GAYAN B. WIJERATNE

Department of Chemistry & Biochemistry
The University of Alabama

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Research Group Website | **Google Scholar** | **Twitter** | **LinkedIn** | **ORCID**

PROFESSIONAL EXPERIENCE

University of Alabama (UA), Tuscaloosa, AL, United States

Assistant Professor of Chemistry	2023 – present

University of Alabama at Birmingham (UAB), Birmingham, AL, United States

Associate Scientist, O'Neal Comprehensive Cancer Center	2021 – present
Assistant Professor of Chemistry	2018 – 2023
Faculty Member, Center for Free Radical Biology	2019 – 2023
Scientist, Center for Nanoscale Materials and Biointegration	2019 – 2023

Johns Hopkins University (JHU), Baltimore, MD, United States

Acting Principal Investigator (Kenneth D. Karlin Laboratory)	2018
Postdoctoral Research Associate (Kenneth D. Karlin Laboratory)	2015 – 2018

University of Kansas (KU), Lawrence, KS, United States

X-ray Absorption Team Leader at Brookhaven National Laboratory	2014 – 2015
Graduate Research Assistant (Timothy A. Jackson Laboratory)	2010 – 2015
Graduate Teaching Assistant (General Chemistry)	2010 – 2013

University of Colombo (UoC), Colombo 7, Western Province, Sri Lanka

Teaching Assistant (General and Organic Chemistry)	2009 – 2010
Undergraduate Research Assistant (Sujatha Hewage Laboratory)	2007 – 2009

EDUCATION

Ph.D. with Honors (Inorganic Chemistry), University of Kansas 2015

Dissertation Title: *Formation, Characterization, and Oxidative Reactivity of Bio-inspired Peroxo- and Hydroxo-manganese(III) Complexes*

B.Sc. with Honors (Chemistry Major), University of Colombo 2009

Thesis Title: *Synthesis and Antibacterial Activity Studies of Transition Metal Complexes Derived from Sri Lankan Natural Products*

AWARDS AND DISTINCTIONS

NIH R35 MIRA ESI Outstanding Investigator Award	2024
NSF CAREER Award	2021
Doctoral Dissertation Honors	2015
Higuchi Doctoral Progress Award for the most superior, post-comprehensive graduate student in his/her final year	2015
University of Kansas Graduate Travel Award	2014
Amini/Bailey Scholarship for outstanding research accomplishments	2014
Emily V. Berger Scholarship for outstanding incoming graduate student	2010
B.S. awarded with honors in chemistry	2009
Undergraduate research project highlighted by the Sri Lanka Association for the Advancement of Science	2009
Prof. R. S. Ramakrishna Memorial Gold Medal for Inorganic Chemistry	2009

RESEARCH INTERESTS

Bioinorganic Chemistry Concerning Dioxygen (O_2) Activation and Nitrogen Oxide (NO_x) Interconversion at Heme and/or other Bio-inspired Metal Centers; Biomimetic Synthetic Structural/Functional Models of Metalloenzyme Active Sites; Mechanistic Interrogations of Metalloprotein Biochemistries Involving O_2 and NO_x's; Metallobiochemistry Implicated in Human Pathogenesis and Therapeutics; Structural (Geometric and Electronic), Spectroscopic, and Computational Analyses of Transient Reaction Intermediates; Designing and Developing Bio-inspired, Environmentally Benign (Green), Cheaper Catalysis for Industrially/Synthetically Indispensable Transformations, and/or Next Generation Alternative Energy Applications

TEACHING AND SERVICE

Teaching:

CH 431 (UA): Inorganic Chemistry (junior/senior)
CH 744 (UAB): Inorganic Structure and Spectroscopy (new course; graduate)
CH 740 (UAB): Bonding and Structure in Inorganic Compounds (graduate)
CH 749 (UAB): Spectroscopic Methods in Inorganic Chemistry (graduate)
CH 440 (UAB): Transition Metal Chemistry (junior/senior)
CH 427 Lab (UAB): Molecular Structure and Spectroscopy (junior/senior)
CH 345 (UAB): Principles and Applications in Chemical Periodicity (junior/senior)
CH 345 Lab (UAB): Principles and Applications in Chemical Periodicity (junior/senior)

Student Dissertation/Thesis Committees:

