

Dr. Avishek Guin

Max-Planck-Institut für Kohlenforschung,
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Germany.

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EDUCATION

Indian Institute of Science

Ph.D. in Organic Chemistry;

Bengaluru, India

Aug 2018 – Dec 2023

Indian Institute of Technology Kharagpur

M.Sc., Chemistry (First Class); CGPA: 9.16 out of 10

Kharagpur, India

Aug 2016 – June 2018

Visva-Bharati University

B.Sc., Chemistry (Honours), Physics, Mathematics;

First Class; CGPA: 8.16 out of 10

Santiniketan, India

Aug 2013 – June 2016

RESEARCH EXPERIENCE

Max-Planck-Institut für Kohlenforschung

Post-doctoral Fellow

Mülheim an der Ruhr, Germany

April 2024 – present

Supervisor: **Prof. Dr. Dr. h.c. Dr. h. c. Benjamin List**

Topic: *Asymmetric Catalysis*

Indian Institute of Science

Ph.D. in Organic Chemistry

Bengaluru, India

Aug 2018 – Dec 2023

Supervisor: **Prof. Akkattu T. Biju**

Thesis: *Harnessing Strained Systems: Arynes, Donor-Acceptor Cyclopropanes, and Bicyclobutanes in Annulations, Multicomponent Couplings and Insertion Reactions*

Indian Institute of Technology Kharagpur

M.Sc. Project

Kharagpur, India

May 2017 – June 2018

Supervisor: **Prof. Modhu Sudan Maji**

Thesis: *One-Pot Benzannulation of 2-Alkenyl Indoles in Presence of Aldehydes Using Oxygen as a Sole Oxidant*

AWARDS AND HONOURS

The Prime Minister's Research Fellows (PMRF)

Dec 2020

Awarded the Prime Minister's Research Fellowship by the Government of India (*Every time received "Recommended with commendation grade" for outstanding performance in annual reviews*).

Graduate Aptitude Test in Engineering (GATE)

Feb 2018

Conducted by Indian Institute of Technology Guwahati (**All India Rank 183**).

CSIR-UGC Junior Research Fellowship

June 2017

Awarded the CSIR-UGC JRF by Joint Council of Scientific and Industrial Research and University Grants Commission, New Delhi (**All India Rank 32**).

CSIR-UGC Junior Research Fellowship

Dec 2016

Awarded the CSIR-UGC JRF by Joint Council of Scientific and Industrial Research and University Grants Commission, New Delhi (**All India Rank 18**).

Joint Admission Test For Masters (JAM)

Feb 2016

Conducted by Indian Institute of Technology Madras (**All India Rank 63**).

DST INSPIRE Scholarship

Aug 2013 – July 2018

Scholarship awarded by the Department of Science and Technology for being the top 1% in the state in Higher Secondary Examination.

Merit-Cum-Means Scholarship

Scholarship awarded by the Government of West Bengal.

July 2011 – June 2013

CONFERENCES

ICOC 2023

Oct 2023

Presented a poster on “Lewis Acid-Catalyzed Diastereoselective Carbofunctionalization of Bicyclobutanes Employing Naphthols” during the International Conference on Organometallics and Catalysis 2023 held in Goa (India).

PMRF Annual Symposium

Feb 2023

Presented a poster on “Lewis Acid-Catalyzed Ring-Opening Reactions of Donor-Acceptor Cyclopropanes and Bicyclobutanes” during the PMRF Annual Symposium held at IIT Madras, Chennai (India).

CHEMSCI2023: Leaders In The Field Symposium

Jan 2023

Presented a poster on “Lewis Acid-Catalyzed Ring-Opening Reactions of Donor-Acceptor Cyclopropanes and Bicyclobutanes” during the CHEMSCI2023: Leaders In The Field Symposium held at JNCASR, Bangalore (India).

ICOC 2020

Mar 2020

Presented a poster on “Lewis Acid-Catalyzed Ring-Opening 1,3-Aminothiolation of Donor-Acceptor Cyclopropanes Using Sulfenamides” during the International Conference on Organometallics and Catalysis 2020 held in Goa (India).

