

Hriday Bhattacharjee

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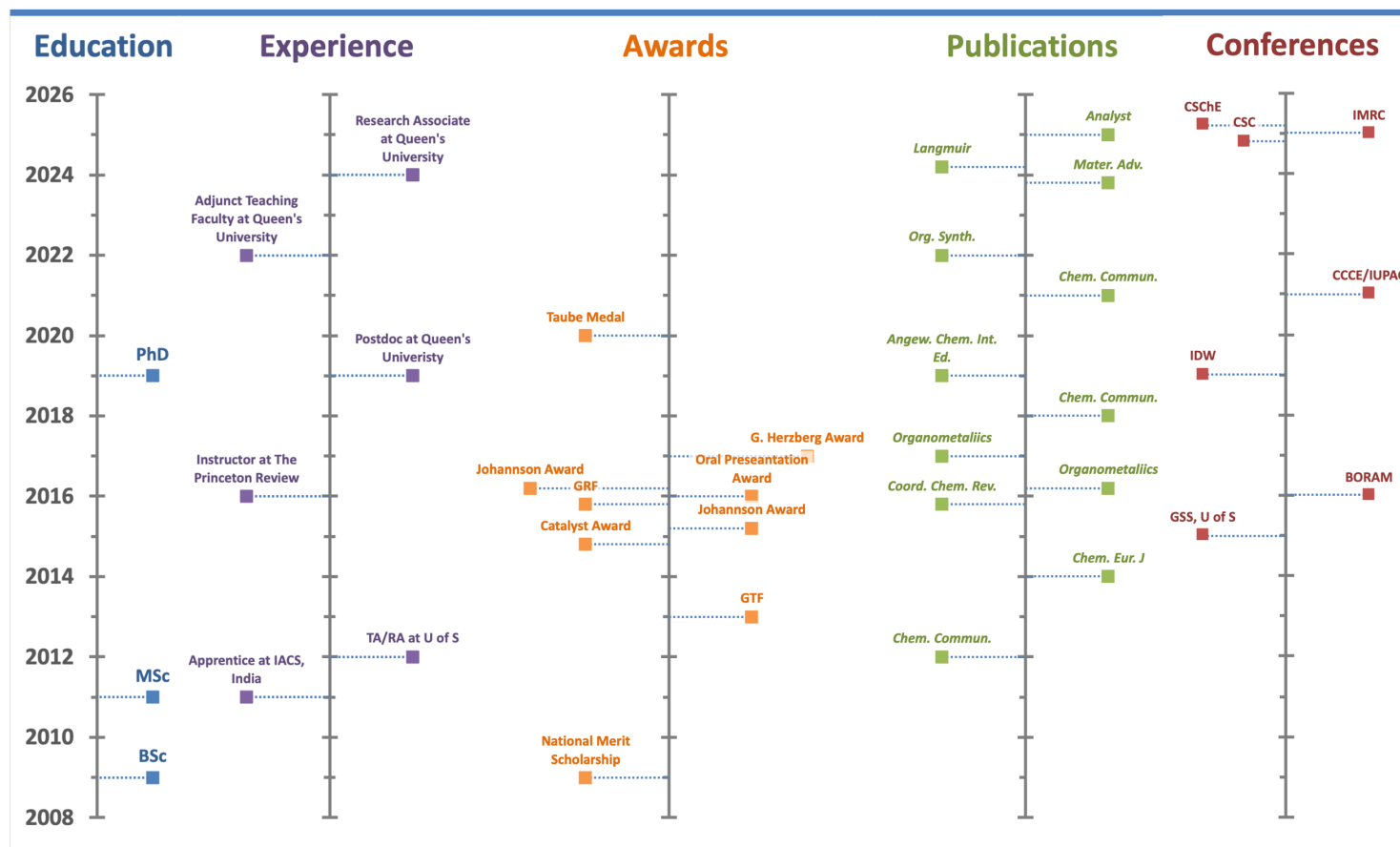
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At a Glance



