

CURRICULUM VITAE

Name: Dr. Avijit Biswal

Position: Assistant Professor (OES-I)

Address: Department of Chemistry, Bhadrak Autonomous College, Bhadrak.

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Google Scholar Link:

<https://scholar.google.co.in/citations?user=Bgsn6PgAAAAJ>



Educational Background:

Sl. No	Degree	University/Institution	Discipline	Year of completion
1.	BSc.	N.C. Autonomous College, Jajpur	Chemistry	2004
2.	MSc.	Ravenshaw Autonomous College, Cuttack	Chemistry	2006
3.	Ph.D.	AcSIR: CSIR-Institute of Minerals and Materials Technology, Bhubaneswar	Chemistry	2014

Ph.D. thesis title: *Electrochemical preparation and characterization of battery grade manganese dioxide in presence of various dopants.*

Guide: Prof. B.C. Tripathy & Dr. T. Subbaiah

Professional Background:

Sl. No	Position held	Name of the Institute	Joining	Held up to
1	Assistant Professor	Bhadrak Autonomous College, Bhadrak	29 th August 2023	Continuing
2	Assistant Professor (on contract)	Odisha University of Technology and Research, Bhubaneswar	23 rd July 2016	26 th August 2023
3	Postdoctoral Researcher	Murdoch University, Perth, Australia	14 th December 2014	16 th March 2016

Fellowship /Awards/ Achievements:

Sl. No	Fellowship /Award Name	Agency	Year
1.	Postdoctoral Fellowship	Project funded by Australian Research Council (ARC)	2014
2.	CSIR-SRF	Council of Scientific & Industrial Research (CSIR)	2012
3.	Best Poster Award Twice on the occasion of Research Scholar Day	CSIR-Institute of Minerals & Materials Technology	2010 2011

Member of Professional Bodies

- Life member of Indian Society for Electro Analytical Chemistry (ISEAC)
- Life member of Odisha Chemical Society (OCS)

Publications: Citations: 630 | h-index: 13 | i-10 index: 17 (Source: google scholar)

1. Arpeeta Hota, Jiban K. Das, Prasanna K Panda, Asim A. Mohammed, **Avijit Biswal**, Benadict Rakesh, B. C. Tripathy, “Low–temperature synthesis of high –entropy amorphous metal oxides(HEOs) for enhanced oxygen evolution performance” *Dalton Transactions*, 2024, Vol 53, 4544-4550.
2. **Avijit Biswal**, Jyoti Prakash Dhal, Bijnyan Ranjan Das, Prasanna Kumar Panda, Bankim Chandra Tripathy “One-pot synthesis of nano-EMD for effective adsorption of toxic dyes” *Nanomaterials and Energy*, 2023, Vol 12 (4), 166-177.
3. **Avijit Biswal**, Achyuta N Acharya, Prasanna K Panda, Tapan Dash, Bankim C Tripathy, “Surfactant-Mediated Electrochemical Precipitation of ZnO Nanospheres for Adsorption of Eosin Yellow & Rhodamine B Dyes” *Chemistry Select*, 2023, Vol. 8(44), <https://doi.org/10.1002/slct.202301896>.
4. **Avijit Biswal**, Prasanna Kumar Panda, Achyut N Acharya, Bankim Tripathy, Feraih Sh Alenazey, Zhong-Tao Jiang, Manny Minakshi Sundaram, “Tuning the morphology and redox behaviour by varying concentration of Fe in a CoNiFe Ternary Oxide Heterostructure for Hybrid Devices” *New J. Chem.*, 2020, Vol. 44, 9921-9932.
5. **A. Biswal**, PK Panda, AN Acharya, S Mohapatra, N Swain, BC Tripathy, Zhong-Tao Jiang Manickam Minakshi Sundaram “Role of additives in electrochemical deposition of ternary metal oxide microspheres for supercapacitor applications” *ACS omega*, 2020, Vol. 5 (7), 3405-3417.
6. **Avijit Biswal**, Prasanna Panda, Zhong-Tao Jiang, Bankim Tripathy and Manickam Minakshi, “ Facile synthesis of a nanoporous sea sponge architecture in a binary metal oxide” *Nanoscale Adv.*, 2019, Vol 1, 1880-1892.
7. **Avijit Biswal**, Manickam Minakshi, B.C Tripathy, “Electrodeposition of Sea-urchin and cauliflower like Ni/Co doped manganese dioxide hierarchical nanostructures with improved energy storage behaviour” *Chem Electro Chem* , 2016, Vol 3, 976-985.
8. **Avijit Biswal**, ManickamMinakshi, B.C Tripathy, “Probing the electrochemical properties of biopolymer modified EMD nano flakes through electrodeposition for high performance alkaline battery” *Dalton Transactions*, 2016, Vol. 45, 5557–5567.

