001
MSc	Jadavpur University	2003
NET	CSIR-UGC	2004
GATE	IIT	2004
PhD	Jadavpur University	2009

Area of Specialization : Inorganic Chemistry

Area of Teaching : Inorganic and Physical Chemistry

Teaching Experience :

Designation	Institution	Duration	
		From	To
Faculty (on contract)	National Institute of Technology Puducherry	27-07-2012	25-01-2013
Post Doctoral Fellow	Indian Institute of Technology Kharagpur	14-03-2018	13-09-2018
Assistant Professor	Silda Chandra Sekhar College	17-08-2020	Present

Participation in Administrative/Academic Activities :

- (1) Nodal Officer: Student Vaccination Programme
- (2) Help desk Officer: Student Credit Card Scheme
- (3) Preparation of College Prospectus
- (4) Member: Students' Welfare Cell
- (5) Member: Grievance Redressal Cell

Conference/Seminar/Workshop organised : Nil

Research Experience:

Institution	Designation	Duration		Responsibility
		From	To	
Department of Chemical Engineering, Indian Institute of Technology Kharagpur	Post Doctoral Fellow	14-03-2016	13-03-2019	Research and Teaching
Department of Chemistry, Indian Institute of Technology Kharagpur	Research Associate	08-08-2013	31-01-2015	Research
Department of Chemistry, Sungkyunkwan University, Suwon, South Korea	Post Doctoral Fellow	21-04-2010	25-07-2012	Research and Teaching
Department of Chemistry, National Taiwan University, Taiwan	Post Doctoral Fellow	10-09-2009	23-02-2010	Research

Research Interest : Coordination Chemistry, Material Science, Graphene/ Graphene Oxide Chemistry, Photochemistry, Photoelectrochemistry, Electrochemistry, Nanotechnology.

List of Patents:

Sl. No.	Inventors	Title	Patent Application No.
1	Prasenjit Bhunia, Amitava Pramanik and Srinivas Gopalon Raman	Sunscreen Composition.	US 2008/0050323A1 February 28, 2008

2	Prasenjit Bhunia and Hyoyoung Lee	Composite Containing Iron Component Supported on Graphene, Preparing Method of the same, and Uses of the same.	US 2013/0105400 A1 May 2, 2013
3	Prasenjit Bhunia , Monish Kumar and Sirshendu De	Efficient and industrial scale purification of Graphene Oxide by diafiltration.	201731033688 October, 2017
4	Pinakpani Biswas, Supriya Sarkar, Priyanka Saha, Prasenjit Bhunia , Sirshendu De	A new integrated process for removal of total and free cyanide from coke plant wastewater. ➤ Completion of pilot plant trial in TATA Steel Ltd., Jamshedpur. ➤ Full scale plant under process in TATA Steel_BSL, Angul and expected to inaugurate in Nov' 2020. ➤ Full scale plant TATA Steel_Kolanganagar, Odisha going to start shortly.	201931002637 July, 2019
5	Pinakpani Biswas, Prasenjit Bhunia , Priyanka Saha, Supriya Sarkar, Saroj Banerjee	A process for decomposing metal cyanide complex from an effluent of steel industry. (a part of patent 4)	20203101956 March, 2020

List of research publications in national/international journals (Selected):

1. Tamal Kanti Ghosh, Pinakpani Biswas, **Prasenjit Bhunia**, Supriya Sarkar, "Application of Coke Breeze for Removal of Color from Coke Plant Wastewater" *Journal of Environmental Management*, 2022, **302**, 113800. (IF: 8.91)
2. **Prasenjit Bhunia**, Kingshuk Dutta, "Understanding the Photoelectrochemistry of Covalently Grafted Ionic Liquid-Graphene Nanosheets toward NADH Detection" *ACS Applied Electronic Materials*, 2021, **03**, 4009. (IF: 4.49)
3. **Prasenjit Bhunia**, Kingshuk Dutta, "Redox Mediation in Ionic Liquid-Functionalized Graphene for Facilitation of β -Nicotinamide Adenine Dinucleotide Electrooxidation" *Industrial and Engineering Chemistry Research*, 2021, **60**, 8035. (IF: 4.32)
4. **Prasenjit Bhunia**, Kingshuk Dutta, "Efficient electrocatalytic oxidation of NADH by highly dispersible in situ N-doped ionic liquid functionalized graphene nanosheets" *Electrochemical Science Advances*, 2021, doi.org/10.1002/elsa.202100050. (IF: yet to come)
5. Niloy Kundu, Pinakpani Biswas, **Prasenjit Bhunia**, Rita Ghosh, Supriya Sarkar, "Evolution characteristics of metallurgical coals for coke making through thermogravimetric-mass spectroscopic measurements" *Journal of Environmental Chemical Engineering*, 2021, **9**, 106874. (IF: 7.967)