HIGHLIGHTS

Research Associate with expertise in synthetic organometallic chemistry, biosensor development, and public health surveillance. Ph.D. in organometallic chemistry from the University of Saskatchewan, recognized with the 2020 **Taube Medal** for the best Ph.D. thesis. Research achievements include several high-profile publications and awards. Postdoctoral research involved leading a team of HQPs in a DRDC-funded **IDeas** project on *N*-heterocyclic carbene-based biosensors. Recent work involved wastewater monitoring for COVID-19 and pathogen detection under the **Ontario Wastewater Surveillance Initiative** and leading a **NFRF**-funded project developing Raman spectroscopy-based biosensors for antibiotic-resistant bacteria. Accomplished as excellent chemistry educator complemented by several teaching excellence awards and experience as Term Adjunct Faculty at Queen's University (2022–2024).

EDUCATION

Sept. 2012– Jan. 2019	Ph.D. in Organometallic Chemistry , Department of Chemistry, University of Saskatchewan, Saskatoon, Canada. <u>Thesis Title:</u> <i>Boron-Bridged Ferrocenophanes: Strained Monomers for Metallopolymers.</i>
2009–2011	M.Sc. in Inorganic Chemistry , Department of Chemistry, Jadavpur University, Kolkata, India. <u>Thesis Title:</u> <i>Binding Interaction of Two Hydroxy-9,10-anthraquinones and One Cu(II) Complex with Calf Thymus DNA: A Comparative Study with Effect of Ionic Strength.</i>
2006–2009	B.Sc. in Chemistry (Honours) , Department of Chemistry, St. Xavier's College, University of Calcutta, Kolkata, India.

EXPERIENCE

Teaching	
Jan. 2022– Apr. 2024	Term Adjunct Faculty , Department of Chemistry, Queen's University, Kingston, Canada. Teaching first year General Chemistry (~400 students per section) and third year Green Chemistry (~60 students); designing and developing an advanced General Chemistry course for non-specialized scholars for online/in-person delivery.
2016–2019	MCAT General and Organic Chemistry Instructor , The Princeton Review, Saskatoon, Canada. Teaching and tutoring General and Organic Chemistry for The Princeton Review to MCAT aspirants.
2012–2018	Teaching Assistant , Department of Chemistry, University of Saskatchewan, Saskatoon, Canada. Teaching and conducting laboratory sessions for General Chemistry, Organic Chemistry, Inorganic Chemistry, Advanced Inorganic Chemistry, and Organometallic Chemistry.
Research	
Oct. 2024– present	Research Associate , <u>Supervisors: Dr. Aristides Docoslis</u> , Chemical Engineering Department, Queen's University, Kingston, Canada. Oversee daily operations of an NFRF-funded project developing Raman spectroscopy-based biosensors for antibiotic-resistant bacteria. Coordinate sample and reference material analysis at a biosafety level 1 facility, prepare technical reports, establish analysis methods, and compile data and results.
Apr. 2024– Sept. 2024	Research Associate , <u>Supervisors: Dr. Sarah Jane Payne and Dr. Stephen Brown</u> , Beaty Water Research Centre, Queen's University, Kingston, Canada. Responsible for daily operations of a project under the Ontario Wastewater Surveillance Initiative, monitoring COVID-19 and other viruses and bacteria in wastewater samples. Key duties include coordinating sample and reference material analysis at a biosafety level 2 facility, preparing technical reports and manuscripts, establishing analysis methods, and compiling and reporting data.
Feb. 2019– Dec. 2021	Postdoctoral Research Fellow , <u>Supervisor: Dr. Cathleen Crudden</u> , Department of Chemistry, Queen's University, Kingston, Canada. Design and synthesis of <i>N</i> -heterocyclic carbenes for development of multiplexed biosensors for pathogen detection. Led a research team of undergraduate and graduate students, postdoctoral research fellows, and collaborators. Prepared drafts and edited quarterly reports of research funded by Defence Research and Development Canada.
2012–2019	Graduate Student (Ph.D.) , <u>Supervisor: Dr. Jens Müller</u> , Department of Chemistry, University of Saskatchewan, Saskatoon, Canada. Specialized in synthetic Organometallic Chemistry. Responsible for maintaining a glovebox and a solvent purifier system.
2011	Research Apprentice , <u>Supervisor: Dr. Abhishek Dey</u> , Department of Inorganic Chemistry, Indian Association for Cultivation of Science, Kolkata, India. A detailed study of the interaction between a synthetic heme and O ₂ and characterization of the heme Fe(III)–O ₂ ^{•−} adduct using resonance Raman and EPR spectroscopy.
2010–2011	Graduate Student (M.Sc.) , <u>Supervisor: Dr. Saurabh Das</u> , Department of Chemistry, Jadavpur University, Kolkata, India. Mimicking anthracycline anti-cancer drugs by using cheaper analogues such as Carminic acid. Physicochemical and biophysical properties were extensively studied and binding interaction with