9. M. M. Sundaram, **A. Biswal**, David Mitchell, Rob Jones, and Carlos Fernandez, "Correlation among physical and electrochemical behaviour of nanostructured electrolytic manganese dioxide from leach liquor and synthetic for aqueous asymmetric capacitor" *Phys. Chem. Chem. Phys.*, 2016, Vol. 18, 4711-4720.
10. **A. Biswal**, B.C. Tripathy, D. Li and M. Minakshi, "Electrodeposition of Pluronic F127 assisted rod-like EMD/carbon arrays for efficient energy storage" *Dalton Transactions*, 2015, Vol. 44, 16446-16457.
11. **A. Biswal**, B. C. Tripathy, K. Sanjay, T. Subbaiah and M. Minakshi, "Electrolytic Manganese Dioxide (EMD): A perspective on worldwide production, reserves and its role in electrochemistry" *RSC Advances.*, 2015, Vol. 5, 58255-58283.
12. **A. Biswal**, B. C. Tripathy, T. Subbaiah, D. Meyrick and M. Minakshi, "Dual effect of anionic surfactants in the electrodeposited MnO₂ trafficking redox ions for energy storage" *J. Electrochemical Society*, 2015, Vol. 162 (1), pp A30-A38.
13. **A. Biswal**, S. Mahakud, Sandhyarani, B. B. Dash, C. K. Sarangi, Kali Sanjay, B. C. Tripathy, T. Subbaiah, I. N. Bhattacharya, Sung-HoJoo, Shun Myung Shin, K. H. Park, "Recovery of Co metal and Electrolytic Manganese Dioxide (EMD) from Co-Mn sludge" *Hydrometallurgy*, 2015, Vol. 152, pp.159-168.
14. Sandeep Panda, **Avijit Biswal**, Srabani Mishra, Prasanna Kumar Panda, Nilotpala Pradhan, Umaballava Mohapatra, Lala Behari Sukla, Barada Kanta Mishra, Ata Akcil, "Reductive dissolution by waste newspaper for enhanced meso-acidophilic bioleaching of copper from low grade chalcopyrite: A new concept of bio-hydrometallurgy", *Hydrometallurgy*, 2015, Vol. 153, 98-105.
15. **A. Biswal**, B. C. Tripathy, T. Subbaiah, D. Meyrick, M. Ionescu, and M. Minakshi. "Effect of non-ionic surfactants and its role in K intercalation in electrolytic manganese dioxide" *Metallurgical and Materials Transactions E*, 2014, Vol. 1, 226-238.
16. **A. Biswal**, B Dash, B.C. Tripathy, T. Subbaiah, S.M. Shin, K. Sanjay, B.K. Mishra. "Influence of alternative alkali reagents on Fe removal during recovery of Mn as Electrolytic Manganese Dioxide (EMD) from Mn sludge". *Hydrometallurgy*, 2013, Vol. 140, 151-162.
17. **A. Biswal**, B. C. Tripathy, T. Subbaiah, D. Meyrick & M. Minakshi. "Electrodeposition of manganese dioxide: effect of quaternary amines" *J. Solid State Electrochemistry*, 2013, Vol. 17, 1349-1356.
18. **A. Biswal**, B. C. Tripathy, K. Sanjay, T. Subbaiah, D. Meyrick & M. Minakshi. "Influence of the microstructure and its stability on the electrochemical properties of EMD produced from a range of precursors". *J. Solid State Electrochemistry*, 2013, Vol. 17(12), 3191-3198.
19. Pinak Patnaik, **Avijit Biswal**, B.C. Tripathy, Sangitarani Pradhan, Barsha Dash, Ramasamy Sakthivel, T. Subbaiah, "Synthesis and characterization of fibrous nickel hydroxide obtained from nickel spent catalyst". *Transactions of Non Ferrous Metal Society of China*, 2013, Vol. 23(10), 2977-2983.
20. **A. Biswal**, K. Padhy, C.K. Sarangi, B.C. Tripathy, I.N. Bhattacharya, T. Subbaiah. "The effects of magnafloc and zinc on electrowinning of cadmium in sulphate solutions". *Hydrometallurgy*, 2012, Vol. 117-118, 13-17.
21. **A. Biswal**, K. Sanjay, M.K. Ghosh, T. Subbaiah, B.K. Mishra. "Preparation and characterization of EMD from manganese cake -a by-product of manganese nodule processing". *Hydrometallurgy*, 2011, Vol. 110, 44-49.
22. Alafara A. Baba, Folahan, A. Adekola, Oluwafemi S.A., wobode, Babatunde, R. Adekunle, Sangitarani Pradhan, **Avijit Biswal**, "Analysis of heavy metals from spent pickling liquor by sulphuric acid". *International Journal of Chemistry*, 2011, Vol. 21 (4), 231-240.