BOOK CHAPTERS

4. Ring-Opening 1,3-Difunctionalization of Donor-Acceptor Cyclopropanes.
Guin, A.; Biju, A. T. In *Donor-Acceptor Cyclopropanes in Organic Synthesis* Chapter 6, Editor: P. Banerjee and A. T. Biju; **Wiley-VCH**. 2023, ISBN: 978-3-527-349876, pages 167-190.
3. Molecular Rearrangements.
Guin, A.; Deswal, S.; Biju, A. T. In *Comprehensive Aryne Synthetic Chemistry* Chapter 3-4, Editor: H. Yoshida; **Elsevier**. 2022, pages 223-266.
2. An Introduction to the Chemistry of Arynes.
Roy, T.; **Guin, A.**; Biju, A. T. In *Modern Aryne Chemistry* Chapter 1, Editor: A. T. Biju; **Wiley-VCH**. 2021, ISBN: 978-3-527-34646-2, pages 1-25.
1. Hetarynes, Cycloalkynes and Related Intermediates.
Guin, A.; Bhattacharjee, S.; Biju, A. T. In *Modern Aryne Chemistry* Chapter 9, Editor: A. T. Biju; **Wiley-VCH**. 2021, ISBN: 978-3-527-34646-2, pages 359-406.

PUBLICATIONS

18. Organocatalytic Regio- and Stereoselective Cyclopropanation of Olefins.
Zhu, C.; Das, S.; **Guin, A.**; De, C. K.; List, B. *Nat. Catal.* **2025**, *8*, 487.
17. Lewis Acid-Catalyzed Unusual (4+3) Annulation of para-Quinone Methides with Bicyclobutanes: Access to Oxabicyclo [4.1.1]octanes.
Deswal, S.; **Guin, A.**; Biju, A. T. *Angew. Chem. Int. Ed.* **2024**, *63*, e202408610.
16. Lewis Acid-Catalyzed Diastereoselective Ene Reaction of Thioindolinones/Thiolactams with Bicyclobutanes.
Guin, A.; Deswal, S.; Harariya, M. S.; Biju, A. T. *Chem. Sci.* **2024**, *15*, 12473.
15. Lewis Acid-Catalyzed One-Pot Thioalkenylation of Donor-Acceptor Cyclopropanes Using in situ Generated Dithiocarbamates and Propiolates.
Harikumar, S.; Kandy, L. T. K.; **Guin, A.**; Biju, A. T. *Org. Biomol. Chem.* **2024**, *22*, 1834.
Invited to the special issue celebrating the 100th birthday of Prof. Sukh Dev.
14. Stereoselective Alder-Ene Reactions of Bicyclo [1.1.0] Butanes: Facile Synthesis of Cyclopropyl- and Aryl-Substituted Cyclobutenes.
Dasgupta, A.; Bhattacharjee, S.; Tong, Z.; **Guin, A.**; McNamee, R.; Christensen, K.; Biju, A. T.; Anderson, E. *J. Am. Chem. Soc.* **2024**, *146*, 1196.

