Assistant Professor

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https://scholar.google.co.in/citations?user=Oc2qlPAAAAAJ&hl=en

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https://loop.frontiersin.org/people/1270091/overview

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https://www.researchgate.net/profile/Vijay-Sapner

Dr. Vijay S. Sapner

Objective: *Becoming an associating leader in the forefront areas of electrochemistry and materials chemistry and work towards the well-being of global society!*

Research and Teaching Experience:

April-2023-Present
Assistant Professor, Department of Chemistry, Shri Mathuradas Mohota College of Science-Nagpur, Maharashtra, India.

Dec-2022-April-2023
SERB-National Post Doctoral Fellow, Catalysis Lab of the Chemistry Department, Indian Institute of Technology Ropar, Punjab, India.

July-2022 to Sep-2022
Post Doctoral Fellow at Thapar Institute of Engineering and Technology (TIET) Patiala, Punjab, India.

March-2021 to July-2022
Research Fellow Professional Course, for the project sponsored by Department of Science and Technology (DST) 2021, Dr. B. A. M. University Aurangabad-431 004, (MS) India.

June-2015 to July-2022
Contributory Teacher Department of Chemistry, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad-431 004, (MS) India.

June 2017-June 2020
Senior Research Fellow Department of Chemistry, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad-431 004, (MS) India.

June 2015-June 2017
Junior Research Fellow Department of Chemistry, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad-431 004, (MS) India.

Education:

2015-2021
Doctor of Philosophy, Science and Technology (Chemistry)
Department of Chemistry, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad-431 004, (MS) India

2014-2015
Bachelor of Education, (74.00 %) Dr. Babasaheb Ambedkar Marathwada University, Aurangabad-431 004, (MS) India

2011–2013
Master of Science, Analytical Chemistry (67.70 %) Department of Chemistry, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad-431 004, (MS) India

2007-2010
Bachelor of Science (62.10 %)
Dr. Babasaheb Ambedkar Marathwada University, Aurangabad-431 004, (MS) India.

Awards, Honors, and Prizes:

- SERB-National Post Doctoral Fellowship **2022**-Present.
- Name listed in the World Scientist and University Rankings **2023**.
- Senior Research Fellowship (**2017–2020**) awarded CSIR, New Delhi, India.
- Junior Research Fellowship (**2015–2017**) awarded CSIR, New Delhi, India.
- First Prize in Best Research Article "University level National Science Day Celebration" organized by Dr. Babasaheb Ambedkar Marathwada University Aurangabad on 28th Feb to 1st March **2019**.
- Second Prize in Best Research Article "University level National Science Day Celebration" organized by Dr. Babasaheb Ambedkar Marathwada University Aurangabad on 28th Feb to 1st March **2019**.
- Best Poster Award Poster Presented in NCFCSDD-2017 at Dept. Of Chemistry, Dr. B.A.M.U Aurangabad, March **2017.**

A Reviewer of:

- The Editorial Board of Electrochemistry (specialty section of Frontiers in Chemistry)

Research Grants:

- **2022–2024:** SERB-National Postdocs Fellowship for two years
- **2015–2020:** CSIR JRF and SRF Fellowships for 5 years

Research Interest:

Material Science and Electrochemistry, Nanomaterials synthesis and characterization (carbon based nanomaterials, biomolecules functionalization graphene, metal, metal oxide and multifunctional heteroatom doped carbon based electrocatalyst), Electrochemical biosensing, Electrochemical water splitting, energy and fuel cell (oxygen reduction reaction, hydrazine oxidation reaction, methanol and ethanol oxidation reactions).

Technical Skills:

- ***Nanostructured material synthesis and applications:***
  - Novel device architectures using Nanostructure materials and its use as biosensing, energy and fuel cell.
  - Hybrid Nanostructures (N-, S-, doped or amino acids functionalized graphene based nanomaterials).
- ***Electrochemistry Expertise:***
  - Cyclic voltammetry, Electrodeposition, Chronoamperometry and Linear Sweep Voltammetry etc.
  - The area particularly working Electrocatalytic Biosensing , Water Splitting, Hydrogen Generation, Oxygen reduction and Hydrazine oxidation.
- ***Material analysis techniques:***
  - X-ray Diffraction and analysis.
  - FTIR, TG-DSC Analysis, Raman spectroscopy and their data analysis.
  - UV-Vis absorption, SEM, EDX and AFM, TEM image analysis.
  - Data analysis of XPS, Auger spectroscopy and elemental analysis.
  - Chem Draw, Sci Finder, Peak Fit, Microsoft office and Origin.
  - Expert in CHI Electrochemical Workstation and Auto lab.
  - Excellent presentation skill and ability to write and publish research articles.