Patents (if any):

SI. No	Details
1	US2015/0291451 A1 “Electrochemical system and process for the reduction of nitric acid concentration using electrolytic cell” Subbaiah Tondepu, Barada Kanta Mishra, Sanjay Kali, Chinmaya Kumar Sarangi, Avijit Biswal , Satyabrata Mishra, Mallika Chellanadar, Kamachi Mudali Uthandi, Natarajan Rajamani, Raj Baldev

Published Books/ book chapters:

SI. No	Details
1	<i>Fullerenes: Synthesis and Applications</i> by Jagannath Panda, Tanaswini Patra, Prasanna Kumar Panda, Rojalin Sahu, Bankim Chandra Tripathy, and Avijit Biswal . New Forms of Carbon Nanocarbons : Tayler & Francis Group, Apple Academic Press. 1 st Edition. 2023, ISBN: 9781774912799.
2	<i>A Catalyst for Hydrogen Oxidation Reaction and Its Application to Energy Storage</i> by Avijit Biswal and Avinna Mishra. Electrochemical Energy Conversion and Storage Systems for Future Sustainability: Technological Advancements , Tayler & Francis Group, Apple Academic Press. 1 st Edition. 2020. ISBN 9781774638989.

Conferences/Workshop attended:

SI. No	Details
1.	Oral presentation on “Template free synthesis of magnesium oxide nanoparticles for the removal of Malachite green from aqueous solution” at National Seminar on Recent Advancement in Functional Materials (RAFM-2024), 22-23rd November 2024 , organised by P.G. Dept. of Chemistry, Stewart Science College, Cuttack, Odisha, India.
2.	Oral presentation on “Electrochemically synthesized MgO nanospheres for the removal of Congo red from aqueous solution” at 2 nd International Conference on Recent Trends on Prospective Applications of Advanced Materials-2024 (RTPAAM-2024), 19–20th March 2024 organised by P.G. Dept. of Chemistry, F.M. University, Balasore, Odisha, India.
3.	Participated in National Conference on Restructuring Curriculum to Synchronise with Research Trends (RCSRT-23) in collaboration with OCS on 18-19th November 2023 organised by PG Department of Chemistry, Dhenkanal Autonomous College, Dhenkanal, Odisha, India.
4.	Attended Workshop on “ Chem Draw & Chem sketch software learning ” organized by ACS-International student chapter & Lavoisier’s Association, on 28– 29 th January, 2022.
5.	Participated in National Conference on Nano Technology for Smart Materials (NSM-2020) 31st July 2020 organised by Department of Physics, School of Applied Sciences, CUTM, Bhubaneswar, Odisha.
6.	Participated in International Virtual Conference on “ Frontiers in Chemical Sciences & Technologies ” from 26-27th September 2020 , jointly Organized by Department of Chemistry, CET, Bhubaneswar and Dept. of Industrial & Engineering Chemistry, ICT – IOC Bhubaneswar, Odisha, India.
7.	Participated in International Conference on Functional Materials: Synthesis, Characterisation & Applications (ICFM-2019) Jointly Organised by Dept. of Textile Engineering & Dept. of Chemistry from 28-30th November 2019 at CET, Bhubaneswar Odisha, India.
8.	Presented poster entitled “Electrolytic manganese dioxide: An eco-friendly adsorbent for the removal of toxic dye-Methylene blue” in 31st Annual Conference of Odisha Chemical Society & National seminar on Recent Developments & Applications of Functional Materials from 23rd -24th December 2017 , Organised by Dept. of Chemistry, School of Applied Sciences,

