Long Luo

Associate Professor of Chemistry

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Education

2011 – 2014 **University of Utah**, Salt Lake City, UT
Ph.D. Analytical Chemistry, GPA: **3.99/4.0**
Thesis title: "Electrolyte negative differential resistance, nanoparticle dynamics in nanopores, and nanobubble generation at nanoelectrodes."
Advisor: Prof. Henry S. White

2005 – 2009 **Beijing University of Aeronautics and Astronautics (BUAA)**, China
B.S. Applied Chemistry, minor in English (GPA: **3.84/4.0**; **Rank 1st**)
Thesis title: "Electrochemical detection of parts-per-billion copper ion based on the self-cleavage of specific DNAs"
Advisor: Prof. Lidong Li

Professional Experience

2024 – Present **Associate Professor,** Department of Chemistry, University of Utah

2023 – 2024 **The Carl R. Johnson Associate Professor,** Department of Chemistry, Wayne State University

2022 – 2023 **The Carl R. Johnson Assistant Professor,** Department of Chemistry, Wayne State University

2017 – 2022 **Assistant Professor,** Department of Chemistry, Wayne State University

2014 – 2017 **Postdoctoral Research Fellow**, Department of Chemistry, the University of Texas at Austin (PI: Prof. Richard M. Crooks)

Honors and Awards

- Editorial Board Member, *ACS Electrochemistry,* **2024** – present
- Editorial Board Member, *Journal of Electrochemistry*, Jan. **2024** - present
- Scialog Fellow, "Automating Chemical Laboratories", Research Corporation for Science Advancement, **2024**
- The Royce W. Murray Young Investigator Award, the Society of Electroanalytical Chemistry, **2024**
- Alfred P. Sloan Research Fellow in Chemistry, **2023**
- *Chem Comm* 2022 Emerging Investigators, **2022**
- *Anal. Bioanal. Chem.* 2023 Young Investigators in (Bio-)Analytical Chemistry, **2022**
- Inaugural Carl Johnson Early Career Professorship, **2022**
- *Nanoscale* 2022 Emerging Investigators, **2021**
- NIH Maximizing Investigators' Research Award (MIRA), **2021**
- Wayne State University Academy of Scholars Junior Faculty Award, **2020-21**
- NSF CAREER Award, **2020**
- The *Langmuir* inaugural Early Career Advisory Board Member
- Young Professional & Early Career Travel Award, The Electrochemical Society, **2019**
- Taylor Young Investigator Travel Award, the Midwestern Universities Analytical Chemistry Conference (MUACC), **2018, 2021**
- Ebbing Faculty Development Award, Wayne State University, **2017, 2021**
- Dow Chemical First-Year Scholarship, University of Utah, **2012**

- Nanotechnology Training Program Fellowship, University of Utah, **2011**
- National Scholarship, BUAA, **2008**
- The First-Class Scholarship, BUAA, **2006-07**
- Kwang-Hua Scholarship, BUAA, **2006**

Research Interests

Electrochemistry, Catalysis, Photocatalysis, Material and organic synthesis, Chemical and biosensing.

Publications († Undergraduate researcher, * Corresponding author)

a) Manuscripts in preparation and under review.

1. Li, S.; Peng, Y.; Geng, X.; Zhang, L.; Luo, L.* Hydrogen Reduction Reaction Activities of Pt Grain Boundaries in Acidic and Alkaline Media, **2024**, in preparation.
2. Maity, R.; Dungan, O.; Liu, D.; Li*, J.; Perras, F.; Ren, S.; Lehnherr, D.; Huang, Z.; Phillips, E. M.; Liu, Z.; Luo, L.* Hydrogen Isotope Labelling of Pharmaceuticals via Dual Hydrogen Isotope Exchange Pathways, **2024**, in preparation.
3. Kempler, P.; * Coridan, R. H.; Luo, L. Gas Evolution in Water Electrolysis, *Chem. Rev.* **2024**, under revision. (Invited Review)
4. Liu, D.; Hazra, A.; Liu, X.; Maity, R.; Tan, T.*; Luo, L.* CdS Quantum Dot Gels as a Direct Hydrogen Atom Transfer Photocatalyst for C-H Functionalization, **2024**, *Angew. Chem. Int. Ed.*, under revision. (ChemRxiv Preprint. DOI: 10.26434/chemrxiv-2024-z2dlj).
5. Sheng, H.; Geng, X.; Liu, C.; * Luo, L.* How Can Machine Learning Empower Electrochemical Researchers? *Joule*, **2024**, under revision.

(b) Accepted and published.

