

Curriculum Vitae

Sumit Kumar Ray

Assistant Professor

Department of Chemistry

Kharagpur College

OT Rd, Inda, Kharagpur,

Paschim Medinipur

West Bengal – 721305

India

Email: skray146@gmail.com ; sumit@kharagpurcollege.ac.in



Name: Dr. Sumit Kumar Ray

Designation: Assistant Professor

Department: Department of Chemistry, Kharagpur College

Date of joining at Kharagpur College: 30/07/2020

Mobile No: + 91-9179876879

Email Address: skray146@gmail.com ; sumit@kharagpurcollege.ac.in

Educational Qualifications

DST Inspire Faculty
(March 2017 – July, 2020)

IISER Bhopal

Post-Doc (Org. Chem.)
(June 2016– February, 2017)

IISER Bhopal
PI: **Professor Vinod K. Singh**

Post-Doc (Org. Chem.)
(August 2014 – March, 2016)

University of Geneva, Switzerland
PI: **Prof. Jérôme Lacour**

Ph.D. (Org. Chem.)
(November 2013)

Indian Institute of Technology Kanpur, India
Supervisor: **Professor Vinod K. Singh**
Title of Thesis: “Enantioselective Michael Addition Reactions of 1,3- Dicarbonyl Compounds to 2-Enoylpyridine *N*-Oxides Catalyzed by Chiral Bisoxazoline-Zn(II) Complexes”

M.Sc. (Chemistry)
(July 2008)

Indian Institute of Technology Guwahati, India
CPI: 8.81

B.Sc. (Chemistry Honours)
(May 2006)

Vidyasagar University, West Bengal, India
Aggregate marks: 67.375%

Higher Secondary (XII)
(2003)

Vidysagar Vidyapith, West Bengal, India
Aggregate marks: 77.9%

Madhyamik (X)
(2001)

B. R. K. High School, West Bengal, India
Aggregate marks: 87.12

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Awards and Certifications

- Qualified National Eligibility Test in Chemical Sciences (**CSIR-JRF/SRF**) in 2008 (A national level examination for eligibility of lectureship in Indian Universities)
- Qualified Graduate Aptitude Test in Engineering (GATE 2008) MHRD, India.
- Ranked 3rd in B.Sc (Chemistry Hons.) from Vidyasagar University
- Awarded DST Inspire Faculty in 2017 by MHRD, DST, India

Research Area

Synthetic Organic Chemistry, Asymmetric Synthesis.

Publications (from Kharagpur College)

- 1 Rayhan G. Biswas, **Sumit K. Ray**, Vinod K. Kannaujiya, Rajshekhar A. Unhale and Vinod K. Singh, Cu(i)-Catalyzed Asymmetric exo-Selective Synthesis of Substituted Pyrrolidines via a 1,3-Dipolar Cycloaddition Reaction. *Org. Biomol. Chem.*, **2021**, *19*, 4685-4690.
- 2 Rayhan G. Biswas, **Sumit K. Ray**, Rajshekhar A. Unhale, and Vinod K. Singh, Organocatalytic Asymmetric Cascade Michael-acyl Transfer Reaction between 2-Fluoro-1,3-diketones and Unsaturated Thiazolones: Access to Fluorinated 4-Acyloxy Thiazoles. *Org. Lett.* **2021**, *23*, 6504-6509.
- 3 Milon M. Sadhu, **Sumit K. Ray**, Rajshekhar A. Unhale and Vinod K. Singh, Brønsted Acid-catalyzed Enantioselective Addition of 1,3-diones to in situ Generated N-acyl ketimines. *Org. Biomol. Chem.*, **2022**, *20*, 410-414

Publications (from Ph.D. and Post doc.)

1. **Sumit K. Ray**, Pradeep K. Singh, and Vinod K. Singh, Enantioselective Michael Addition of Malonates to 2-Enoylpyridine *N*-Oxides Catalyzed by Chiral Bisoxazoline-Zn(II) Complex. *Org. Lett.* **2011**, *13*, 5812-5815.
2. **Sumit K. Ray**, Pradeep K. Singh, Nagaraju Molleti, and Vinod K. Singh, Enantioselective Synthesis of Coumarin Derivatives by PYBOX-DIPH-Zn(II) Complex Catalyzed Michael Reaction. *J. Org. Chem.* **2012**, *77*, 8802-8808.
3. **Sumit K. Ray**, Subhrajit Rout and Vinod K. Singh, Enantioselective synthesis of 3,4-dihydropyran derivatives via a Michael addition reaction catalysed by chiral pybox-diph-Zn(II) complex *Org. Biomol. Chem.* **2013**, *11*, 2412-2416.
4. Subhrajit Rout, **Sumit K. Ray**, and Vinod K. Singh, Enantioselective Mukaiyama-Michael with 2-enoylpyridine *N*-oxides catalyzed by PYBOX-DIPH- Zn(II) complexes at ambient temperature. *Org. Biomol. Chem.* **2013**, *11*, 4537- 4545.
5. Nagaraju Molleti, Suresh Allu, **Sumit K. Ray** and Vinod K. Singh, Bifunctional chiral urea catalyzed highly enantioselective Michael addition of cyclic 1,3- dicarbonyl compounds to 2-enoylpyridines. *Tetrahedron Lett.* **2013**, *54*, 3241- 3244.
6. Subhrajit Rout, **Sumit K. Ray**, Rajshekhar A. Unhale, and Vinod K. Singh Asymmetric Direct Vinylogous Michael Addition to 2-Enoylpyridine *N*-Oxides Catalyzed by Bifunctional Thio-Urea. *Org. Lett.* **2014**, *16*, 5568-5571
7. Pipas Saha, **Sumit K. Ray**. and Vinod K. Singh, Copper-catalyzed Pummerer type reaction of α -thio aryl/heteroarylacetates: Synthesis of aryl/heteroaryl α -keto esters. *Tetrahedron Lett.* **2017**, *58*, 1765-1769.
8. **Sumit K. Ray**, Rayhan G. Biswas, Arun Suneja, Milon M. Sadhu, and Vinod K. Singh, Unified Approach to Access Densely Functionalized Enantioenriched Pyrrolidines and