6. **Prasenjit Bhunia**, Pinakpani Biswas, Priyanka Saha, Supriya Sarkar, Harse Chandel and Sirshendu De, "In situ photodecyanation of steel industry waste water in a pilot scale" *Environmental Science and Pollution Research*, 2020, **27**, 33226. (I. F. 5.19)
7. **Prasenjit Bhunia**, Monish Kumar, Sirshendu De, "Rapid and efficient removal of ionic impurities from graphene oxide through hollow fiber diafiltration" *Separation and Purification Technology*, 2019, **209**, 103. (I. F. 9.13)
8. Raka Mukherjee, **Prasenjit Bhunia**, Sirshendu De, "Nanofiltration range desalination by high flux graphene oxide impregnated ultra filtration hollow fiber mixed matrix membrane", *Journal of Cleaner Production*, 2019, **213**, 393. (I.F. 9.29)
9. Raka Mukherjee, **Prasenjit Bhunia** and Sirshendu De, "Long term filtration modeling and scaling up of mixed matrix ultra filtration hollow fiber membrane: a case study of chromium (VI) removal" *Journal of Membrane Science*, 2018, **570**, 204. (I. F. 10.53)
10. **Prasenjit Bhunia**, Somak Chatterjee, Pritam Rudra, Sishendu De, "Chelating polyacrylonitrile beads for removal of lead and cadmium from waste water" *Separation and Purification Technology*, 2018, **193**, 202. (I. F. 9.13)
11. Raka Mukherjee, **Prasenjit Bhunia**, Sirshendu De, "Impact of graphene oxide on removal of heavy metals using mixed matrix membrane" *Chemical Engineering Journal*, 2016, 292, 284. (I. F. 10.65)
12. Sourav Bag, Arpan Samanta, **Prasenjit Bhunia**, C Retna Raj, "Rational functionalization of reduced graphene oxide with imidazolium-based ionic liquid for supercapacitor application" *International Journal of Hydrogen Energy*, 2016, **41**, 22134. (I.F. 4.49)
13. Raj Kumar Bera, **Prasenjit Bhunia**, Sukanta Chakrabartty, and C. Retna Raj, "Visible Light-Driven Production of Poly(a-terthiophene)-Au Nanoparticle Functional Hybrid Material" *ChemNanoMat*, 2015, **1**, 586. (I. F. 3.82)
14. **Prasenjit Bhunia**, Giyoung Kim, Chul Baik, Hyoyoung Lee, "A strategically designed porous iron/iron oxide matrix on graphene for heavy metal ion adsorption", *Chemical Communication.*, 2012, **48**, 9888. (I. F. 6.290)
15. **Prasenjit Bhunia**, Eunhee Hwang, Yeoheung Yoon, Eunkyo Lee, Sohyeon Seo, Hyoyoung Lee, "Synthesis of Highly n-Type Graphene Using Ionic Liquid", *Chemistry A European Journal*, 2012, **18**, 12207. (I. F. 5.91)
16. Surajit Some, **Prasenjit Bhunia**, Eunhee Hwang, Keunsik Lee, Yeoheung Yoon, Sohyeon Seo, Hyoyoung Lee, "Can Widely Used Hydrazine Produce n-Type Graphene?" *Chemistry A European Journal*, 2012, **18**, 7665. (I. F. 5.91)
17. **Prasenjit Bhunia**, Eunhee Hwang, Misook Min, Junghyun Lee, Sohyeon Seo, Surajit Some, Hyoyoung Lee, "A Non-Volatile Memory Device Consisting of Graphene Oxide Covalently Functionalized with Ionic Liquid", *Chemical Communication*, 2012, **48**, 913. (I. F. 6.290)
18. **P. Bhunia**, D. Banerjee, P. Dutta, A. M. Z. Slawin, P. Raghavaiah, J. Ribas, C. Sinha, "Copper-Azide-Thioarylazoimidazoles – Structure, Spectra, Redox Properties, Magnetism and Theoretical Interpretation", *European Journal of Inorganic Chemistry*, 2010, 311. (I. F. 3.04)
19. Prasun Bandyopadhyay, **Prasenjit Bhunia**, "Synthesis and characterization of hexa-tailed cryptand based amphiphiles: Spontaneous formation of giant vesicular microcapsule with efficient and long-term dye encapsulation", *Colloids and Surfaces B: Biointerfaces*, 2007, **58**, 14. (I. F. 4.04)
20. **P. Bhunia**, U. S. Ray, J. Cheng T. –H. Lu, C. Sinha, "Nickel(II)-Azido/Thiocyanato complexes of 1-alkyl-2-(naphthylazo)imidazole", *Polyhedron*, 2008, **27**, 3191. (I. F. 2.06)