6. Stringer, B.; Schmeltzer, A.; Ryu, C. H.; Ren, H.; Luo, L.* Resistive pulse analysis of chiral amino acids utilizing the metal-amino acid crystal crystallization differences, *Analyst*, **2024**, *149*, 3108-3114. (***Invited contribution to the 150th-anniversary collection and selected as Analyst HOT Articles 2024***)
7. Carneiro, S. N.; Laffoon, J. D.; Luo, L.*; Sanford, M. S.* Benchmarking Trisaminocyclopropeniums as Mediators for Anodic Oxidation Reactions, *J. Org. Chem.,* **2024,** 89, *9*, 6389–6394.
8. Streater, D.; Kennehan, E.; Wang, D.; Fiankor, C.; Hu, W.; Liu, D.; Kohlstedt, K.; Luo, L.; Zhang, J.; Huang, J., Control Over Charge Separation by Imine Structural Isomerization in Covalent Organic Frameworks with Implications on CO_2 Photoreduction, *J. Am. Chem. Soc.* **2024**, 146, *7*, 4489–4499.
9. Behera, N.; Rodrigo, S.; Hazra, A.; Maity, R.; Luo, L.* Revisiting Alternating Current Electrolysis for Organic Synthesis, *Curr. Opin. Electrochem.* **2023**, *43*, 101439. (***Invited Review Article***)
10. Avanthay, M.; Batanero, B.; Boucher, D. G.; Bondue, C.; Broersen, P.; Brown, R. C. D.; Francke, R.; Fuchigami, T.; Kuhn, A.; Lam, K.; Lin, C.-Y.; Liu, T. L.; Luo, L.; Minteer, S. D.; Moeller, K.; Nokami, T.; Price, R.; Rasul, S.; Sokalu, E., Selective organic electrosynthesis: general discussion. *Faraday Discuss.* **2023,** *247* (0), 70-78.
11. Avanthay, M.; Beeler, J. A.; Batanero, B.; Boucher, D. G.; Brown, R. C. D.; Flexer, V.; Francke, R.; Frontana-Uribe, B. A.; Hosseini, S.; Luo, L.; Minteer, S. D.; Price, R.; Shida, N.; Ramos-Villaseñor, J. M.; Wirth, T., New strategies in organic electrosynthesis: general discussion. *Faraday Discuss.* **2023**, *247* (0), 125-131.
12. Ranaweera, R.; Wijesinghe, S.; Weerarathna, U.; Chowdhury, A.;† Kajjam, A. B.; Wang, B.; Dittrich, T. M.; Allen, M. J.; Luo, L.* Recycling Gadolinium from Hospital Effluent via Electrochemical Aerosol Formation*, ACS ES&T Engineering* **2023,** Accepted, DOI: 10.1021/acsestengg.3c00377. (***Featured on the front journal cover***).
13. Rodrigo, S.; Hazra, A.; Mahajan, J. P.; Nguyen, H. M.; * Luo, L.* Overcoming the Potential Window-Limited Functional Group Compatibility by Alternating Current Electrolysis, *J. Am. Chem. Soc.* **2023**, *145*, 40, 21851–21859.
14. Geng, X.; Liu, D.; Hewa-Rahinduwage, C. C.; Brock, S. L.;* Luo, L.* Electrochemical Gelation of

Metal Chalcogenide Quantum Dots: Applications in Gas Sensing and Photocatalysis, *Acc. Chem. Res.*, **2023**, *56*, 9, 1087–1096