List of Patents

1. A Formulation to Create Commensurate Patina on Bidriware Handicraft Alloy,
   Bhaskar R. Sathe, Krishna Priya Rolla, Abhijeet Shelke, Arbaj J. Khan, **Vijay S. Sapner** and Balaji B. Mulik
   Patent Application No: **202221056586**
   Filing Date: **02/10/2022**
   Indian Patent (Submitted)
2. Formulation to create patina at tropical ambient temperature on Zn-Cu alloy in ε+η phase filed,
   Bhaskar R. Sathe, Krishna Priya Rolla, Abhijeet Shelke, Arbaj J. Khan, **Vijay S. Sapner** and Balaji B. Mulik
   Patent Application No: **202321025626**
   Date of Filing: **03/04/2023**
   Indian Patent (Submitted)

List of Journal Publications (Total = 20, Citations: 313, h-index: 11, Average Impact Factor = 4.66):

1. Shivsharan M. Mali, Shankar S. Narwade, Balaji B. Mulik, **Vijay S. Sapner,** Shubham J. Annadate, Bhaskar R. Sathe, Nanostructured Ce/CeO2-rGO: Highly Sensitive and Selective Electrochemical Hydrogen Sulphide Sensor, doi.org/10.21203/rs.3.rs-2707776/v1
2. Balaji B. Mulik, **Vijay S. Sapner,** Arbaj Khan, Krishna Priya Rolla, Abhijeet Shelke, Bhaskar R. Sathe, Impact of variable pH on the stability and aggregate kinetics of Bidri handicraft surface patina, *Inorg Chem Comm,* **2023,** *1408,* 11031. **(I.F: 3.428)**
3. Parag P. Chavan, **Vijay S. Sapner,** Bhaskar R. Sathe, Enhanced Hydrazine Oxidation on Histidine Functionalized Graphene based Electrocatalysts, *Energy & Fuels,* **2022,** 36, 9, 4799–4806. **(I.F: 4.654)**
4. Hwapyung Jung, **Vijay S. Sapner**, Arindam Adhikari, Bhaskar R. Sathe, Rajkumar Patel, Recent Progress on Carbon Quantum Dots Based Photocatalysis, *Front. Chem.* **2022**; 10: 881495. **(I.F: 5.545)**
5. Sadhika Khullar, Janak, Sakshi, Haneesh Saini, **Vijay Sapner,** Bhaskar Sathe, Datta Markad, Design and Synthesis of Rare Lead (II)-Based Electrocatalysts for Oxygen Evolution Reaction, *Inorg. Chem.* **2022,** 61, 19, 7579–7589. **(I.F: 5.436)**
6. **Vijay S. Sapner**, Parag P. Chavan, Ajay V. Munde and Bhaskar R. Sathe, Heteroatoms (-N, -O and -S) based Biomolecule Functionalized Graphene Oxide, Bifunctional Electrocatalyst for Enhanced Hydrazine Oxidation and Oxygen Reduction Reactions, *Energy Fuels,* **2021**, 35, 8, 6823–6834. **(I.F: 4.654)**
7. **Vijay S. Sapner**, Bhaskar R. Sathe, Metal Free Graphene based Nanoelectrodes for Electrochemical Determination of Ascorbic Acid (AA) and p-Nitrophenol (p-NP):-Implication towards Biosensing and Environmental Monitoring, *New J. Chem.,* **2021**, 45, 4666-4674. **(I.F: 3.925)**