List of Book Chapters:

1. **Book Title:** Progress and Recent Trends in Microbial Fuel Cells

Publisher: Elsevier

Chapter 16 (Invited) – Biochemistry and Electrochemistry at the Electrodes of Microbial Fuel Cells (2018), **Prasenjit Bhunia**, Kingshuk Dutta, pp 327 – 345.

doi.org/10.1016/B978-0-444-64017-8.00016-6

2. **Book Title:** Progress and Recent Trends in Microbial Fuel Cells

Publisher: Elsevier

Chapter 6 – Bipolar Membranes for Microbial Fuel Cells (2018), Kingshuk Dutta, Patit Paban Kundu, **Prasenjit Bhunia**, pp 87 – 94.

doi.org/10.1016/B978-0-444-64017-8.00006-3

3. **Book Title:** Green Photocatalysts for Energy and Environment Process

Publisher: Springer Nature

Chapter 2 – Photocatalysts and photoelectrocatalysts in fuel cells and photofuel cells (2019), **Prasenjit Bhunia**, Dr. Kingshuk Dutta, pp 19 – 55.

4. **Book Title:** New Technologies for Electrochemical Applications.

Publisher: CRC Press

Chapter 9 – Electrocatalysts for Wastewater Treatment (2020), **Prasenjit Bhunia**, Kingshuk Dutta, Abdul Kader, Sanjay K. Nayak, pp 153 – 168.

5. **Book Title:** Direct Methanol Fuel Cell Technology

Publisher: Elsevier

Chapter 15 – Electrochemistry, Reaction Mechanisms and Reaction Kinetics in Direct Methanol Fuel Cells (2020), **Prasenjit Bhunia**, Kingshuk Dutta, M. Abdul Kader, pp 443 – 494.

6. **Book Title:** Encyclopedia in Electrochemistry. Section Fuel Cells.

Publisher: Wiley

Chapter XX – Electrochemistry in Direct Methanol Fuel Cells (2021), **Prasenjit Bhunia**, Kingshuk Dutta, doi.org/10.1002/9783527610426.bard120074

7. Chapter 7, Overview on Oil/Water Separation Techniques and Working Principles, Jaydevsinh M. Gohil, Gibum Kwon, **Prasenjit Bhunia**, Kingshuk Dutta, Rabah Boukherroub, 2022, pp 247-304

Publisher: The American Chemical Society

8. Chapter 13: Oxygen Reduction Reaction in Lithium-Air Batteries,), **Prasenjit Bhunia**, Kingshuk Dutta, 2022 (Accepted)

Publisher: Elsevier

9. Chapter 9, Electrocatalytic Removal of Heavy Metal Ions from Water, **Prasenjit Bhunia**, Kingshuk Dutta 2022 (Submitted)

Publisher: Wiley

10. Chapter XX, Nanomaterials in Organic Oxidation Reactions, **Prasenjit Bhunia**, Kingshuk Dutta, 2022 (Submitted)

Publisher: Elsevier

Book Editing

Title of the Book	Name of the Editors	Publisher	Year of Publication
Photocatalysts and Electrocatalysts in Water Remediation: From Fundamentals to Full Scale Applications	Dr. Prasenjit Bhunia , Dr. Kingshuk Dutta, Dr. S. Vadivel	Wiley	Under Process (Expected to publish in Dec'2022)