15. Behera, N.; Gunasekera, D.; Mahajan, J. P.; Frimpong, J.; Liu, Z.; Luo, L.* Electrochemical Hydrogen Isotope Exchange of Amines Controlled by Alternating Current Frequency, *Faraday Discuss.*, **2023**, *247*, 45 - 58
16. Geng, X.; Li, S.; Mei, Z.; Li, D.; Zhang, L.*; Luo, L.* Ultrafast Metal Oxide Reduction Kinetics at the Pd/PdO_2 Interface Enables One-Second Detection of Hydrogen Gas Under Ambient Conditions, *Nano Research,* **2023**, 16, 1149–1157.
17. Liu, D.; Nyakuchena, J.; Maity, R.; Geng, X.; Mahajan, J.; Hewa-Rahinduwage, C.C.; Peng, Y.; Huang, J.*; Luo, L.* Quantum dot gels as efficient and unique photocatalysts for organic synthesis, *Chem. Comm.* **2022**, *58*, 11260-11263 (***Invited contribution to the 2022 Emerging Investigators collection***).
18. Ranaweera, R.; An, S.; Cao, Y.; Luo, L.* Highly Efficient Preconcentration Using Anodically Generated Shrinking Gas Bubbles for Per- and Polyfluoroalkyl Substances (PFAS) Detection, *Anal. Bioanal. Chem.*, **2022**, *415*, 4153–4162. (***Invited contribution to the 2023 Young Investigators collection, selected as a Paper in Forefront by Editors***)
19. Geng, X.; Li, S.; Heo, J.; Peng, Y.; Hu, W.; Liu, Y.; Huang, J.; Ren, Y.; Li, D.*; Zhang, L.*; Luo, L.* Grain-Boundary-Rich Noble Metal Nanoparticle Assemblies: Synthesis, Characterization, and Reactivity, *Adv. Funct. Mater.,* **2022**, *32*, 2204169.
20. Gunasekara, D.; Mahajan, J. P.; Wanzi, Y.; Rodrigo, S.; Liu, W.; Tan, T.; Luo, L.* Controlling One- or Two-Electron Oxidation for Selective Amine Functionalization by Alternating Current Frequency, *J. Am. Chem. Soc.* **2022**, *144*, 22, 9874–9882.
21. Hewa-Rahinduwage, C.; Silva, K. L.; Geng, X.; Brock, S. L.*; Luo, L.* Electrochemical Gelation of Quantum Dots Using Non-Noble Metal Electrodes at High Oxidation Potentials, *Nanoscale,* **2021**, *13*, 20625 - 20636. (***Invited contribution to the 2022 Emerging Investigators collection***)
22. Geng, X.; Liu, X.; Mawella-Vithanage, L.; Hewa-Rahinduwage, C.; Zhang, L.; Brock, S. L.; Tan, T.*; Luo, L.* Photoexcited NO_2 Enables Accelerated Response and Recovery in Light-activated NO_2 Gas Sensing, *ACS Sens.* **2021**, *6*, 12, 4389–4397 (***Featured on the supplementary cover, Special Virtual Collection: Quantum Dots in Analysis***)
23. Yang, Z.; Zhang, S.; Zhao, H.; Li, A.; Luo, L.*; Guo, L.* Sub-Nano FeO_x Clusters Anchored in an Ultrathin Amorphous Al_2O_3 Nanosheet for Styrene Epoxidation, *ACS Catal.* **2021**,*11*,11542−11550.
24. Geng, X.; Li, S.; Mawella-Vithanage, L.; Ma, T.; Kilani, M.; Wang, B.; Ma, L.; Hewa-Rahinduwage, C.; Shafikova, A.; Nikolla, E.; Mao, G.; Brock, S. L.*; Zhang, L.*; Luo, L.* Atomically dispersed Pb ionic sites in PbCdSe quantum dot gels enhance room-temperature NO_2 sensing, *Nat. Commun.* **2021**,*12,* 4895.
25. Zheng, H.; Li, H.; Luo, L.; Zhao, Z.; Henkelman, G.* Factors that Influence Hydrogen Binding at Metal-Atop Sites, *J. Chem. Phys.* **2021**, *155* (2), 024703. (***Selected as an Editor's Pick***)
26. Hewa-Rahinduwage, C.; Silva, K. L.; Brock, S. L.*; Luo, L.* Quantum Dot Gelation Driven by Electrochemically Generated Metal-ion Crosslinkers, *Chem. Mater.* **2021**, *33*, 12, 4522–4528
27. Rodrigo, S.; Gunasekera, D.; Mahajan, J. P.; Luo, L.* Alternating Current Electrolysis for Organic Synthesis, *Curr. Opin. Electrochem.* **2021**, *28*, 100712. (***Invited Review Article***)
28. An, S.; Ranaweera, R.; Luo, L.* Harnessing Bubble Behaviors for New Analytical Strategies. *Analyst* **2020**, *145*, 7782-7795. (***Invited Minireview Article***)
29. Isuri Weeraratne, A. D. K.; Hewa-Rahinduwage, C. C.; Luo, L.;* Verani, C. N.* Electrochemical Quantification of Corrosion Mitigation on Iron Surfaces with Gallium (III) and Zinc (II) Metallosurfactants, *Langmuir* **2020**, *36*, 47, 14173–14180.
30. Rodrigo, S.; Um, C.; Gunasekera, D.; Mixdorf, J.; Nguyen, H. M.*; Luo, L.* Alternating Current Electrolysis for Organic Electrosynthesis: Trifluromethylation of (Hetero)arenes. *Org. Lett.* **2020**, *22*, 17, 6719–6723. (***Featured on the supplementary cover.***)
31. Hewa-Rahinduwage, C.; Geng, X.; Silva, K. L.; Niu, X.; Zhang, L.*; Brock, S. L.*; Luo, L.* Reversible Electrochemical Gelation of Metal Chalcogenide Quantum Dots, *J. Am. Chem. Soc.* **2020***, 142, 28,* 12207–12215 (***Highlighted by X-MOL; Featured on the supplementary cover.***)
32. Yu, F; Dickson, J. L.; Loka, R. S.; Xu, H; Schaugaard, R. N.; Schlegel, H. B; Luo, L;* Nguyen, H. M.,* Diastereoselective sp3 C-O Bond Formation via Visible Light-Induced, Copper-Catalyzed

Cross Couplings of Anomeric Alkyl Bromides with Aliphatic Alcohols. *ACS* Catal. **2020**, *10* (11), 5990-6001.