8. Parag P. Chavan, **Vijay S. Sapner**, Ajay V. Munde, Shivsharan M. Mali and Bhaskar R. Sathe, Synthesis of Metal Free Nanoporous Carbon with Few Layer Graphene Electrocatalyst for Electrochemical NO_2^- Oxidation, *ChemistrySelect,* **2021,** 6, 9847-9852. **(I.F: 2.307)**
9. Parag P. Chavan, **Vijay S. Sapner**, Bhaskar R. Sathe, Enhanced Electrochemical NO_2^- Oxidation Reactions on Biomolecule Functionalized Graphene Oxide, *ChemistrySelect*, **2021,** 6, 6050-6055. **(I.F: 2.307)**
10. Ajay V. Munde, Balaji B. Mulik Parag P. Chavan, **Vijay S. Sapner,** Shivsharan M. Mali, Shankar S Narwade, Bhaskar R. Sathe, Electrocatalytic Ethanol Oxidation on Cobalt-Bismuth Nanoparticles Decorated Reduced Graphene Oxide (Co-Bi@rGO): Reaction Pathway Investigation towards Direct Ethanol Fuel Cells, *J. Phys. Chem. C* **2021,** 125, 4, 2345–2356. **(I.F: 4.177)**
11. Renuka V. Digraskar, **Vijay S. Sapner,** Anil V. Ghule, Bhaskar R. Sathe, CZTS/MoS_2-rGO Heterostructures: An Efficient and Highly Stable Electrocatalyst for Enhanced Hydrogen Generation Reactions, *Journal of Electroanalytical Chemistry,* **2021,** 882, 114983**. (I.F: 4.598)**
12. Shankar S. Narwade, Shivsharan M. Mali, **Vijay S. Sapner,** Bhaskar R. Sathe, Graphene Oxide Decorated with Rh Nanospheres for Electrocatalytic Water Splitting, *ACS Appl. Nano Mater.* **2020**, 3, 12288–12296. **(I.F: 6.140)**
13. **Vijay S. Sapner,** Parag P. Chavan, Bhaskar R. Sathe, L-lysine Functionalized Graphene Oxide as Highly Efficient Electrocatalyst for Enhanced Oxygen Evolution Reaction, *ACS Sustainable Chem. Eng.,* **2020**, *8,* 5524-5533. **(I.F: 9.224)**
14. Renuka V. Digraskar, **Vijay S. Sapner,** Shivsharan M. Mali, Shankar S. Narwade, Anil V. Ghule, Bhaskar R. Sathe, CZTS Decorated on Graphene Oxide as an Efficient Electrocatalyst for High-Performance Hydrogen Evolution Reaction, *ACS Omega,* **2019**, *4,* 7650-7657. **(I.F: 4.132)**
15. Renuka V. Digraskar, **Vijay S. Sapner**, Anil V. Ghule, Bhaskar R. Sathe, Enhanced Overall Water Splitting Performance: Oleylamine Functionalized GO/Cu2ZnSnS4 Composite as a Nobel Metal Free and Non-precious Electrocatalyst, *ACS Omega,* **2019**, *4,* 18969-18977. **(I.F: 4.132)**
16. Shankar S. Narwade, Shivsharan M. Mali, Renuka V. Digraskar, **Vijay S. Sapner,** Bhaskar R. Sathe, Ni/NiO@rGO as an efficient bifunctional electrocatalyst for enhanced overall water splitting reaction, *Int. J. Hydrogen Energy,* **2019**, 44, 27001-27009. **(I.F: 7.139)**
17. Balaji B. Mulik, Sambhaji T. Dhumal, **Vijay S. Sapner,** Rehman Naziya N.M.A, Prashant P Dixit, Bhaskar R. Sathe, Graphene Oxide based Electrochemical Activation of Ethionamide towards Enhancing Biological Activity, *RSC Adv,* **2019**, *9,* 35463-35472. **(I.F: 4.036)**