PUBLICATIONS

In preparation	15) J. Rensing, H. Bhattacharjee , S. Brown, History of Wastewater Surveillance, invited review in Environmental Reviews , <i>manuscript in preparation</i> . 14) N. Niro, H. Bhattacharjee , S. J. Payne, S. Brown, Detailed Characterization of Pepper Mild Mottle Virus (PMMoV) Isolated from Tobasco Sauce, <i>manuscript in preparation</i> . 13) T. Wong, H. Bhattacharjee , S. J. Payne, S. Brown, Effects of Polyethylenimine and pH for Improved Virus Recovery in Wastewater, <i>manuscript in preparation</i> . 12) A. Azizi, A. R. Alashraf, H. Bhattacharjee , S. van der Plas, A. Al hejami, S. J. Payne, S. Brown, Effect of Two Storage Factors on Wastewater Characteristics in SARS-Cov-2 Surveillance Study, <i>manuscript in preparation</i> .
2025	11) Z. Wang, H. Bhattacharjee , M. Jeffs, R. Gray, Y. Bdour, A. Docoslis, C. Lohans, C. Escobedo, Detection of Carbapenemase-Mediated Antimicrobial Resistance using Surface-Enhanced Raman Scattering, Analyst 2025 , <i>150</i> , 4925-4929.
2024	10) L. Qi, R. M. Mayall, D. S. Lee, C. Smith, A. Woods, M. R. Narouz, A. Hyla, H. Bhattacharjee , Z. She, C. M. Crudden, V. I. Birss, Energetics and Redox Kinetics of Pure Ferrocene-Terminated N-Heterocyclic Carbene Self-Assembled Monolayers on Gold, Langmuir 2024 , <i>40</i> , 17367-17377. 9) D. S. Lee, M. P. Zarabadi, H. Bhattacharjee , L. Qi, J. F. Mcleod, K. Saeedfar, I. Singh, A. Woods, A. Messina, V. I. Birss, C. M. Crudden, Z. She, Toll like receptor-based electrochemical sensors via N-heterocyclic carbene-modified surfaces: towards improved sensing of DNA molecules, Mater. Adv. 2024 , <i>5</i> , 6063-6069.
2021	Selected as the Inside Front Cover . 8) I. Singh, D. S. Lee, S. Huang, H. Bhattacharjee , W. Xu, J. F. McLeod, C. M. Crudden, and Z. She, N-Heterocyclic Carbenes Meet Toll-Like Receptors, Chem. Commun. 2021 , <i>57</i> , 8421-8424. Selected as the Front Cover , Chem. Commun. 2021 , <i>57</i> , 8367-8368.
2019	7) H. Bhattacharjee , J. Zhu, and J. Müller, Unique Bora[1]ferrocenophanes with Sterically Protected Boron: A Potential Gateway to Helical Polyferrocenes, Angew. Chem. Int. Ed. 2019 , <i>58</i> , 16575-16582. Selected as the Frontispiece , Angew. Chem. Int. Ed. 2019 , <i>58</i> , 16575.
2018	6) H. Bhattacharjee , S. Dey, J. Zhu, W. Sun, and J. Müller, Strained Azabora[2]ferrocenophanes, Chem. Commun. 2018 , <i>54</i> , 5562-5565.
2017	5) E. Khozeimeh Sarbisheh, H. Bhattacharjee , M. P. T. Cao, J. Zhu, and J. Müller, How Strained are [1]Ferrocenophanes?, Organometallics 2017 , <i>36</i> , 614-621.
2016	4) H. Bhattacharjee , J. D. Martell, E. Khozeimeh Sarbisheh, S. Sadeh, J. W. Quail, and J. Müller, Insight into the Formation of Highly Strained [1]Ferrocenophanes with Boron in Bridging Position, Organometallics 2016 , <i>35</i> , 2156-2164.
2016	3) H. Bhattacharjee and J. Müller, Metallocenophanes Bridged by Group 13 Elements, Coord. Chem. Rev. 2016 , <i>314</i> , 114-133.
2014	2) S. Sadeh, H. Bhattacharjee , E. Khozeimeh Sarbisheh, J. W. Quail, and J. Müller,