33. Ranaweera, R.; Luo, L.* Electrochemistry of Nanobubbles, *Curr. Opin. Electrochem.* **2020,** *22***,** 102-109. (***Invited Review Article***)
34. Zhao, X.; Ranaweera, R.; Mixdorf, J. C.; Nguyen, H. M.; Luo, L.* Lowering Interfacial Dissolved Gas Concentration for Highly Efficient Hydrazine Oxidation at Platinum by Fluorosurfactant Modulation, *ChemElectroChem* **2020**, *7*, 55-58. (***Featured on the cover picture; Invited contribution to Richard M. Crooks Festschrift***)
35. Isuri Weeraratne, A. D. K.; Hewa-Rahinduwage, C. C.; Gonawala, S.; Luo, L.*; Verani, C. N.* Molecular Films of Zn^{II}- and Ga^{III}-based Metallosurfactants for Mitigation of Aluminum Pitting Corrosion, *Chem.: Eur. J***. 2019,** *25***,**14048–14053.
36. Cao, Y.; Lee, C.; Davis, E. T. J.; Si, W.; Wang, F.; Trimpin, S.; Luo, L.* 1000-Fold Preconcentration of Per- and Polyfluorinated Alkyl Substances (PFAS) within 10 min via Electrochemical Aerosol Formation. *Anal. Chem.* **2019**, *91,* 14352-14358. (***Featured on the supplementary cover***)
37. Ranaweera, R.; Ghafari, C.; † Luo, L.* Bubble-Nucleation-Based Method for the Selective and Sensitive Electrochemical Detection of Surfactants. *Anal. Chem.* **2019**, *91,* 7744-7748. (***Highlighted by C&EN News, Nature Nanotechnology, and X-MOL; Featured on the supplementary cover***)
38. Zhao, X.; Ren, H.; Luo, L.* Gas Bubbles in Electrochemical Gas Evolving Reactions, *Langmuir* **2019***, 35, 16,* 5392-5408. (***Invited Feature Article***)
39. Gunasekara, D.; Kilani, M.; Yu, X.; Chen, Q.; Mao, G.; Luo, L.* A Simple Mass Transfer-Based Method for Electrosynthesis of Uniform Tetrathiafulvalene Bromide Micro/Nanowires with High Aspect Ratio and Controlled Density. *J. Electrochem. Soc.*, **2019**, *166*, H63-H69.
40. Zhao, X.; Ranaweera, R.; Luo, L.* Highly Efficient Hydrogen Evolution of Platinum via Tuning Interfacial Dissolved-Gas Concentration, *Chem. Commun.,* **2019**, *55*, 1378-1381. (***Featured on the back cover***)
41. Chen, Q.; Ranaweera, T.R.; Luo, L.* Hydrogen Bubble Formation at Hydrogen-Insertion Electrodes, *J. Phys. Chem. C,* **2018**, *122,* 15421–15426.
42. Chen, Q.; Luo, L.* Correlation between Gas Bubble Formation and Hydrogen Evolution Reaction Kinetics at Nanoelectrodes, *Langmuir,* **2018**, *34*, 4554–4559.

Before joining Wayne State University

43. Lapp, A.S.; Duan, Z.; Marcella, N.; Luo, L.; Genc, A.; Ringnalda, J.; Frenkel, A. I.; Henkelman, G.; Crooks, R.M. Experimental and Theoretical Structural Investigation of AuPt Nanoparticles Synthesized using a Direct Electrochemical Method, *J. Am. Chem. Soc.*,**2018**, *140*, 6249–6259.
44. Huang, K.; Clausmeyer, J.; Luo, L.; Jarvis, K.; Crooks, R. M. Shape-Controlled Electrodeposition of Single Pt Nanocrystals onto Carbon Nanoelectrodes, *Faraday Discuss.*, **2018**, *210*, 267−280.
45. He, W.; Luo, L.; Liu, Q.; Chen, Z. Colorimetric Sensor Array for Discrimination of Heavy Metal Ions in Aqueous Solution Based on Three Kinds of Thiols as Receptors, *Anal. Chem.* **2018**, *90*, 4770−4775.
46. Li, H.; Luo, L.; Kunal, P.; Bonifacio, C. S.; Duan, Z.; Yang, J. C.; Humphrey, S. M.; Crooks, R.M.; Henkelman, G. Oxygen Reduction Reaction on Classically Immiscible Bimetallics: A Case Study of RhAu, *J. Phys. Chem. C*, **2018**, *122, 5,* 2712–2716.
47. Luo, L.; Timoshenko, J.; Lapp, A.; Frenkel, A.; Crooks, R. M. Structural characterization of Rh and RhAu dendrimer-encapsulated nanoparticles, *Langmuir*, **2017,** *33*, 12434–12442.
48. Luo, L.; Duan, Z.; Li, H.; Kim, J.; Henkelman, G.; Crooks, R. M. Tunability of the Adsorbate Binding on Bimetallic Alloy Nanoparticles for the Optimization of Catalytic Hydrogenation, *J. Am. Chem. Soc.*, **2017**, *139*, 5538–5546.
49. Li, X.; Luo, L.; Crooks, R. M. Faradaic Ion Concentration Polarization on a Paper Fluidic Platform. *Anal. Chem.*, **2017**, *89*, 4294–4300
50. Lan, W.; Martin, E.; Luo, L.; Perera, R.; Wu, X.; Martin, C.; White, H.S. Voltage Rectified Current and Fluid Flow in Conical Nanopores, *Acc. Chem. Res.,* **2016,** *49*, 2605–2613.
51. Luo, L.; Zhang, L.; Duan, Z.; Henkelman, G.; Crooks, R. M. Efficient CO Oxidation using Dendrimer-Encapsulated Pt Nanoparticles Activated with <2% Cu Surface Atoms, *ACS Nano*,