CUTM, Odisha, India.

9. Participated in **National Workshop on “Radiochemistry & Application of Radioisotopes”** from **20-22nd October, 2016** held at Dept. of Chemistry in association with DAE BRNS - IANCAS, in College of Engineering and Technology (CET) campus, Bhubaneswar, Odisha, India.
10. Participated in **“Sustainable Metals Recovery from Electronic Waste” Symposium from 9-10th February, 2016** held at Australian Minerals Research Centre, CSIRO, WA, Australia.
11. Presented paper entitled “Electrolytic Manganese Dioxide from Secondary Sources for Energy Storage” at Proceedings -**40th Annual Condensed Matter & Materials Meeting**, (WP3:1-4), from **2nd - 5th February 2016** at Wagga Wagga, NSW, Australia.
12. Attended **Australian Synchrotron user facility, 27th - 31st July, 2015**, Melbourne, Australia.
13. Participated **ANSTO/AS Powder Diffraction School, 9-12th March, 2015**, ANSTO, Sydney, Australia.
14. Paper entitled “Role of ex-situ addition of lanthanum on the electrochemical properties of EMD prepared from manganese cake” **International conference on Processing of Lean Grade and Urban Ores (IC-LGO 2015), January 20-22, 2015**, held at CSIR-NML, Jamshedpur, India.
15. Paper entitled “Substrate effect on the structural and electrochemical properties of Electrolytic manganese dioxide deposited from sulphate solution” at **International Conference of Hydrometallurgy, 2014** (Volume II, pp.183-190) held at Victoria B C, Canada.
16. Participated in International Conference on Emerging materials and processes (**ICEMP-2014**), held at CSIR-IMMT, Bhubaneswar, Odisha, India
17. Participated & presented Paper entitled “Electrolytic manganese dioxide from low grade manganese residue precursor-Effect of sodium lauryl sulphate”, **XIII International Seminar, on Mineral Processing Technology (MPT-2013)** from **10th -12th December 2013**, (vol. 3, pp 852-859) held at CSIR-IMMT, Bhubaneswar.
18. Participated in School and Workshop on Electro analytical Techniques (**SWET-2013**), **25th November to 1st December, 2013** held at Central University, Rajasthan, India
19. Participated in **XXVI Mineral processing congress-IMPC 2012, 24-28th September, 2012** held at New Delhi, India.
20. Paper entitled “Preparation of Electrolytic Manganese Dioxide (EMD) from Low Grade Manganese Ores/Residues”. **Proceedings of EMC, 2011**, vol. 4, pp1323-1334. Germany.

Conference/Seminar/FDP/Workshop Organized

Sl. No	Details
1.	Organised (committee member) 5 th OCS One day Lecture Series & National Seminar on New Trends in Chemical Sciences (NTCS-2024) on 29th November 2024 , at Dept. of Chemistry, Bhadrak Autonomous College, Bhadrak, Odisha, India
2.	Organised (committee member) TEQIP sponsored one week Faculty Development Programme on Recent Advances in Materials Characterisation using Conventional & Nuclear Techniques from 9-13th October 2018 , at Dept. Chemistry CET, Bhubaneswar, Odisha, India.

FDP/Refresher Courses completed:

Sl. No	Details
1.	Participated & successfully completed UGC Approved Short Term Professional Development Programme Under Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching on 'Implementation of NEP 2020 for University and College Teachers' held from 7-15th October, 2022.
2.	Participated in International Seminar on Emerging Trends & Practices in Environmental Conservation on 5-6th June 2022 organized by Raj Rishi Govt. Autonomous College, Alwar, Rajasthan, India.
3.	Participated in The International Short Term Training Programme-2 on "Impact & Panacea of Environmental pollution: The Past, Present & Future" from 20-26th April 2022 organized By Raj Rishi Govt. Autonomous College, Alwar, Rajasthan, India.
4.	Participated in One week FDP on "Carbon Capture & Storage" organized by Dept. of Chemistry, CU, Tamil Nadu held in between 21st- 25th February 2022.
5.	Participated in Five days International FDP on Yoga & Meditation for Human Excellence from 14 -18th February 2022 organized by Department of MBA, Sree Vidyanikethan Institute of Management, Tirupati-517102, Andhra Pradesh.
6.	Participated & successfully completed AICTE Training And Learning (ATAL) Academy Online FDP on "Energy Conversion and Storage Devices" from 1st-5th July 2021 at IIT, Hyderabad
7.	Participated & successfully completed AICTE Training And Learning (ATAL) Academy Online FDP on "Academic Leadership in Higher Education" from 21st-25th June 2021 at Department of Educational Management, Faculty of Education and Psychology, The Maharaja Sayajirao University of Baroda.
8.	Participated & successfully completed AICTE Training And Learning (ATAL) Academy Online FDP on "Outcome Based Education (OBE) and Accreditation Process" from 14-18th June 2021 at Government Residence Women Polytechnic Tasgaon.
9.	Participated & completed successfully AICTE Training And Learning (ATAL) Academy Online FDP on "Recent developments in Sustainable processes" from 31st-4th June 2021 at IICT, Bhadhoi, UP
10.	Participated & completed successfully AICTE-ISTE approved Orientation/Refresher programme on "Accreditation: An accelerator for Quality Improvement in Engineering Education " from 18-24th Feb 2021 organized by S.D.M. College of Engineering & Technology, Dharwad, Karnataka.
11.	Participated & completed successfully AICTE Training And Learning (ATAL) Academy Online FDP on "Novel Materials " from 8th Feb to 12th Feb 2021 at NIT, Patna
12.	Participated & completed successfully AICTE Training And Learning (ATAL) Academy Online FDP on "Novel Materials " from 4-8th Jan 2021 at MNIT, Jaipur
13.	Successfully completed ARPIT (SWAYAM):2020 Annual Refresher Course in Chemistry For Higher Education, (15 Weeks class, followed by Examination by NTA and certification).
14.	Participated in Online FDP on "Applications Of Radioisotopes for Societal Benefits and Nuclear Waste Management" from 19-23th October 2020 organised by Dept. of Chemistry, College of Engineering & Technology, Bhubaneswar in collaboration with Bhaba Atomic Research Centre (BARC).India
15.	Participated & successfully completed AICTE Training And Learning (ATAL) Academy Online FDP on "Energy Storage" from 5-9th October 2020 at Bharathiar University, India.
16.	Participated in Five Days Online FDP on "Recent Advancement in Chemical Biology & Drug

- Discovery” (**RACBDD-2020**) from **14-18th September 2020**, jointly Organized by Department of Biotechnology, CET, Bhubaneswar and Department of Industrial & Engineering Chemistry, ICT – IOC Bhubaneswar, India
17. **Participated in TEQIP-III Sponsored webinar for one week Short Term Course On Sustainable Pavement: Current Research and Practices” (SPCRP-2020) during 11-15th September 2020**, organised by Department of Civil Engineering, IGIT, Sarang, Dhenkanal, Odisha, India.
 18. Participated in FDP on Water, Energy and Environment (**WEE-2020**) from **5-9th September 2020**, organized by Dept. of Chemical Engineering, VSSUT, Burla, India.
 19. Participated in FDP on “**Renewable Power Generation, Control and Grid Integration**” from **10-14th August, 2020** by IGIT, Sarang, Odisha.
 20. Participated in TEQIP-III sponsored FDP on “**Frontiers in Experimental & Theoretical Physics**” from **24-27th April, 2018** organized by Dept. of Physics, CET, Bhubaneswar, Odisha, India.
 21. Participated in TEQIP sponsored Series of Lectures by experts from Academia/Research Organizations on “**Recent Trends in Theoretical & experimental Physics**” from **30th August-4th September 2016**, organized by Dept. of Physics, CET, Bhubaneswar, Odisha, India.

Resource Person:

Sl. No	Details
	<ul style="list-style-type: none"> • Invited as Resource Person for a seminar talk organized by Department of Chemistry, G.C College, Jajpur, Odisha on the topic “<i>Green Chemistry for a Sustainable Future</i>” on 20th October 2023.

Mentoring experiences:

Sl. No	Details
1.	25 MSc./ IMSc. Students of Odisha University of Technology and Research have submitted their Dissertations.
2.	2 MSc. and 2 BSc. Students of Bhadrak Auto College, Bhadrak have submitted their Dissertations
3.	2 MSc. students of IGNOU, India, have submitted their Dissertations.

Course Taught/ Teaching:

Class	Details
UG	<ol style="list-style-type: none">1. C-III: Organic Chemistry-I (<i>Chemistry of aliphatic hydrocarbons, Cycloalkanes & Conformational analysis</i>)2. C-III Practical: Organic Chemistry-I Lab3. C-VI: Organic Chemistry-II (<i>Active methylene compounds, Mono Carboxylic acids & their derivatives, Typical reactions of Dicarboxylic acids</i>)4. C-VI Practical: Organic Chemistry-II Lab5. C-IX: Organic Chemistry-III (<i>Heterocyclic Compounds</i>)6. C-IX Practical: Organic Chemistry-III Lab7. C-XI: Organic Chemistry-IV (<i>Carbohydrates</i>)8. C-XI Practical: Organic Chemistry-IV Lab9. C-XIV: Organic Chemistry-V (<i>Enzymes, Nucleic Acids</i>)10. C-XIV Practical: Organic Chemistry-V Lab
PG	<ol style="list-style-type: none">1. CC-102: Organic Chemistry-I (<i>Aromatic Nucleophilic substitution, Aromatic Electrophilic substitution, Free radical Reactions, Elimination Reactions</i>),2. CC-202: Org. Chemistry-II (<i>Pericyclic Reactions</i>)3. CC-205: Practical-II4. CC-302: Org. Chemistry-III (<i>Photochemical Reactions, Determination of Reaction Mechanism, Photochemistry of alkenes, Photochemistry of Carbonyl compounds</i>)5. CC-304: General Industrial Chemistry (<i>Oil, Fats, Wax, Soap & Detergents</i>)6. CC-402: Organic Synthesis and Biomolecules (<i>Disconnection Approach</i>)

Position held other than Current Institution:

SI. No	Details
	<ul style="list-style-type: none">• Serving as an Academic Counselor at IGNOU, B.J.B. Autonomous College study center, Bhubaneswar since 2021 till date.

Position held, at Bhadrak Autonomous College:

SI. No	Details
	<ol style="list-style-type: none">1. OIC/Member of Proctorial Committee2. OIC/Member of D.S.A Committee3. OIC, Admission for P.G. Chemistry4. Mentor, UG IInd Yr (2023-2026 Batch) students, Dept. of Chemistry, Bhadrak Auto College, Bhadrak5. Served as Coding Zone officer for the valuation zone Bhadrak Auto College, Bhadrak for the Annual HS examination 2024.