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- Pyrrolizidines *via* (1,3)- and Double (1,3)-Dipolar Cycloaddition Reactions. *J. Org. Chem.* **2018**, *83*, 2293-2308.
- Rajshekhar A. Unhale, Milon M. Sadhu, **Sumit K. Ray**, Rayhan G. Biswas and Vinod K. Singh, A Chiral Brønsted Acid Catalyzed Highly Enantioselective Mannich-type Reaction of α -Diazo Esters with *in Situ* Generated *N*-Acyl Ketimines. *Chem. Commun.*, **2018**, *54*, 3516-3519
 - Sumit Kumar Ray**, Alexandre Homberg, Mahesh Vishe, Céline Besnard, and Jérôme Lacour, Efficient Synthesis of Ditopic Polyamide Receptors for Cooperative Ion Pair Recognition in Solution and Solid States. *Chem. Eur. J.* **2018**, *24*, 2944-2951.
 - Sumit K. Ray**, Milon M. Sadhu, Rayhan G. Biswas, Rajshekhar A. unhale Vinod K. Singh, A General Catalytic Route to Enantioenriched Isoindolinones and Phthalides: Application in the Synthesis of (S)-PD. *Org. Lett.* **2019**, *21*, 417- 422.
 - Deb Kumar Das, Vinod Kumar Kannaujiya, Milon M. Sadhu, **Sumit K. Ray**, and Vinod K. Singh, BF₃·OEt₂-Catalyzed Vinyl Azide Addition to *in Situ* Generated *N*-Acyl Iminium Salts: Synthesis of 3-Oxoisoindoline-1-acetamides. *J. Org. Chem.* **2019**, *84*, 15865-15876.
 - Manisha Khandelwal , **Sumit K. Ray** and Rama Kanwar Khangarot, Syntheses and Applications of Singh's Catalyst. *Synthesis* **2020**; *52*, 3577-3582

Scopus Profile Link

<https://www.scopus.com/authid/detail.uri?authorId=55628589678>

Research Project Sanctioned

DST Inspire project for five years (2017-2022) sanctioned by MHRD, DST, India.; Project No.-DST/INSPIRE/04/2016/001704

Symposia Proceeding

- Oral Presentation at **J-NOST** Conferences held at University of Hyderabad, Hyderabad, India during January 28-31, 2011
- Oral Presentation at **J-NOST** Conferences held at IISER Mohali, India during December 15-18, 2012 at IISER Mohali.
- Oral Presentation at **I-DEC** Conferences held at IISER Bhopal, India during December 06-08, 2018 at IISER Bhopal.

Teaching Experience

- Basic Organic Chemistry(MJ-1)
- Inorganic Chemistry II: Chemical Bonding-II(CC-6T)
- Organic Chemistry III : Chemistry of Alkenes and Alkynes(CC-7T)
- Pharmaceutical Chemistry(SEC1T)
- Organic Chemistry – V: Carbohydrate Chemistry(CC-12T)
- Inorganic Chemistry – IV: Coordination Chemistry(CC-11T)
- Inorganic Chemistry – V: Bioinorganic and Organometallic Chemistry(CC-13T)
- Organic Chemistry – IV: Nitrogen Compounds and Rearrangements (CC-10T)
- Inorganic Chemistry I: Redox reactions(CC-1T)
- Assisted and supervised assignments
- Preparation/demonstration of laboratory experiments

Research Guidance

Four M.Sc. project students were guided by me in IISER Bhopal

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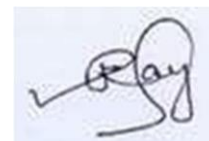
Technical Skills

- Characterization techniques: Nuclear Magnetic Resonance Spectroscopy (NMR), FTIR spectroscopy, High performance liquid chromatography (HPLC), Mass spectrometry, UV-Vis spectroscopy.
- Design, synthesis, purification and analysis of modified and unmodified catalysts.
- Writing and presentation of research findings.

Personal Details

Date of Birth : June 27, 1986
Father's Name : Arabinda Ray
Languages Known : English, Hindi, Bengali
Nationality : Indian
Permanent Address : S/o- Arabinda Ray
Vill. - Shyampur; Post - Sihas
P.S. - Kotalpur; Dist. - Bankura
West Bengal - 722141, INDIA

Date: 01/11/2023
Place: Kharagpur
India



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