2016, *10*, 8760–8769.

52. German, S.R.; Edwards, M. A.; Chen, Q.; Luo, L.; White, H. S. Electrochemistry of Single Nanobubbles. Estimating the Critical Size of Bubble-Forming Nuclei for Gas-Evolving Electrode Reactions, *Faraday Discuss.*, **2016,** *193*, 223−240.
53. Cunningham, J. C.; Kogan, M. R.; Tsai, Y. J.; Luo, L.; Richards, I.; Crooks, R. M. Paper-based Electrochemical Detection of Silver Nanoparticle Labels by Galvanic Exchange, *ACS Sens.*, **2016**, *1*, 40−47. (***Featured on the front cover, Top 10 most read paper in 2016***)
54. Li, X.; Luo, L.; Crooks, R. M. Low-Voltage Paper Isotachophoresis Device for DNA Focusing, *Lab Chip*, **2015**, *15*, 4090−4098. (***The first two authors contributed equally.***)
55. Luo, L.; Zhang, L.; Henkelman, G.; Crooks, R. M. Unusual Activity Trend for CO Oxidation on Pd_xAu_{140-x}@Pt Core@Shell Nanoparticle Electrocatalysts, *J. Phys. Chem. Lett.,* **2015**, *6*, 2562–2568.
56. Chen, Q.; Luo, L.; White, H. S. Electrochemical Generation of a Hydrogen Bubble at a Recessed Platinum Nanopore Electrode, *Langmuir,* **2015**, *31*, 4573–4581.
57. Luo, L.; Li, X.; Crooks, R. M. Low-Voltage Origami-Paper-Based Electrophoretic Device for Rapid Protein Separation, *Anal. Chem.,* **2014**, *86*, 12390–12397.
58. Luo, L.; German, S.; Lan, W. J.; Mega, T. L.; White, H. S. Resistive Pulse Analysis of Nanoparticles, invited review by *Annu. Rev. Anal. Chem.*, **2014,** *7*, 513–535.
59. Chen, Q.; Luo, L.; Faraji, H.;† Feldberg, S.W.; White, H.S. Electrochemical Measurements of Single H_2 Nanobubble Nucleation and Stability at Pt Nanoelectrodes, *J. Phys. Chem. Lett.,* **2014**, *5*, 3539–3544.
60. Luo, L.; Holden, D. A.; White, H. S. Negative Differential Electrolyte Resistance in a Solid-State Nanopore Resulting from Electroosmotic Flow Bistability, *ACS Nano*, **2014**, *8*, 3023–3030. ***(Featured on the book cover of Nanoelectrochemistry edited by Michael Mirkin and Shigeru Amemiya.)***
61. Luo, L.; Johnson, R. P.; White, H. S. Numerical Modeling of the Bistability of Electrolyte Transport in Conical Nanopores. *Proceeding of the 2013 COMSOL Conference*, **2013**. **(*Top 10 Abstracts recommended by the Program Committee*)**
62. Luo, L.; White, H. S. Electrogeneration of Single Nanobubbles at Sub-50-nm-Radius Platinum Nanodisk Electrodes. *Langmuir*, **2013**, *29*, 11169−11175.
63. German, S.R.; Luo, L.; White, H. S.; Mega, T. L. Controlling Nanoparticle Dynamics in Conical Nanopores, *J. Phys. Chem. C*, **2013**, *117*, 703−711.
64. Luo, L.; Holden, D.A.; Lan, W. J.; White, H. S. Tunable Negative Differential Electrolyte Resistance in a Conical Nanopore in Glass. *ACS Nano*, **2012**, *6*, 6507−6514.
65. Li, L.; Luo, L.;† Mu, X.;† Sun, T.; Guo, L. A Reagentless Signal-on Architecture for Electronic, Real-time Copper Sensors Based on Self-cleavage of DNAzymes, *Anal. Methods*, **2010**, *2*, 627−630.