University of Alabama (UA):
David Muthama (Ph.D., in progress)
Brendan Pang (Ph.D., in progress)
Kehinde Ogunmola (Ph.D., in progress)
Sampath Reddy (Ph.D., in progress)
Wenzhi Yao (Ph.D., in progress)
Eslam Elbakry (Ph.D., in progress)
Osondu Ugochukwu (Chair; Ph.D., in progress)
Samith Jayawardhana (Chair; Ph.D., in progress)
Shanuk Rajapakse (Chair; Ph.D., in progress)
Dhilanka Udukala (Chair; Ph.D., in progress)
University of Alabama at Birmingham (UAB):
MD Golam Hossain (Ph.D., in progress)
Bria Storr (Ph.D., in progress)
Eunice Lim (Ph.D., in progress)
Noimat Jinadu (Ph.D., in progress)
James Omweri (Ph.D., in progress)
Garrett Tolbert (Chair; Ph.D., in progress)
Steven Zheng (B.S., in progress)
Shefali Fnu (Ph.D., 2024)
Jennifer Pyles (Ph.D., 2023)
Parmanand Ahirwar (Ph.D., 2023)
Zach Cuny (M.S., 2022)
Angela Lee (B.S., 2022)
Maria Espinosa (Ph.D., 2021)
Eunice Lim (Chair; B.S., 2021)
John Gotham (B.S., 2020)

Industrial Seminar Series:

Organizer, "*Pathways to Careers in Chemistry*" Seminar Series 2018 – present
Speakers Invited to-date:
Kacee Sims (Avanti Polar Lipids, Inc.)
Jeff Sparks (Celsion Corporation)
Tom Tice (Evonik Industries)

Department, College, and University:

University of Alabama (UA):
Member, Graduate Recruiting Committee 2023 – present
University of Alabama at Birmingham (UAB):
Organizer, College of Arts and Sciences NSF CAREER Workshop 2021 – 2023
Chair, Chemistry Department Research Infrastructure Committee 2021 – 2023
Chemistry Department Graduate Admissions and Education Committee 2018 – 2023
Judge, Alabama Regional Science and Engineering Fair 2022

Successful Junior Faculty Panel for New Faculty, College of Arts and Sciences	2022
College of Arts and Sciences Dean Search Committee	2019/2020
Graduate recruiting workshop for the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE)	2021
Chemistry Department Faculty Search Committee (Physical/Analytical)	2021/2022
Chemistry Department Faculty Search Committee (Radiochemistry)	2020/2021
Chemistry Department Faculty Search Committee (Radiochemistry)	2019/2020
Chemistry Department Staff Search Committee (NMR Manager)	2019/2020
Chemistry Department Faculty Search Committee (Physical/Analytical)	2018/2019

PROFESSIONAL MEMBERSHIPS

Society of Biological Inorganic Chemistry (SBIC)	2024 – present
Society of Porphyrins and Phthalocyanines (SPP)	2021 – present
American Association for the Advancement of Science (AAAS)	2018 – present
American Chemical Society – Division of Inorganic Chemistry (ACS-DIC)	2011 – present
Sri Lanka Association for the Advancement of Science (SLAAS)	2009 – present

PROFESSIONAL ACTIVITIES

Symposium Organizer:

"*Advances in Biological Inorganic Chemistry in the Southeast"* symposium for 75th Southeastern Regional Meeting of the ACS (SERMACS), Atlanta, GA, Oct. 23rd – 26th, 2024 (Co-organizer: Shabnam Hematian, University of North Carolina-Greensboro).

"*Small molecule activation at biological or bio-inspired metal centers"* symposium for 72nd Southeastern Regional Meeting of the ACS (SERMACS), Birmingham, AL, Nov. 10th – 13th, 2021.

Grant Proposal Reviewer:

National Science Foundation – Division of Chemistry (NSF-CHE) Feb. 2024

Manuscript Reviewer:

Journal of the American Chemical Society (ACS Publications)
Angewandte Chemie International Edition (Wiley-VCH)
Chemical Science (RSC Publications)
Advanced Science (Wiley-VCH)
Dalton Transactions (RSC Publications)
Inorganic Chemistry (ACS Publications)
Journal of Porphyrins and Phthalocyanines (World Scientific)
ChemMedChem (Wiley-VCH)
Journal of Inorganic Biochemistry (Elsevier)
Journal of Biological Chemistry (Elsevier)
Chemistry – A European Journal (Wiley-VCH)

Community Outreach:

- Establishing a new Science Club Program at Birmingham City high schools (99% minority) for helping the students in the preparatory phase for AL regional Science and Engineering Fair
- Organizing and judging the AL regional Science and Engineering Fair hosted by UAB CORD

Workshops:

American Chemical Society New Faculty Workshop, Washington, D.C., August 1st – 3rd, 2019.