Presentation of research papers in seminars/conferences:

Sl.No.	Author(s)	Year of Publication	Title of Paper	Name and Place of Conference
1	Prasenjit Bhunia , Eunhee Hwang, Misook Min, Eunkyo Lee, Surajit Some, Hyoyoung Lee Oral presentation by the first author	2011	Covalently functionalized Graphene Oxide (GO) with Ionic Liquid for Memory devices	2011 International Forum on Functional Materials. The Second Symposium on Advances in Functional Materials (July 28 – 31, 2011), Jeju, Republic of Korea
2	Prasenjit Bhunia and C. Retna Raj Oral presentation by the first author	2014	An Efficient Photoelectrochemical NADH Sensor Based on Ionic Liquid Functionalized Graphene	International Conference on Emerging Materials: Characterization and Applications (EMCA-2014) December 4 – 6, 2014, Central Glass and Ceramics Research Institute, Kolkata, India
3	Prasenjit Bhunia Oral presentation (Best oral presentation)	2014	Ionic Liquid Functionalized Graphene for Multifunctional Applications	International Conference of World Science Congress, December 16 – 18, 2014, Jadavpur University Kolkata, India

4	Kingshuk Dutta, Prasenjit Bhunia Oral presentation by the first author	2021	Ionic Liquid-Functionalized Reduced Graphene Oxide-Based Electrocatalysts for NADH Electrooxidation: A Preliminary Study	Advancement in Polymeric Materials APM-2021, March 9 – 13, 2021 CIPET-SARP-Laboratory for Advanced Research in Polymeric Materials, Bhubaneswar, India
5	Prasenjit Bhunia and Kingshuk Dutta Oral presentation by the first author (Best oral presentation)	2022	Covalently Grafted Ionic Liquid–Graphene Based Electrochemical and Photoelectrochemical Biosensors	Golden Jubilee International Conference NANOicon 2022, CUSAT, Kerala, India (Online) January 11 – 15, 2022
6	Prasenjit Bhunia and Kingshuk Dutta Oral presentation by the first author	2022	α -Fe ₂ O ₃ Flowers on Graphene Surfaces with Efficient Visible-Light-Activated Photoelectrochemical Glucose Detection	13th International Conference on Advancements in Polymeric materials (APM 2022) Organized by CIPET: SARP – ARSTPS, Chennai. March 8 – 12, 2022

Other Professional Activity:

1. Sponsored Research Projects undertaken as PI/Co-PI:

Sl. No.	Sponsoring Agency	Title of Project	Amount (Rs)	Period	PI/Co-PI
1	Science and Engineering Research Board (SERB) Scheme: Teachers Associateship for Research Excellence (TARE)	<u>Tailor made design of photoreactor for advanced photocatalytic water treatment</u>	18.3 Lakh	3 years	PI (Mentor: Prof. Sirshendu De, IIT Kharagpur)
2	Techno Enviro Services Pvt. Ltd. (Industrial Project)	Removal of chromium from LD slag	-	6 months	Co-PI (PI: Prof. Sirshendu De, IIT Kharagpur)

Any other Information:

The patent entitled “a new integrated process for removal of total and free cyanide from coke plant wastewater.” (201931002637 July, 2019) has been implemented in full scale plant in TATA Steel BSL, Odisha, India

- **Completion of pilot plant trial in TATA Steel Ltd., Jamshedpur in 2019.**
- **Full scale application has been done in TATA Steel_BSL, Angul, Odish, India in 2022.**
- **Full scale plant TATA Steel_ Kalinganagar, Odisha going to start shortly.**

Other activities (if any):

- (i) Short listing of Research Scholars in the Department of Chemical Engineering, IIT Kharagpur
- (ii) Coordinator of Research Scholar Day ‘2018 in the Department of Chemical Engineering, IIT Kharagpur

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https://scholar.google.co.in/citations?hl=en&user=uOYMXFkAAAAJ&view_op=list_works&sortby=pubdate

h-index: 12, RG Score: 24.45