



Dr. Bijnaneswar Mondal
Assistant Professor

Centre/School/Special Centre : Physical Science

Department : Chemistry

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Qualifications:

Ph. D., Supramolecular Chemistry (2019): Indian Institute of Science, Bangalore, India

Supervisor: Prof. Partha Sarathi Mukherjee

Title - *Covalent organic cages: Templates for metal nanoparticles, heterogeneous catalysis and solid-state photochromism.*

M. Sc., Chemistry (2014): Indian Institute of Technology Madras, Chennai, India

B. Sc., Chemistry (2012): Visva Bharati University, Santiniketan, West Bengal, India

Area of Interest/Specialization: Organic Chemistry

- ❖ Design and synthesis of various discrete and functionalized porous organic cages
- ❖ Experimental analysis of cage supported nanoparticles as heterogeneous catalyst in various organic transformation
- ❖ Development of porous cationic organic cages for selective molecular recognition and catalysis
- ❖ Functionalization of organic cage to incorporate multi-stimuli responsive character in solid and solution state

Experience: 5 years research and 4 years teaching

Oct 2019 – Present

Assistant Professor

Department of Chemistry, Guru Ghasidas
Vishwavidyalaya, Bilaspur, Chhattisgarh, India

Aug 2014 – July 2019

PhD Research Scholar

Indian Institute of Science, Bangalore, India

Awards and Honors:

- Junior Research Fellowship (**NET-JRF**) by CSIR, India, 2013
- Gold medal for Best PhD Thesis Award from IISc Bangalore, 2019

Research Projects:

Entry	Name of grant	Funding Agency	Duration	Amount (Rs)
1	UGC – Startup Grant	UGC, New Delhi	Nov 2021 - Oct 2023	Ten lakhs

International Collaboration/Consultancy: No

Best Peer Reviewed Publication (up-to 10): Total Publications - 13

1. **B. Mondal**, P. Bhandari and P. S. Mukherjee, *Nucleation of Tiny Silver Nanoparticles Using a Tetrafacial Organic Molecular Barrel for Potential Use in Visible Light Triggered Photocatalysis*. [Chem.-Eur. J. 2020, 26, 15007-15015](#). (Selected as Hot Paper) (Impact factor 5.1)
2. **B. Mondal**, and P. S. Mukherjee, *Cage Encapsulated Gold Nanoparticles as Heterogeneous Photocatalyst for Facile and Selective Reduction of Nitroarenes to Azo Compounds*. [J. Am. Chem. Soc. 2018, 140 \(39\), 12592-12601](#). (Highlighted in Thieme Synfacts) (Impact factor 16.4)
3. **B. Mondal**, A. K. Ghosh and P. S. Mukherjee, *Reversible Multistimuli Switching of a Spiropyran-Functionalized Organic Cage in Solid and Solution*. [J. Org. Chem. 2017, 82 \(15\), 7783-7790](#). (Impact factor 4.3)
4. **B. Mondal**, K. Acharyya, P. Howlader and P. S. Mukherjee, *Molecular cage impregnated palladium nanoparticles: efficient, additive-free heterogeneous catalysts for cyanation of aryl halides*. [J. Am. Chem. Soc. 2016, 138 \(5\), 1709-1716](#). (Impact factor 16.4)
5. R. Saha, **B. Mondal** and P. S. Mukherjee, *Molecular Cavity for Catalysis and Formation of Metal Nanoparticles for Use in Catalysis*. [Chem. Rev. 2022, 122 \(14\), 12244-12307](#). (Impact factor 72.1)