13. Lewis Acid-Catalyzed Diastereoselective Carbofunctionalization of Bicyclobutanes Employing Naphthols. **Guin, A.**; Bhattacharjee, S.; Harariya, M. S.; Biju, A. T. *Chem. Sci.* **2023**, *14*, 6585.
12. Benzotriazole-Triggered Three-Component Lewis Acid-Catalyzed Ring-Opening 1,3-Aminofunctionalization of Donor-Acceptor Cyclopropanes. Deswal, S.; **Guin, A.**; Biju, A. T. *Org. Lett.* **2023**, *25*, 1643.
11. Synthesis of Trisubstituted Oxazoles via Aryne Induced [2,3] Sigmatropic Rearrangement-Annulation Cascade. Gaykar, R. N.; Deswal, S.; **Guin, A.**; Bhattacharjee, S.; Biju, A. T. *Org. Lett.* **2022**, *24*, 4145.
10. Ring-Opening 1,3-Carbothiolation of Donor-Acceptor Cyclopropanes Using Alkyl Halides and In Situ Generated Dithiocarbamates. **Guin, A.**; Deswal, S.; Biju, A. T. *J. Org. Chem.* **2022**, *87*, 6504.
9. Three-Component, Diastereoselective [6+3] Annulation of Tropone, Imino Esters and Arynes. **Guin, A.**; Gaykar, R. N.; Deswal, S.; Biju, A. T. *Org. Lett.* **2021**, *23*, 7456.
8. Transition-Metal-Free C2-Functionalization of Pyridines through Aryne Three-Component Coupling. **Guin, A.**; Bhattacharjee, S.; Biju, A. T. *Chem. Eur. J.* **2021**, *27*, 13864. *Selected as a "Hot Paper" by the Editors.*
7. An Umpolung Oxa-[2,3] Sigmatropic Rearrangement Employing Arynes for the Synthesis of Functionalized Enol Ethers. Gaykar, R. N.; George, M.; **Guin, A.**; Bhattacharjee, S.; Biju, A. T. *Org. Lett.* **2021**, *23*, 3447.
6. Thiophenols as Protic Nucleophilic Triggers in Aryne Three-Component Coupling. Bhattacharjee, S.; **Guin, A.**; Gaykar, R. N.; Biju, A. T. *Org. Lett.* **2020**, *22*, 9097.
5. Lewis Acid-Catalyzed Ring-Opening 1,3-Aminothiolation of Donor-Acceptor Cyclopropanes Using Sulfenamides **Guin, A.**; Rathod, T.; Gaykar, R. N.; Roy, T.; Biju, A. T. *Org. Lett.* **2020**, *22*, 2276.
4. Three-Component Aminoselenation of Arynes. Gaykar, R. N.; **Guin, A.**; Bhattacharjee, S.; Biju, A. T. *Org. Lett.* **2019**, *21*, 9613.
3. Selective Synthesis of *N*-H and *N*-Aryl Benzotriazoles by the [3+2] Annulation of Sodium Azide with Arynes. **Guin, A.**; Gaykar, R. N.; Bhattacharjee, S.; Biju, A. T. *J. Org. Chem.* **2019**, *84*, 12692.
2. Iodide as a Nucleophilic Trigger in Aryne Three-Component Coupling for the Synthesis of 2-Iodobenzyl Alcohols. Bhattacharjee, S.; **Guin, A.**; Gaykar, R. N.; Biju, A. T. *Org. Lett.* **2019**, *21*, 4383. *Highlighted in Organic Chemistry Portal.*
1. Formal [4+2] Benzannulation of 2-Alkenyl Indoles with Aldehydes: A Route to Structurally Diverse Carbazoles and Bis-carbazoles. Banerjee, A.; **Guin, A.**; Saha, S.; Mondal, A.; Maji, M. S. *Org. Biomol. Chem.* **2019**, *17*, 1822.

TEACHING EXPERIENCE

Teaching Assistant

Aug 2020 – Dec 2020

UG (major) Organic Chemistry course: UC-206

Instructors: **Prof. A. T. Biju & Prof. T. K. Chakraborty**

Class Strength: 120 students

Responsibilities involved designing pedagogical & instructional materials; leading tutorial sessions; setting up and correcting assignments, quizzes, and exams; routinely giving feedback to students for improving performance in the course; and assisting in course grading.

PMRF Teaching Assistant

Jan 2021 – May 2021

Students of grade 3

Instructor: **Ms. Krishnendu C R**

Class Strength: 55 students

Responsibilities involved designing instructional materials for students of Grade 3 at Kendriya Vidyalaya as a part of the mandatory teaching requirement for PMRF awardees.

PMRF Teaching Assistant

Aug 2022 – Dec 2022

Second year undergraduates at Bhagat Phool Singh Mahila Vishwavidyalaya

Class Strength: 67 students

Served as an instructor for a course on organometallic chemistry for second-year undergraduate students as a part of the mandatory teaching requirement for PMRF awardees.