Patents

1. **L, Luo**; X. Geng, Nanoparticle Assembly for Catalytic Hydrogen Sensing, **2021** U.S. Provisional Patent Application No. 63/278,451, filed Nov.11, 2021
2. **L, Luo**; R. Ranaweera, Bubble-Nucleation Based Electrochemical Methods for the Enrichment and Detection of Surfactants in Aqueous Solutions. **2020** U.S. Provisional Patent Application No. 62/960,523, filed Jan 13, 2020, Pub. No. US20210215631A1 published Jul 15, 2021
3. **L. Luo**; H. M. Nguyen; Alternating Current Electrochemistry for Use in Organic Synthesis. **2020** U.S. Provisional Patent Application No. 62/957,092, filed Jan 3, 2020, Pub. No. US20210207274A1 published Jul 8, 2021, Patent No. US 11,499,238 B2, Date of Patent: Nov 15, 2022
4. R. M. Crooks; I. Richards; J. Cunningham; M. Kogan; Y.-J. Tsai; **L. Luo** "Methods and Systems for the Detection of Analytes" U.S. Provisional Patent Application 62/144,902, Patent Application PCT/US16/26665, Int. Pub. No. WO 2016/164738 A1 published Oct 13, 2016.

Research Grants and External Support

External (total: $4,458,929)

1. **[Active]** United States Army Corps of Engineers (W912HZ-23-2-0038): Developing a Low-Cost Device for On-Site Detection of Per - and Polyfluoroalkyl Substances (PFAS) in Drinking Water
   Total Award: $ 259,825.79 Role: Lead PI Period:09/13/2023-09/12/2024
   ($129,913 to Luo, co-PI: Yong Xu)

2. **[Active]** Department of Energy (Award # 78705): Design of Structural Inhomogeneities to Control Functional Properties.
   Total Award: $3,600,000 Role: co-PI (Thrust Leader) Period: 12/01/2021-8/31/2024
   ($501,178 to Luo, co-PIs: Peter Sushko, Yingge Du, Dongsheng Li, Micah Prange, and Kelsey Stoerzinger)

3. **[Active]** National Institute of Health, the Maximizing Investigators' Research Award (MIRA -1R35 GM142590-01): Alternating Current Electrolysis for Organic Synthesis
   Total Award: $1,786,344 Role: Sole PI Period: 07/01/2021-06/30/2026

4. **[Active]** National Science Foundation (CHE-1943737) CAREER: CAS: Developing Gas Bubbles as a New Tool for Surface-Active Agent Analysis
   Total Award: $650,000 Role: Sole PI Period: 02/01/2020-01/31/2025

5. **[Active]** Alfred P. Sloan Foundation (FH-2023-20829), Sloan Research Fellowship: Exploring New Interdisciplinary Frontiers in Electrochemistry
   Total Award: $75,000 Role: Sole PI Period: 09/2023-08/2025

6. **[Active]** National Science Foundation (CHE- 2247057), GOALI: Developing New Hydrogen Isotope Exchange Strategies for Isotope Labelling of Pharmaceuticals
   Total Award: $ 400,008 Role: Lead PI Period: 08/01/2023-07/31/2026
   ($400,008 to Luo, co-PI: Jingwei Li, Merck & Co)

7. **[Active]** National Science Foundation (CHE-2002158) NSF Center for Synthetic Organic Electrochemistry
   Total Award: $20,000,000 Role: Investigator Period: 09/01/2023-08/31/2024
   ($200,000 to Luo, Lead PI: Shelley Minteer)

8. **[Equipment]** National Science Foundation (CHE- 2303622) MRI: Helium Recovery Equipment for a Regional NMR and EPR Laboratory at Wayne State University
   Total Award: $219,353 Role: co-PI Period: 04/2023-03/2026

9. **[Equipment]** National Institute of Health, Administrative Supplement Request for An Ultra-High Performance Liquid Chromatography-Mass Spectrometer (3R35GM142590-03W1)
   Total Award: $ 203,690 Role: Sole PI Period: 09/01/2023-08/30/2024

10. **[Completed]** United States Army Corps of Engineers (W912HZ-22-2-0002): Developing a Low-Cost Device for On-Site Detection of Per - and Polyfluoroalkyl Substances (PFAS) in Drinking Water
    Total Award: $ 229,405 Role: Lead PI Period:12/03/2021-12/02/2022
    ($118,636 to Luo, co-PI: Yong Xu)