6. P. Bhandari, **B. Mondal**, P. Howlader and P. S. Mukherjee, *Face-Directed Tetrahedral Organic Cage Anchored Palladium Nanoparticles for Selective Homocoupling Reaction*. *Eur. J. Inorg. Chem.* 2021, doi.org/10.1002/ejic.202100986 (Impact factor 2.5)
7. R. Modak, **B. Mondal**, P. Howlader and P. S. Mukherjee, *Self-assembly of a "Cationic-Cage" via formation of Ag-carbene bonds followed by imine condensation*. *Chem. Commun.* 2019, 55, 6711-6714. (Impact factor 7.2)
8. P. Howlader, **B. Mondal**, P. C. Purba, E. Zangrando and P. S. Mukherjee, *Self-Assembled Pd(II) Barrels as Containers for Transient Merocyanine Form and Reverse Thermochromism of Spiropyran*. *J. Am. Chem. Soc.* 2018, 140 (25), 7952-7960. (Impact factor 16.4)
9. B. Mondal, **B. Mondal**, K. Pal, B. Varghese and S. Ghosh, *An electron-poor dimolybdenum triple-decker with a puckered [B₄Ru₂] bridging ring is an oblate-closo cluster*. *Chem. Commun.* 2015, 51 (18), 3828-3831. (Impact factor 7.2)
10. K. Acharyya, A. Chowdhury, **B. Mondal**, S. Chakraborty and P. S. Mukherjee, *Building Block Dependent Morphology Modulation of Cage Nanoparticles and Recognition of Nitroaromatics*. *Chem.-Eur. J.* 2017, 23 (35), 8482-8490. (Impact factor 5.1)
11. V. Anju, S. K. Barik, **B. Mondal**, V. Ramkumar and S. Ghosh, *Metallaboranes from Metal Carbonyl Compounds and Their Utilization as Catalysts for Alkyne Cyclotrimerization*. *ChemPlusChem* 2014, 79 (4), 546-551. (Impact factor 3.2)
12. K. Yuvaraj, D. K. Roy, V. Anju, **B. Mondal**, B. Varghese and S. Ghosh, *Mixed-metal chalcogenide tetrahedral clusters with an exo-polyhedral metal fragment*. *Dalton Trans.* 2014, 43 (45), 17184-17190. (Impact factor 4.6)
13. K. Yuvaraj, D. K. Roy, C. Arivazhagan, **B. Mondal** and S. Ghosh, *Chemistry of early and late transition metallaboranes: synthesis and structural characterization of periodinated dimolybdaborane [(Cp*Mo)₂B₄H₃I₅]*. *Pure Appl. Chem.* 2015, 87 (2), 195-204. (Impact factor 5.3)

Recent Books/Book Chapters/Monographs etc.: Book Chapter - 2

- Book Chapter on “*Cavity-Controlled Supramolecular Catalysis*” in the book named as “**Supramolecular Coordination Complexes: Design, Synthesis, and Applications**” by Elsevier Publishers, 1st Edition - October 1, 2022 (ISBN: 9780323905824)
- Book Chapter on “**Transition Metal Oxides and Their Thermoelectric Properties (ZnO, In₂O₃, TiO₂, SnO₂, etc.)**” in the book named as “**Thermoelectric Materials**” by Elsevier Publishers, 1st Edition - February 12, 2023 (ISBN: 9780323544356)

Research Supervision: M.Sc. project - 14 and Ph.D. Student - 1 (ongoing)

1. **S K Pratibha:** Date of Registration w.e.f. 01. 12. 2021.

Administrative Responsibilities:

- Coordinator of Badminton Female in University Interschool Sports Meet 2019-2020
- Mentor of B.Sc. I Semester student in the year of 2020-2021, 2021-2022, 2022-2023
- Member of UG and PG Admission Committee 2020-21, 2021-22, 2022-23 of the chemistry department
- Member, Various Departmental Committees in 2020-21, 2021-22, 2022-23.
- Member, Organizing conferences/seminars/workshops, GGV, Bilaspur (C.G.), India
- Committee member for organizing “**Science Logo Competition**” in National Science Day Celebration organized by GGV, Bilaspur (C.G.), India, held on 28th February, 2022
- Scrutiny committee member of physical education department, GGV for the recruitment of vacant faculty post in 2021
- Committee member for Supervision & Monitoring of Fund for Improvement of S&T Infrastructure (**DST-FIST**) Program in GGV, Bilaspur in 2022

Additional Information:

- Poster Presentation at 19th International Conference on Modern Trends in Inorganic Chemistry (**MTIC-XIX**) by BHU, Varanasi, India during 15–17 Dec, 2022.
- Attended Faculty Induction Program (FIP) in 2021 by UGC-HRDC, GGV
- Google Scholar: <https://scholar.google.com/citations?user=zjOagFkAAAAJ&hl=en>