INVITED SYMPOSIUM SPEAKER

13th International Conference on Porphyrins and Phthalocyanines, Jun. 23rd – 28th, 2024, Buffalo, NY; Keynote lecture at the symposium titled "*Heme enzymes: Structure and function*"; Organizers: Syun-Ru Yeh, Denis Rousseau; Lecture title: "*Modeling Bioinspired Reactivities of Heme Peroxo Intermediates: Nitric Oxide Synthase and Beyond*"

6th Symposium on Advanced Biological Inorganic Chemistry (SABIC), Jan. 7th – 11th, 2024, Kolkata, India; Organizers: S. Mazumdar, Abhishek Dey, Somdatta Ghosh Dey; Lecture title: "*Investigating Heme Superoxo and Peroxo Mediated Pathways of Heme Enzymes Using Functional Synthetic Mimics*"

2022 *Chemistry and Biology of Tetrapyrroles* Gordon Research Conference, Jul. 17th – 22nd, 2022, Newport, RI; Chair: Emma Raven; Lecture title: "*Modeling Mechanistic Subtleties of Nitric Oxide Synthase: A Missing Link in Understanding Human Pathogenesis*"

12th International Conference on Porphyrins and Phthalocyanines, Jul. 10th – 15th, 2022, Madrid, Spain; Keynote lecture at the symposium titled "*Heme enzymes: Structure and function*"; Organizers: Syun-Ru Yeh, Denis Rousseau; Lecture title: "*Learning how Nature Handles Indoles: Mapping the Mechanistic Intermediates of Heme Enzyme mediated Dioxygenation, Monooxygenation, and Nitration of Indole Motifs using Synthetic Model Systems*"

77th Southwest Regional Meeting of the ACS (SWRM), Oct. 30th – Nov. 3rd, 2021, Austin, TX; Symposium on "*Bioinorganic Chemistry*"; Organizers: Michael Rose, Emily Que; Lecture title: "*Interconversion of nitrogen oxides with bio-inspired high-valent heme-oxygen intermediates*"

261st American Chemical Society National Meeting, Mar. 21st – 25th, 2021 (virtual); Award symposium honoring Ken Karlin; Organizers: Reza Ghiladi, Eunsuk Kim, Heather Lucas; Lecture title: "*Bio-inspired dioxygenation reactivity landscapes of synthetic heme superoxide adducts*"

259th American Chemical Society National Meeting, Mar. 22nd – 26th, 2020, Philadelphia, PA; Symposium on "*Creative Advances in Synthetic & Biological Coordination Chemistry*" in celebration of 75th birthday of Ken Karlin; Organizers: Reza Khiladi, Eunsuk Kim, Heather Lucas; Lecture title: "*Modeling tryptophan oxidation mechanistic landscape with heme superoxide mimics*"; Paper No: INOR 975

71st Southeastern Regional Meeting of the ACS (SERMACS), Oct. 20th – 23rd, 2019, Savannah, GA; Symposium on "*Recent Advances in Bioinorganic Chemistry*"; Organizer: Jonathan Caranto; Lecture title: "*Modeling Nitric Oxide Reductase Utilizing Cu(II) Centers and Secondary Sphere*

H-bonding Functionalities: Intramolecular Proton Transfer Facilitates $N_2O_{(g)}$ Release"; Paper No: INOR 258

INVITED UNIVERSITY LECTURES

Tennessee Tech University, Cookeville, TN – March 22nd, 2024

Auburn University, Auburn, AL – March 12th, 2024

Johns Hopkins University, Baltimore, MD – March 1st, 2024

Mississippi State University, Starkville, MS – February 8th, 2024

University of North Carolina – Greensboro, Greensboro, NC – January 31st, 2024

North Carolina State University, Raleigh, NC – February 1st, 2024

Marquette University, Milwaukee, WI – April 28th, 2023

University of Alabama, Tuscaloosa, AL – October 6th, 2022

University of Mississippi, University, MS – February 17th, 2022

University of Kansas, Lawrence, KS – October 15th, 2021

College of Chemical Sciences, Institute of Chemistry, Ceylon – May 27th, 2021

Tennessee Tech University, Cookeville, TN – November 15th, 2019

Samford University, Birmingham, AL – November 8th, 2019

Sewanee – The University of the South, Sewanee, TN – October 5th, 2018

PUBLICATIONS & MANUSCRIPTS IN PREPARATION

University of Alabama

28. Samith Jayawardana, Izumi Ishigami, Syun-Ru Yeh, and **Gayan B. Wijeratne*** "An Isoelectronic Pathway for the Generation of a Series of Heme Peroxynitrite Intermediates Involving Heme Peroxo Adducts and Nitrosonium Ions"; *manuscript in preparation for J. Am. Chem. Soc.* (anticipated submission by June 15, 2024)

27. Shanuk Rajapakse, Samith Jayawardana, Pritam Mondal, Izumi Ishigami, Syun-Ru Yeh, and **Gayan B. Wijeratne*** "Elucidating the Role of Axial Ligation in Fine-tuning the Reactivity Properties of Heme Peroxo Intermediates in Nitric Oxide Synthase Models"; *manuscript in preparation for Chem. Sci*. (anticipated submission by May 15, 2024)

26. Shefali Saini, N.V.S. Dinesh K. Bhupathiraju, Samith B. Jayawardana, Michael D. Phipps, Jason S. Lewis, Lynn C. Francesconi, **Gayan B. Wijeratne**, Melissa A. Deri, Suzanne E. Lapi* "[^{45}Ti]Ti-HOPOs: potential complexes for the development of ^{45}Ti PET imaging agents" *ACS Omega, In review*.

25. Pritam Mondal, Dhilanka Udukalage, Abubaker A. Mohamed, Henrik P. H. Wong, Sam P. de Visser,* and **Gayan B. Wijeratne*** "Bioinspired Indole Nitration Mediated by Heme Model Systems of Cytochrome P450 TxtE: Mechanistic and Theoretical Evidence for a Heme Peroxynitrite Active Species" *Angew. Chem. Int. Ed., In revision*.

24. Garrett Tolbert, Samith Jayawardana, Izumi Ishigami, Syun-Ru Yeh, and **Gayan B. Wijeratne*** "Secondary Sphere Lewis Acid Activated Heme Superoxo Mimics Reveal Key Insights into the Ternary Complex of TDO/IDO Heme Dioxygenases" *Chem, Eur. J., In revision*.

23. James M. Omweri, Volkan Tekin, Shefali Saini, Hailey A. Houson, Samith B. Jayawardana, Daniel A. Decato, **Gayan B. Wijeratne**, Suzanne E. Lapi* "Chelation chemistry of manganese-52 for PET imaging applications" *Nucl. Med. Biol.* **2024***,* 128–129.

22. Qiaoli Liang*, Pritam Mondal, Qi Li, Tahir Maqbool, Chao Zhao, Daqian Jiang, Greg J. Szulczewski, and **Gayan B. Wijeratne*** "Nitro Indole Derivatives as Novel Dual-Polarity Matrices for MALDI Mass Spectrometry and Imaging with Broad Applications" *Anal. Chem.* **2024**, *96*, 1668–1677.

University of Alabama at Birmingham

21. Pritam Mondal, Izumi Ishigami, Syun-Ru Yeh, and **Gayan B. Wijeratne*** "The Role of Heme Peroxo Oxidants in the Rational Mechanistic Modeling of Nitric Oxide Synthase: Characterization of Key Intermediates and Elucidation of the Mechanism" *Angew. Chem. Int. Ed.,* **2022**, *61,* e202211521; Hot Paper; featured on *ACIE* inside cover.

20. Pritam Mondal, Shanuk Rajapakse, and **Gayan B. Wijeratne*** "Following Nature's Footprint: Mimicking the High-valent Heme-oxo Mediated Indole Monooxygenation Reaction Landscape of Heme Enzymes" *J. Am. Chem. Soc.* **2022**, *144,* 3843–3854; featured on *JACS* supplementary cover.

19. Pritam Mondal, Garrett B. Tolbert, and **Gayan B. Wijeratne*** "Bio-inspired Nitrogen Oxide (NO_x) Interconversion Reactivities of Synthetic Heme Compound-I and Compound-II Intermediates" *J. Inorg. Biochem.* **2022**, *226*, 111633–111645; invited article for a special issue honoring Ken Karlin.

18. Pritam Mondal, Izumi Ishigami, Emilie F. Gérard, Chaeeun Lim, Syun-Ru Yeh, Sam P. de Visser,* and **Gayan B. Wijeratne*** "Proton-coupled Electron Transfer Reactivities of Electronically Divergent Heme Superoxide Intermediates: A Kinetic, Thermodynamic, and Theoretical Study" *Chem. Sci.* **2021,** *12*, 8872–8883.

17. Eva M. Zolnhofer, **Gayan B. Wijeratne**, Timothy A. Jackson*, Skye Fortier, Frank W. Heinemann, Karsten Meyer, J. Krzystek, Andrew Ozarowski, Daniel J. Mindiola, and Joshua Telser* "Electronic Structure and Magnetic Properties of a Titanium(II) Coordination Complex" *Inorg. Chem*. **2020**, *59*, 6187–6201; ACS Editor's Choice article.

16. Pritam Mondal and **Gayan B. Wijeratne*** "Modeling Tryptophan/Indoleamine 2,3-Dioxygenase with Heme Superoxide Mimics: Is Ferryl the Key Intermediate?" *J. Am. Chem. Soc*. **2020**, *142*, 1846–1856.

15. **Gayan B. Wijeratne***, Mayukh Bhadra, Maxime A. Siegler, and Kenneth D. Karlin* "Modeling Nitric Oxide Reductase Function with a Mononuclear Copper(I) Complex: Intramolecular Proton Transfer Promotes $N_2O_{(g)}$ Release" *J. Am. Chem. Soc.,* **2019**, *141,* 17962–17967.

Prior to independent research work

14. Joshua D. Parham, **Gayan B. Wijeratne**, Jaycee Mayfield, and Timothy A. Jackson* "Steric Control of Dioxygen Activation Pathways for Mn^{II} Complexes Supported by Pentadentate, Amide-containing Ligands" *Dalton Trans.* **2019***, 48,* 13034–13045.

13. Suzanne M. Adam, **Gayan B. Wijeratne**, Patrick J. Rogler, Daniel E. Diaz, David A. Quist, Jeffrey J. Liu, and Kenneth D. Karlin* "Fe/Cu Complexes: Toward Understanding Heme-Copper Oxidase Structure and Function" *Chem. Rev.* **2018***, 118,* 10840–11022; published in the 2018 special issue titled *"Oxygen Reduction and Activation in Catalysis".*

12. **Gayan B. Wijeratne**, Melissa C. Denler, Derek B. Rice, Hannah E. Colmer, Victor W. Day, and Timothy A. Jackson* "Mn^{III}-Peroxo Adduct Supported by a New Tetradentate Ligand Shows Acid-Sensitive Aldehyde Deformylation Reactivity" *Dalton Trans.* **2018***, 47,* 13442–13458.

11. Joshua D. Parham, **Gayan B. Wijeratne**, Derek B. Rice, and Timothy A. Jackson* "Spectroscopic and Structural Characterization of Mn(III)–alkylperoxo Complexes Supported by Pentadentate Amide-containing Ligands" *Inorg. Chem.* **2018**, *57,* 2489–2502.

10. Derek B. Rice, **Gayan B. Wijeratne**, and Timothy A. Jackson* "Mn K-edge X-ray Absorption Studies of Mononuclear Mn(III)–hydroxo Complexes" *J. Biol. Inorg. Chem.* **2017**, *22,* 1281–1293.

9. **Gayan B. Wijeratne**, Shabnam Hematian, Maxime A. Siegler, and Kenneth D. Karlin* "Copper(I)/$NO_{(g)}$ Reductive Coupling Producing a *trans*-Hyponitrite Bridged Dicopper(II) Complex – Redox Reversal giving Copper(I)/$NO_{(g)}$ Disproportionation" *J. Am. Chem. Soc.* **2017**, *139,* 13276–13279.

8. Derek B. Rice, **Gayan B. Wijeratne**, Andrew D. Burr, Joshua D. Parham, Victor W. Day, and Timothy A. Jackson* "Steric and Electronic Influence on Proton-coupled Electron-transfer Reactivity of a mononuclear Mn(III)-hydroxo Complex" *Inorg. Chem.* **2016**, *55,* 8110–8120.

7. **Gayan B. Wijeratne**, Eva M. Zolnhofer, Skye Fortier, Lauren N. Grant, Patrick J. Carroll, Chun-Hsing Chen, Karsten Meyer, J. Krzystek, Andrew Ozarowski, Timothy A. Jackson*, Daniel J. Mindiola*, and Joshua Telser* "Electronic Structure and Reactivity of a Well-defined Mononuclear Complex of Ti(II)" *Inorg. Chem.* **2015**, *54,* 10380–10397.

6. **Gayan B. Wijeratne**, Victor W. Day, and Timothy A. Jackson* "O–H Bond Oxidation by a Monomeric Mn(III)–OMe Complex" *Dalton Trans.* **2015**, *44*, 3295–3306.

5. **Gayan B. Wijeratne**, Briana Corzine, Victor W. Day, and Timothy A. Jackson* "Saturation Kinetics in Phenolic O–H Bond Oxidation by a Mononuclear Mn(III)–OH Complex Derived from Dioxygen" *Inorg. Chem*. **2014**, *53*, 7622–7634.

4. Hannah E. Colmer, Robert A. Geiger, Domenick F. Leto, **Gayan B. Wijeratne**, Victor W. Day, and Timothy A. Jackson* "Geometric and Electronic Structure of a Peroxomanganese(III) Complex Supported by a Scorpionate Ligand" *Dalton Trans*. **2014**, *43*, 17949–17963.

3. Arron B. Wolk, Christopher M. Leavitt, Joseph A. Fournier, Michael Z. Kamrath, **Gayan B. Wijeratne**, Timothy A. Jackson, and Mark A. Johnson* "Isolation and Characterization of a

Peroxo Manganese (III) Dioxygen Reaction Intermediate Using Cryogenic Ion Vibrational Predissociation Spectroscopy" *Int. J. Mass Spectrom*. **2013**, *354–355*, 33–38.

2. Timothy A. Jackson*, J. Krzystek, Andrew Ozarowski, **Gayan B. Wijeratne**, Benjamin F. Wicker, Daniel J. Mindiola, and Joshua Telser* "Vanadocene *de Novo*: Spectroscopic and Computational Analysis of Bis(η^5-Cyclopentadienyl)Vanadium(II)" *Organometallics* **2012**, *31*, 8265–8274.

1. Robert A. Geiger, **Gayan B. Wijeratne**, Victor W. Day, and Timothy A. Jackson* "Steric and Electronic Influences on the Structures of Peroxomanganese(III) Complexes Supported by Tetradentate Ligands" *Eur. J. Inorg. Chem*. **2012**, *2012*, 1598–1608.

PATENT ACTIVITY

1. U.S. provisional patent application no. 63590988; Title: "Nitro Indole Derivatives as a Novel Matrix Design Framework for MALDI Mass Spectrometry with Broad Applications" (2024); Investors: Gayan B. Wijeratne, Qiaoli Liang and Pritam Mondal

2. U.S. provisional patent application no. 63177414; Title: "Methods for producing 2-oxindoles from indoles" (2021); Inventors: Gayan B. Wijeratne and Pritam Mondal

CONTRIBUTED RESEARCH PRESENTATIONS

Oral (presenter name is underlined):

265th American Chemical Society National Meeting, Aug. 13th – 17th, 2023, San Francisco, CA; Gayan B. Wijeratne, Pritam Mondal, and Shanuk Rajapakse; Title: "*Mechanistic Investigations into Arginine Degrading Nitric Oxide Synthase using Synthetic Heme Peroxo Mimics and Oxime Substrates*"

265th American Chemical Society National Meeting, Aug. 13th – 17th, 2023, San Francisco, CA; Samith B. Jayawardana, and Gayan B. Wijeratne; Title: "*Modeling Nitric Oxide Dioxygenase Reactivity using Bio-inspired Synthetic Heme-peroxo Intermediates and Nitrosonium*"

265th American Chemical Society National Meeting, Aug. 13th – 17th, 2023, San Francisco, CA; Shanuk Rajapakse, Pritam Mondal, and Gayan B. Wijeratne; Title: "*Mechanistic Investigations into Aldehyde Deformylation by Biomimetic Ferric Peroxo Complexes*"

263rd American Chemical Society National Meeting, Aug. 21st – 25th, 2022, Chicago, IL; Pritam Mondal, Shanuk Rajapakse, and Gayan B. Wijeratne; Title: "*Biomimetic Monooxygenation of Indoles using Synthetic Compound-I and Activated Compound-II Complexes*"

72nd Southeastern Regional Meeting of the ACS (SERMACS), Nov. 10th – 13th, 2021, Birmingham, AL; Pritam Mondal and Gayan B. Wijeratne; Title: "*Kinetic, Thermodynamic, and Theoretical Investigations into Proton-coupled Electron Transfer Reactivities of Synthetic Heme Superoxide Intermediates*"

77th Southwest Regional Meeting of the ACS (SWRM), Oct. 30th – Nov. 3rd, 2021, Austin, TX; Garrett B. Tolbert and Gayan B. Wijeratne; Title: "*Enhanced Rates of Indole Dioxygenation by a Synthetic Heme Iron(III)-Superoxo Model in the Presence of Lewis Acid Coordination Complexes*"

254th American Chemical Society National Meeting, Aug. 20th – 24th, 2017, Washington, D.C.; Gayan B. Wijeratne, Shabnam Hematian, Maxime A. Seigler, and Kenneth D. Karlin; Title: "*New Insights into Copper-nitrosyl Chemistry and Isolation and Characterization of a trans-hyponitrite-bridged Dicopper(II) Complex*"

249th American Chemical Society National Meeting, Mar. 22nd – 26th, 2015, Denver, CO; Gayan B. Wijeratne, Andrew D. Burr, Briana Corzine, and Timothy A. Jackson; Title: "*Dioxygen Activation Under Ambient Conditions Using Bio-inspired Manganese(II) Complexes to Generate Mid-valent Oxidants for Catalytic O–H Bond Oxidations*"

Poster (presenter name is underlined):

2024 *Chemistry and Biology of Tetrapyrroles* Gordon Research Seminar and Conference, Jul. 13th – 19th, 2024, Newport, RI; Dhilanka Udukala, and Gayan B. Wijeratne; Title: TBD

2024 *Chemistry and Biology of Tetrapyrroles* Gordon Research Seminar and Conference, Jul. 13th – 19th, 2024, Newport, RI; Shanuk Rajapakse, Izumi Ishigami, Syun-Ru Yeh, Gayan B. Wijeratne; Title: TBD

2023 National Conference on Undergraduate Research (NCUR), Apr. 13th–15th, 2023, Eau Claire, WI; Jeydi Gonzalez-Guzman, Samith B. Jayawardana, Gayan B. Wijeratne; Title: "*Modeling Tryptophan/Indoleamine 2,3 Dioxygenase Activity with Water-Soluble Heme Superoxide Mimics*"

2023 *Metals in Biology* Gordon Research Conference, Jan. 22nd – 27th, 2023, Ventura, CA; Gayan B. Wijeratne, Pritam Mondal, Shanuk Rajapakse, Samith B. Jayawardana; Title: "*Bio-inspired Reactivity Landscapes of Mid-valent Heme-O_2 and Heme-O_2/NO_x Intermediates and their Potential Synthetic Utility*"

2022 *Chemistry and Biology of Tetrapyrroles* Gordon Research Conference, Jul. 17th – 22nd, 2022, Newport, RI; Shanuk Rajapakse, Pritam Mondal, Izumi Ishigami, Syun-Ru Yeh, Gayan B. Wijeratne; Title: "*Elucidating the Role of Heme Axial Coordination in the Reactivity Patterns of Heme Peroxo Intermediate of Nitric Oxide Synthase*"

2022 *Metallocofactors* Gordon Research Conference, Jun. 5th – 10th, 2022, Newport, RI; Pritam Mondal, Shanuk, Rajapakse, Gayan B. Wijeratne; Title: "*Biomimetic Monooxygenation of Indoles Using Synthetic Compound-I and Activated Compound-II Complexes*"

2022 Summer Undergraduate Research Symposium of the Center for Community Outreach Development, University of Alabama at Birmingham, Jul. 29th, 2022, Birmingham, AL; Julia Kiefer, Shanuk, Rajapakse, and Gayan B. Wijeratne; Title: "*Bioinspired Reactivity Landscapes of Heme Superoxo/Peroxo Systems: Synthetic Design and Critical Structure-Function Relationships*"

52nd Southeastern Undergraduate Research Conference, Jan. 25th, 2020, Tuscaloosa, AL; Eunice Lim, Pritam Mondal, and Gayan B. Wijeratne; Title: "*Exploring Bio-Inspired Reactivity Landscapes of Heme Superoxo Model Systems*"

2014 *Metals in Biology* Gordon Research Seminars, Jan. 30th – Feb. 02nd, 2014, Ventura, CA; Gayan B. Wijeratne, Victor W. Day, and Timothy A. Jackson; Title: "*Catalytic Reduction of Dioxygen to Water Involving a Structurally Characterized Mn(III)–OH Species*"

242nd American Chemical Society National Meeting, Aug. 28th – Sep. 1st, 2011, Denver, CO; Gayan B. Wijeratne, Robert A. Geiger, and Timothy A. Jackson; Title: "*Effects of Ligand Perturbations on the Electronic Structures of Peroxomanganese(III) Adducts*"

STUDENT/POSTDOCTORAL MENTORING

Postdoctoral researchers:

Dr. Akhil Singh (UAB/UA)	Apr. 2022 – Apr. 2024
Dr. Pritam Mondal (UAB)	Feb. 2019 – Jul. 2023

Graduate students:

Steven Zheng (UA)	May 2024 – present
Osondu (Skye) Ugochukwu (UA)	Dec. 2023 – present
Dhilanka Udukala (UAB/UA)	May 2022 – present
Shanuk Rajapakse (UAB/UA)	Jan. 2021 – present
Samith Jayawardana (UAB/UA)	Jan. 2021 – present
Garrett Tolbert (UAB)	Apr. 2019 – present
Mangi Lal Godara (UAB)	Sep. 2021 – Jul 2023
Xyan Aguilar (UAB)	Jan. 2019 – Nov. 2019
Diego Morett (JHU)	Jan. 2017 – Jun. 2018
Hyun Kim (JHU)	Jun. 2016 – Jun. 2018
Joshua D. Parham (KU)	Jan. 2015 – Jun. 2015
Derek Rice (KU)	Jan. 2014 – Jun. 2015

Undergraduate students:

Selena Zheng (summer intern from Auburn U.)	June 2024 – present
Collin Gabel (UA)	Jan. 2024 – present
Emily Pierce (UA)	Dec. 2023 – present
Birdie Sun (UA)	Oct. 2023 – present
Daniel Lynn (UA)	Oct. 2023 – present
Richard Broskey (UA)	Aug. 2023 – May 2024
Will Bender (UA)	Oct. 2023 – Apr. 2024
Steven Zheng (UAB)	Aug. 2022 – Aug. 2023
Julia Kiefer (UAB)	Aug. 2022 – Aug. 2023
Kayla Hey (UAB)	May 2022 – May 2023

Jeydi Gonzalez-Guzman (UAB)	May 2022 – May 2023
Eunice Lim (UAB)	Jan. 2019 – May 2021
Amy Copes (UAB)	Feb. 2019 – Jan 2020
Andrew Burr (KU)	Jan. 2014 – Jun. 2015
Briana Corzine (KU-REU)	May 2013 – Jul. 2013

Student/Postdoc Awards:

Shanuk Rajapakse – Alabama EPSCoR Graduate Research Scholar	May 2023 – present
Garrett Tolbert – Alabama EPSCoR Graduate Research Scholar	May 2022 – present
Dr. Akhil Singh – Career Enhancement Award, UAB Office of Postdoctoral Education	Aug. 2023
Shanuk Rajapakse – Excellence in Inorganic Chemistry	May 2023
Samith Jayawardana – Inducted into The Honor Society of Phi Kappa Phi	May 2023
Samith Jayawardana – Graduate Student Leadership in Mentoring	May 2023
Samith Jayawardana – The Love of Learning Award	Jul. 2023
Jeydi Gonzalez-Guzman – NIH Postbac IRTA Training Award	May 2023
Julia Kiefer – UAB Bridges to Baccalaureate Research Training Program	Aug. 2022 – May 2023
Julia Kiefer – Promising Scientist Award, UAB CORD research award reception	Jul. 2022
Garrett Tolbert – Excellent in Inorganic Chemistry Graduate Research Award	May 2021
Dr. Pritam Mondal – Dr. Congeniality Award, UAB Office of Postdoctoral Education	Sep. 2021
Eunice Lim – UAB Honors College Presidential Summer Research Scholarship	summer 2020
Eunice Lim – Larry Krannich Endowed Student Research Scholarship	summer 2020

GRANT ACTIVITY

Funded:

1. Project title: "*Modeling Critical Aspects of Tryptophan Oxidation in Biology*"
   Source of funding: University of Alabama at Birmingham – Faculty Development Grant Program
   Total amount: $7,100
   Dates: 05/01/2019 – 04/30/2020
   Role: PI

2. Project title: "*CAREER: Geometric and Electronic Contributions to Bio-inspired Reactivities of Heme-superoxide Intermediates*"
   Source of funding: U.S. National Science Foundation – CHE The Chemistry of Life Processes (CLP) Program
   Total amount: $710,000
   Dates: 05/01/2021 – 04/30/2026
   Role: PI

3. Project title: "*Mechanistic Investigation into Nitric Oxide Interconversion Pathways of Heme Enzymes using Synthetic Mimics*"

   Source of funding: U.S. National Institutes of Health – National Institute of General Medical Sciences (NIGMS) – MIRA-ESI (R35) Mechanism

   Total amount requested: $1,801,163

   Dates: 06/15/2024 – 04/30/2029

   Role: PI

Declined:

- Project title: "*Zeolite Encapsulated Inorganic Complexes as Tunable Catalysts for Oxidative C-H Bond Activation*"
  Source of funding: U.S. National Science Foundation – CHE Chemical Catalysis (CAT) Program
  Total amount requested: $777,538
  Dates: 05/01/2024 – 04/30/2027
  Role: co-PI