	Chiral Bora[1]ferrocenophanes: Syntheses, Mechanistic Insights, and Ring-Opening Polymerizations, Chem. Eur. J. 2014, 20, 16320-16330 .
2012	1) K. Mittra, S. Chatterjee, S. Samanta, K. Sengupta, H. Bhattacharjee , and A. Dey, A Hydrogen Bond Scaffold Supported Synthetic Heme Fe(III)-O ₂ ⁻ Adduct, Chem. Commun. 2012, 48, 10535-10537 .
Checked Articles	
2022	K. A. Spence, M. M. Mehta, N. K. Garg, Checked by H. Bhattacharjee and C. M. Crudden, Synthesis of Triphenylene via the Palladium-Catalyzed Annulation of Benzyne, Org. Synth. 2022, 99, 174-189 .
As a Reviewer	
2025	W. Ahmad, M. Zareef, M. Chen, Y. Xu, J. J. Wang, Q. S. Chen, Surface-enhanced Raman scattering detection of antibiotics, Trend. Anal. Chem. 2025, 191, 118352 .

AWARDS

Apr. 2020	10) Taube Medal ("Gold Medal": Best Thesis in the Department of Chemistry of the Academic Year) , University of Saskatchewan, Saskatoon, Canada.
Sept. 2016	9) G. Herzberg International Conference Award , University of Saskatchewan, Saskatoon, Canada.
Sept. 2016	8) Johannson Award (Excellent Teaching Assistant Award) , University of Saskatchewan, Saskatoon, Canada.
Jul. 2016	7) Excellent Instructor Award , The Princeton Review, Canada.
Jun. 2016	6) Best Oral Presentation Award , BORAM (Boron in the Americas) International Conference, Queen's University, Kingston, Canada.
Sept. 2016– Aug. 2017	5) Graduate Research Fellowship , University of Saskatchewan, Saskatoon, Canada.
Sept. 2015	4) Johannson Award (Excellent Teaching Assistant Award) , University of Saskatchewan, Saskatoon, Canada.
Apr. 2015	3) Arts & Science Graduate Catalyst Award , University of Saskatchewan, Saskatoon, Canada.
2013–2016	2) Graduate Teaching Fellowship , University of Saskatchewan, Saskatoon, Canada.
2009–2011	1) National Merit Scholarship , West Bengal State Government, India.

CONFERENCE PRESENTATIONS

Oct. 2025	7) <u>H. Bhattacharjee</u> , Z. Wang, M. A. Jeffs, C. T. Lohans, C. Escobedo, A. Docoslis, Sensing β -Lactamase-Mediated Antimicrobial Resistance with SERS, Canadian Chemical Engineering Conference (CSCHE), Montreal, Canada, 2025.
Aug. 2025	6) Invited lecture by <u>H. Bhattacharjee</u> , Sensing Antimicrobial Resistance with SERS, 33rd International Materials Research Congress (IMRC), Cancun, Mexico.
Jun. 2025	5) <u>H. Bhattacharjee</u> , Z. Wang, M. A. Jeffs, A. Docoslis, C. Escobedo, C. T. Lohans, Sensing β -Lactamase-Mediated Antimicrobial Resistance with SERS, Canadian Chemistry Conference and Exhibition (CSC), Ottawa, Canada.
Aug. 2021	4) <u>H. Bhattacharjee</u> , I. Singh, D. Lee, C. Crudden, Versatile Self-Assembled Monolayers from Bifunctional N-Heterocyclic Carbenes, 104 th Canadian Chemistry Conference and Exhibition, IUPAC CCCE 2021.

Nov. 2019	3) <u>H. Bhattacharjee</u> , J. Zhu, J. Müller, Sterically Protected Bora[1]ferrocenophanes: Enantiopure Monomers for Chiral Metallopolymers, 52 nd Inorganic Discussion Weekend (IDW), University of Ontario Institute of Technology, Oshawa, Canada.
Jun. 2016	2) <u>H. Bhattacharjee</u> , S. Dey, J. D. Martell, E. Khozeimeh Sarbisheh, J. Müller, Boron-Bridged Ferrocenophanes: Strained Monomers for Metallopolymers, Boron in the Americas (BORAM) XV, Queen's University, Kingston, Canada.
May 2015	1) <u>H. Bhattacharjee</u> , J. D. Martell, E. Khozeimeh Sarbisheh, J. Müller, Bora[1]ferrocenophanes: New Conjugated Metallopolymers Through Ring-Opening Polymerizations, Graduate Student Symposium, University of Saskatchewan, Saskatoon, Canada.

INTERVIEW PANEL and MENTORSHIP PROGRAM

May. 2025–present	Mentor of a PhD student in the inaugural session of USask Graduate Mentorship Program .
Feb.–Jul. 2025	Director of Career Development at Queen's University International Student Chapter of the American Chemical Society (Q-ACS).
Sept.–Dec. 2022	Mentor of two graduate students for the Fall 2022 session of Bonds for Success Mentorship Program organized by CIC Kingston and CIC Toronto .
Oct. 2021	Early career researcher member of the interview panel for selecting Executive Director of Chemical Institute of Canada (CIC).

EXTRACURRICULAR ACTIVITIES

➤ Photography:

- Passionate about photography
- Recent awards:
 - **2nd Place** in [1Day Contest in Arts and Science Usask](#), University of Saskatchewan, 2017.
 - **Photo of the Month Award**, [Chemical & Engineering News \(C&EN\)](#), September 2016.
 - **Viewers' Choice Award**, Images of Research Photo Contest, University of Saskatchewan, 2016.
 - **Viewers' Choice Award**, Mental Health Awareness Photo Contest, University of Saskatchewan, 2015.

➤ Radio Show:

- Participated five times as the expert in **CBC Ottawa's** popular show [The Element of Surprise](#).

REFERENCES

Dr. Jens Müller Professor Emeritus Department of Chemistry University of Saskatchewan Saskatoon, SK, S7N 5C9 Email: jens.mueller@usask.ca	Dr. Cathleen Crudden Department of Chemistry Queen's University Kingston, ON K7L 3N6 Email: cruddenc@chem.queensu.ca Phone: (613) 533-6755
Dr. Aristidis Docoslis Department of Chemical Engineering Queen's University Kingston, ON K7L 3N6 Email: docoslis@queensu.ca Phone: (613) 533-6949	Dr. Pia Wennek Lab Manager (Retired) Department of Chemistry University of Saskatchewan Saskatoon, SK, S7N 5C9 Email: pia.wennek@usask.ca