11. **[Completed]** United States Army Corps of Engineers (W912HZ-21-2-0048): Rare-Earths from US Extractions (REUSE).
    Total Award: $3,130,353 Role: Senior collaborator Period:09/30/2021-09/29/2023
    ($ 169,807 to Luo, PIs: Matthew Allen and Timothy Dittrich)

12. **[Completed]** A. O. Smith Corp., Research Seed Funds
    Total Award: $5,000 Role: Sole PI Period: 03/01/2021-05/31/2021

Internal (total:$233,500)

13. Wayne State University, Faculty Competition for Postdoctoral Fellows
    Total Award: $60,000 Role: PI Period: 09/01/2023-08/31/2025

14. Wayne State University, the Carl R. Johnson Early Career Professorship
    Total Award: $100,000 Role: Professorship holder Period: 2022-2025

15. Wayne State University, Ebbing Faculty Development Award, A Metal-Free and Catalyst-Free Approach to Achieving the Chemical Reactivity of Photoredox Catalysis
    Total Award: $2,300 Role: PI Period: 2021

16. Wayne State University, Faculty Competition for Postdoctoral Fellows
    Total Award: $60,000 Role: PI Period: 01/04/2021-01/03/2023

17. Wayne State University, University Research Grant, Bubble Nucleation-based Electrochemical Detection (BED) Method for Determination of Per- and Polyfluoroalkyl Substances (PFAS) in Water
    Total Award: $10,000 Role: PI Period: 07/01/2019-06/30/2020

18. Wayne State University, Ebbing Faculty Development Award, Development of Low-Cost High-Sensitivity Paper-Based Biosensors for Point-of-Care Testing
    Total Award: $1,200 Role: PI Period: 2017

Invited Seminars at Universities and Research Institutes

1. Department of Chemistry, University of Florida, Gainesville, FL, Nov. 13, **2024**.
2. Department of Chemistry, Kyung Hee University, Seoul, Republic of Korea, Jun. 26, **2024.**
3. The CET-CSOE Joint Workshop, Department of Chemistry, Seoul National University, Seoul, Korea, Jun. 25, **2024.**
4. Department of Chemistry, Colorado State University, Fort Collins, CO, Jan 31, **2024**.
5. Department of Chemistry, University of Utah, Salt Lake City, UT, Jan 4, **2024**.
6. Department of Chemistry and Biochemistry, George Manson University, Fairfax, VA, Sep 29, **2023**.
7. All-Hands Meeting, The Center for Synthetic Organic Electrochemistry, Wayne State University, Detroit, MI, Aug 21, **2023**.
8. Department of Chemistry and Biochemistry, University of Arizona, Tuscon, AZ, Apr 6, **2023**.
9. The NSF Center for Integrated Catalysis, University of California Los Angeles, Mar 7, **2023.**
10. Brewing Chemistry Lecture series, ACS Detroit local section, Feb 21, **2023**.
11. The Center for Advanced Toward Sustainable Urban Systems (CATSUS), California State University, Los Angeles, CA, Feb 10, **2023**.
12. Department of Chemistry, University of North Carolina at Chapel Hill, Chapel Hill, NC, Feb 6, **2023**.
13. Department of Chemistry, University of Virginia, Charlottesville, VA, Feb 3, **2023**.
14. Department of Chemistry, Capital Normal University, Beijing, China, Nov 17, **2022** (postponed).
15. Department of Chemistry, University of Utah, Salt Lake City, UT, Nov 14, **2022**.
16. Department of Chemistry, Washington University in St. Louis, MO, Oct 20, **2022** (postponed).
17. Department of Chemistry, University of Michigan, Ann Arbor, MI, Oct 6, **2022**.
18. Department of Chemistry, University of California, Davis, CA, May 3, **2022**
19. Department of Chemistry and Biochemistry, Utah State University, Logan, UT, Apr 22, **2022**
20. Department of Chemistry and Biochemistry, University of Alabama, Tuscaloosa, AL, Apr.14. **2022**.
21. Department of Chemistry, University at Albany - State University of New York, NY, Apr 12, **2022**.
22. Department of Chemistry, **Frontiers Seminar Series**, Wayne State University, Detroit, Apr 11, **2022**.

23. Department of Chemical and Biomolecular Engineering, Rice University, Houston, TX, Apr 5, **2022**.
24. Department of Chemistry, the University of Texas at Austin, Austin, TX, Mar 31, **2022**.
25. Department of Chemistry, Texas A&M University, College Station, TX, Mar 29, **2022**.
26. Department of Chemistry, University of Houston, Houston, TX, Mar 1, **2022.**
27. Department of Chemistry, University of Virginia, Charlottesville, VA, Feb 18, **2022**.
28. Department of Chemistry, University of Washington, Seattle, WA, Feb 7, **2022**.
29. Department of Chemistry, The Ohio State University, Columbus, OH, Jan 31, **2022**.
30. Department of Chemistry and Biochemistry, University of California Santa Barbara, CA, Jan 11, **2022**
31. Department of Chemistry, the University of Illinois at Urbana-Champaign, IL, Dec 10, **2021.**
32. National Science Foundation, Center for Synthetic Organic Electrochemistry, University of Utah, Salt Lake City, UT, Dec 9, **2021**.
33. Department of Chemical Engineering, University of California, Santa Barbara, CA, Dec 6, **2021**.
34. Institute of Chemistry, Chinese Academy of Sciences, Beijing, China, Nov 23, **2021**
35. Department of Chemistry, Indiana University Bloomington, IN, Nov 18, **2021**.
36. Department of Chemistry, Iowa State University, Ames, IA, Nov 5, **2021**.
37. Department of Chemistry, Michigan State University, East Lansing, MI, Oct 22, **2021.**
38. Department of Chemistry and Biochemistry, the University of Arkansas, Fayetteville, AR, Oct 8, **2021.**
39. Department of Chemistry, University of the Pacific, Stockton, CA, Oct 5, **2021**.
40. Department of Chemistry, University of Cincinnati, Cincinnati, OH, Sep 17, **2021.**
41. Department of Chemistry & Biochemistry, University of California, Los Angeles, CA, Mar. **2021**.
42. Department of Chemistry and Biochemistry, Florida State University, Tallahassee, FL, Feb. **2021**
43. Department of Chemistry, University of California, Irvine, CA, Oct. **2020**
44. Department of Chemistry and Biochemistry, California State University, Fullerton, CA, Oct. **2020.**
45. Department of Chemistry and Biochemistry, California State University, Long Beach, CA, Sep. **2020**.
46. Department of Chemistry and Biochemistry, San Diego State University, San Diego, CA Sep. **2020**
47. Department of Chemistry, University of Massachusetts, Lowell, MA, Sep. **2020**
48. Chemistry Department, Millikin University, Decatur, IL Feb. **2020**
49. Department of Chemistry and Biochemistry, **Dwain L Ford Guest Lecture Series**, Andrews University, Berrien Springs, MI Feb. **2020**.
50. Department of Chemical Engineering and Materials Science, Wayne State University, Detroit, MI, Jan. **2020**.
51. Department of Chemistry and Biochemistry, California State University, Chico, CA, Oct. **2019**.
52. Department of Chemistry, Oakland University, Auburn Hills, MI, Feb. **2019**.
53. Chemistry Department, Eastern Michigan University, Ypsilant, MI, Feb. **2019**.
54. Department of Chemistry, Ball State University, Muncie, IN, Nov. **2018**.
55. BASF Ovonic Battery site, Rochester Hills, MI, Feb. **2018**.
56. Beijing Jiaotong University, Beijing, China, Dec. **2017**.
57. Institute of Chemistry, Chinese Academy of Sciences, Beijing, China, Dec. **2017.**
58. Department of Chemistry & Biochemistry, University of California, Los Angeles, CA, Jan. **2017**.
59. Department of Chemistry, University of Georgia, Athens, GA, Jan. **2017.**
60. Department of Chemistry, Wayne State University, Detroit, MI, Dec.**2016**.
61. Department of Chemistry & Biochemistry, Kent State University, Kent, OH, Dec. **2016**.
62. Department of Chemistry & Biochemistry, Boise State University, Boise, ID, Nov. **2016**.
63. Department of Chemistry, Saint Louis University, St. Louis, MO, Nov. **2016**.
64. Chemistry Department, University of North Carolina-Chapel Hill, Chapel Hill, NC, Nov. **2016**.

65. Department of Chemistry, University of Cincinnati, Cincinnati, OH, Nov. **2016.**
66. Department of Chemistry and Biochemistry, California State University, Los Angeles, CA, Feb. **2016**.
67. Chemical Engineering and Materials Science Department, the University of Minnesota, Minneapolis, MN, Feb. **2016**.
68. Department of Chemistry, Marquette University, Milwaukee, WI, Jan. **2016**.
69. Department of Chemistry and Chemical Biology, University of California, Merced, CA, Dec. **2015**.
70. School of Chemistry and Biochemistry, Georgia Institute of Technology, Atlanta, GA, Nov. **2015**.

Conference and Workshop Presentations

1. **Luo, L.,** Alternating Current Electrolysis for Organic Synthesis, the CET-CSOE joint workshop, Jun **2024,** Seoul, Korea (Invited talk and session chair).
2. **Luo, L.,** Quantum Dot-Catalyzed Hydrogen Isotope Labelling of Pharmaceuticals, Mar. **2024**, New Orleans, LA. (Invited talk).
3. **Luo, L.,** Alternating Current Electrolysis for Organic Synthesis, