





# ACHYUT RANJAN GOGOI

PhD (4<sup>th</sup> Year) in Chemistry (*Computational Organic & Iron Catalysis*)

Anticipated Graduation: May 2026

Texas A&M University, College Station

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## Educational Qualifications

Degree/Examination	Board/University	Institute	Year	GPA/CPI/ %
PhD Chemistry	Texas A&M	Texas A&M	2021-Present	<a href="#">3.75</a>
M.Sc. (Chemistry)	IIT Bombay	IIT Bombay	2021	<a href="#">9.69</a>
B.Sc. (Chemistry)	University of Delhi	Zakir Husain Delhi College	2019	<a href="#">9.59</a>

## TECHNICAL EXPERIENCE

Instrumental Skills	<ul style="list-style-type: none"><li>Mössbauer Spectrometer, NMR, RI-NMR, FT-IR, Polarimeter</li><li>UV-Visible Spectrophotometer, Spectrofluorometer</li></ul>
Programming Languages	<ul style="list-style-type: none"><li>C++, Python, ARDUINO, QBASIC, FORTRAN, MYSQL</li></ul>
Software Skills	<ul style="list-style-type: none"><li>Gaussian, Gamess, Orca, Avogadro, AutoCAD</li></ul>

## PUBLICATIONS

- [Gogoi, A. R.<sup>#</sup>](#); Usman, F. O.<sup>#</sup>; Mixdorf, J. C.; Gutierrez, O.; Nguyen, H. M. Rhodium-catalyzed Asymmetric Synthesis of 1,2-disubstituted Allylic Fluorides. *Angew. Chem. Int. Ed Engl.* **2023**, 62.
- Targos, K.; [Gogoi, A. R.](#); Rentería-Gómez, Á.; Kim, M. J.; Gutierrez, O.; Wickens, Z. K. Mechanism of Z-Selective Allylic Functionalization via Thianthrenium Salts. *J. Am. Chem. Soc.* **2024**, 146, 13689–13696.
- Aguilera, M. C.; [Gogoi, A. R.](#); Lee, W.; Liu, L.; Brennessel, W. W.; Gutierrez, O.; Neidig, M. L. Insight into Radical Initiation, Solvent Effects, and Biphenyl Production in Iron–Bisphosphine Cross-Couplings. *ACS Catal.* **2023**, 13, 8987–8996.
- Youshaw, C. R.; Yang, M.-H.; [Gogoi, A. R.](#); Rentería-Gómez, A.; Liu, L.; Morehead, L. M.; Gutierrez, O. Iron-Catalyzed Enantioselective Multicomponent Cross-Couplings of  $\alpha$ -Boryl Radicals. *Org. Lett.* **2023**, 25, 8320–8325.
- Day, C. S.; Renteria-Gomez, A.<sup>#</sup>; Ton, S. J.<sup>#</sup>; [Gogoi, A. R.<sup>#</sup>](#); Gutierrez, O.; Martin, R., Elucidating Electron-Transfer Events in Polypyridine Nickel Complexes for Reductive Coupling Reactions. *Nat. Catal.* **2023**, 6, 244–253.
- Peng, Q.; [Gogoi, A. R.](#); Renteria-Gomez, A.; Gutierrez, O.; Scheidt, K. A., Visible Light-Induced Coupling of Carboxylic Acids with Alcohols and Amines, *Chem* **2023**.
- Crockett, M.P.; Pina, J.; [Gogoi, A.R.<sup>#</sup>](#); Lalisce, R. F.<sup>#</sup>; Nguyen, A.V.; Gutierrez, O.; Thomas, A. A. Breaking the tert-Butyllithium Contact Ion Pair: A Gateway to Alternate Selectivity in Lithiation Reactions, *J. Am. Chem. Soc.* **2023**, 145, 10743–10755.
- Leong, D. W.; [Gogoi, A. R.](#); Maity, T.; Lee, C.-I.; Bhuvanesh, N.; Gutierrez, O.; Ozerov, O. V. Abstraction of Hydride from Alkanes and Dihydrogen by the Perfluorotriptyl Cation. *Angew. Chem. Int. Ed Engl.* **2025**, 64, e202422190.
- Wu, F.-P.; Lenz, M.; Suresh, A.<sup>#</sup>; [Gogoi, A. R.<sup>#</sup>](#); Tyler, J. L.; Daniliuc, C. G.; Gutierrez, O.; Glorius, F. Nitrogen-to-Functionalized Carbon Atom Transmutation of Pyridine. *Chem. Sci.* **2024**, 15, 15205–15211.

10. Zhu, J. L.; Schull, C. R.; Tam, A. T.; Rentería-Gómez, Á.; [Gogoi, A. R.](#); Gutierrez, O.; Scheidt, K. A. Photoinduced Acylations via Azolium-Promoted Intermolecular Hydrogen Atom Transfer. *J. Am. Chem. Soc.* **2023**, *145*, 1535–1541.
11. Altundas, B.; Alwedi, E.; Song, Z.; [Gogoi, A. R.](#); Dykstra, R.; Gutierrez, O.; Fleming, F. F. Dearomatization of Aromatic Asmic Isocyanides to Complex Cyclohexadienes. *Nat. Commun.* **2022**, *13*, 6444.
12. Thompson, R. R.; Figgins, M. T.; Wannipurage, D. C.; Renteria-Gomez, A.; [Gogoi, A. R.](#); Telser, J.; Tierney, D. L.; Neben, M. C.; Demeshko, S.; Gutierrez, O.; Powers, D. C. P-P Coupling with and without Terminal Metal-Phosphorus Intermediates. *J. Am. Chem. Soc.* **2025**, *147*, 5350–5359.
13. Rentería-Gómez, A.; Lee, W.; Yin, S.; Davis, M.; [Gogoi, A. R.](#); Gutierrez, O. General and Practical Route to Diverse 1-(Difluoro)Alkyl-3-Aryl Bicyclo[1.1.1]Pentanes Enabled by an Fe-Catalyzed Multicomponent Radical Cross-Coupling Reaction. *ACS Catal.* **2022**, *12*, 11547–11556.
14. Das, M.; [Gogoi, A. R.](#); Sunoj, R. B. Molecular Insights on Solvent Effects in Organic Reactions as Obtained through Computational Chemistry Tools. *J. Org. Chem.* **2022**, *87*, 1630–1640.
15. Mandal, H.; Ogunyemi, O. J.; Nicholson, J. L.; Orr, M. E.; Lalis, R. F.; Rentería-Gómez, Á.; [Gogoi, A. R.](#); Gutierrez, O.; Michaudel, Q.; Goodson, T., 3rd. Linear and Nonlinear Optical Properties of All-Cis and All-Trans Poly(p-Phenylenevinylene). *J. Phys. Chem. C Nanomater. Interfaces* **2024**, *128*, 2518–2528.

#### Invited Review

1. [Gogoi, A. R.](#); Rentería-Gómez, A.; Tan, T.D.; Ng, J. W.; Koh, M. J.;# Gutierrez, O.# "Iron-catalyzed radical difunctionalization of alkenes", under review at *Nature Synthesis*.

#equal contribution, for full list of publications please check my [google scholar profile](#)

### Conferences/Symposiums/Seminars

- Secured the **Third Best Poster Presentation award** in **Diversity in Science Symposium'23** organized by SACNAS (Society for Advancement of Chicanos/Hispanics & Native Americans in Science) TAMU Chapter.
- Presented an oral talk titled "*Mechanistic Insight Guided Rational Design of Iron-Catalyzed Asymmetric Multicomponent Cross-Coupling Strategies*" at **ACS Fall 2024, Denver**.
- Presented a virtual oral talk titled "*Synergizing Computation and Experiments for Sustainable Reaction Design*" at the **Catalysis Innovation Consortium(CIC) System Wide Meeting 2025** organized by Emory University.
- Presented a virtual oral talk titled "*Harnessing the symbiotic potential of computation and experiment for sustainable iron catalysis*" at the **Theoretical and Physical Organic Chemistry (TPOC) Monthly Meeting 2023** organized by University of Houston and UC Davis.
- Presented a poster titled "*Fe-Catalyzed Asymmetric Multicomponent Cross-Coupling Reactions: Scope and Mechanistic Insights*" at **Gordon Research Conference (Physical Organic Chemistry) 2023**.
- Presented a poster titled "*Mechanistic Insight Guided Rational Design of Iron-Catalyzed Asymmetric Multicomponent Cross-Coupling Strategies*" at **Catalysis Innovation Consortium (CIC) Annual Meeting 2024** at Emory University.
- Presented a poster titled "*Mechanistic Insight Guided Rational Design of Iron-Catalyzed Asymmetric Multicomponent Cross-Coupling Strategies*" at the **Welch Conference 2024** in Houston.
- Presented a poster titled "*Mechanistic Insight Guided Rational Design of Iron-Catalyzed Asymmetric Multicomponent Cross-Coupling Strategies*" at the **Cotton Medal Conference 2023 and 2024** organized by Texas A&M University.
- Presented a poster titled "*Computational Investigation into Electron Transfer Events in Polypyridine Ligated Nickel Complexes*" at **Houk Research Conference 2022, UCLA**.

### RESEARCH EXPERIENCE

#### ❖ PhD Research (August'2021-Present)

**Project 1 Title:** **Mechanistic Insight Guided Rational Design of Iron-Catalyzed Asymmetric Multicomponent Cross-Coupling Strategies**

**Supervisor:** Prof. Osvaldo Gutierrez, Texas A&M University

- ✓ Spearheading the development of an innovative, asymmetric iron-catalyzed three-component cross-coupling reaction to produce medicinally valuable chiral boronic esters.
- ✓ Integrating advanced techniques, including organic synthesis, Density Functional Theory (DFT), and Mössbauer spectroscopy, to uncover key mechanistic insights.
- ✓ Leveraging mechanistic insights to design and develop new strategies for asymmetric iron-catalysis, enabling experimental advancements.

✓ *Manuscripts under preparation*

**Project 2 Title: Harnessing the Symbiotic Potential of Computation & Experiment in Elucidation of Reaction Mechanisms.**

**Supervisor: Prof. Osvaldo Gutierrez,** Texas A&M University

- ✓ Utilizing advanced computational tools, including density functional theory (DFT), Molecular Dynamics (MD), and multireference methods, to deepen the understanding of complex organic & organometallic reaction mechanisms.
- ✓ Collaborated with leading experimental research groups worldwide, including the [Martin group](#) (ICIQ), [Fleming group](#) (Drexel), [Scheidt group](#) (Northwestern), [Thomas](#) and [Powers](#) groups (Texas A&M), [Levin group](#) (Chicago), and [Wickens group](#) (Wisconsin-Madison).
- ✓ Contributed to high-impact research that resulted in several co-authored publications (13 so far), showcasing potential for a productive synergy between computational and experimental approaches.

❖ **Visiting Researcher (September'2023- November'2023)**

**Project Title: "Mössbauer Study on Iron-Catalyzed Asymmetric Multicomponent Cross-Coupling Strategies"**

**Supervisor: Prof. Michael Neidig,** University of Oxford, United Kingdom

- ✓ Conducted in-depth Mössbauer spectroscopy experiments to investigate iron speciation in asymmetric iron-catalyzed multicomponent cross-coupling reactions.
- ✓ Identified and characterized the stereodetermining active iron species, contributing to a deeper understanding of reaction mechanisms for the development of more effective catalytic strategies.

✓ *Manuscripts under preparation*

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### EXTRA-CURRICULAR ACTIVITIES

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- Secretary at Phi Lambda Upsilon: The Honorary Chemical Society of Texas A&M University, 2024.
- Physical Chemistry Division Representative at Chemistry Student Safety Committee (CSSC) Board 2024.
- Graduate Student Member: American Chemical Society, 2024.