18. **Vijay S. Sapner,** Balaji B. Mulik, Renuka V. Digraskar, Shankar S. Narwade, Bhaskar R. Sathe, Enhanced oxygen evolution reaction on amine functionalized graphene oxide in alkaline medium, *RSC Adv,* **2019**, *9*, 6444-6451. **(I.F: 4.036)**
19. **Vijay S. Sapner,** Parag P. Chavan, Renuka V. Digraskar, Shankar S Narwade, Balaji B. Mulik, Shivsharan M. Mali, Bhaskar R. Sathe, Tyramine Functionalized Graphene: Metal Free Electrochemical Non Enzymatic Biosensing of Hydrogen Peroxide, *ChemElectroChem,* **2018**, *5*, 3191-3197. **(I.F: 4.782)**
20. Renuka V. Digraskar, **Vijay S. Sapner,** Shankar S. Narwade, Shivsharan M. Mali, Anil V. Ghule, Bhaskar R. Sathe, Enhanced electrocatalytic hydrogen generation from water via cobalt-doped Cu2ZnSnS4nanoparticles, *RSC Adv,* **2018**, *8*, 20341-20346. **(I.F: 4.036)**

Oral and Poster Presentation:

- Oral Presentation in **RTIP$_2$R, 2020** at Dept. of CSIT, Dr. B. A. M. U. Aurangabad. January **2020**.
- Oral Presentation in **CE$_2$C-2019** at VNIT Nagpur, January **2019**.
- Oral Presentation in **IC-ACS -2018** at Shivaji University, Kolhapur, February **2018**.
- Poster Presented in **NANO-SA-2023** at Institute of Chemical Technology, Jalna, January **2023.**
- Poster Presented in **RASTH-2021** at SRM Research Institute, Chennai, **March 2021.**
- Poster Presented in **2D Nano Mat 2021** though Zoom link February **2021.**
- Poster Presented in **NCFCSDD-2017** at Dept. Of Chemistry, Dr. B.A.M.U Aurangabad, March **2017.**

Conferences/Symposiums Attended:

- Participated in RSC Publishing Webinar "RSC-IITM Desktop Seminar on Environmental Sciences" October **2022.**
- Participated in Special Public Webinar on "Graphene and Gallium Nitride: from basic science to manufacturing devices" February **2022.**
- Participated in One Day Author Workshop on "Scientific Writing & Publishing Scholarly Articles" Jointly organized by Elsevier & Knowledge resource centre (University library), Dr. B. A. M. U. Aurangabad Maharashtra" January **2019**.
- Participated in "Awareness Program of McGraw Hill E-Books" organized by Knowledge resource centre (University library), Dr. B. A. M. U. Aurangabad, Maharashtra, January **2019**.
- Participated in University Level Avishkar-2018 organized by AVISHKAR Cell, Dr. B. A. M. U. Aurangabad, Maharashtra, January **2019**.
- Participated in One Day "Awareness Program of e-Resources provided by Balani Group of Companies under e-Shodhu Consortium" jointly organized by Balani Group of Companies &Knowledge resource centre (University library), Dr. B. A. M. U. Aurangabad, Maharashtra, November **2018**.
- Participated in International Conference on Advance Rechargeable Batteries & Allied Materials (ICARBM-2017) Organized by (C-MET) Pune, March **2017**.
- Participated in University Level Avishkar-2017 organized by AVISHKAR Cell, Dr. B. A. M. U. Aurangabad, Maharashtra, December **2017**.
- Participated in "One day Author Workshop on "Scientific Writing & Publishing Scholarly Articles" jointly organized by Knowledge resource centre (University library), Dr. B. A. M. U. Aurangabad, Maharashtra, November **2017**.
- Participated in Fourth international Conference on Frontier in Nanoscience and Technology, Organized by Department of Physics and IUCND, CUSAT, Cochin, Kerala, India, February **2016**.
- Participated in National Conference on Ionic Liquids for Clean Energy and Environment (ILCEE 1015) held at the National Chemical Laboratory (CSIR-NCL), Pune, December **2015**.
- Participated in "Author workshop jointly organized by Knowledge resource centre (University library), Dr. B. A. M. U. Aurangabad, Maharashtra, November **2015**.

- Participated in University-Industry-Interaction Summit 2015, held Dr. B. A. M. U. Aurangabad, Maharashtra, October **2015**.
- Participated in "One day user awareness programme under UGC-INFONET digital library consortium" jointly organized by Knowledge resource centre (University library), Dr. B. A. M. U. Aurangabad, Maharashtra, October **2015**.

Personal Data:

Spouse's Name: Ujvala Sapner
Father's Name: Sarjerao Sapner
Mother's Name: Nanda Sapner
DOB; 17/07/1989
Gender: Male
Nationality: Indian
Languages Known: English, Marathi, and Hindi
Hobbies: Cricket, Books, and Music
Current Address: Dr. Vijay S. Sapner, Shri Mathuradas Mohota College of Science-Nagpur, Department of Chemistry, Sakkardara Square, Umred Road, Nagpur–440024, (M.S.), INDIA. Phone: Office: 0712-2744992
Permanent Address: Dr. Vijay Sarjerao Sapner, At. Post, Akani, Tq. Mantha, Dist-Jalna-431504, Maharashtra, INDIA.

List of References:

Dr. Bhaskar R. Sathe
Associate Professor, Department of Chemistry, Dr. Babasaheb Ambedkar Marathwada University Aurangabad-431004, Maharashtra, INDIA,
Head of Department, Department of Nanotechnology, Dr. Babasaheb Ambedkar Marathwada University Aurangabad-431001, Maharashtra, INDIA.
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Dr. Manoj B. Gawande
Associate Professor, Department of Industrial and Engineering Chemistry, Institute of Chemical Technology, Mumbai–Marathwada Campus, Jalna-431203, Maharashtra, INDIA, Email: **mb.gawande@marj.ictmumbai.edu.in**

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Declaration

I confirm that the information provided by me is true to the best of my knowledge and belief

Sincerely

Dr. VIJAY S. SAPNER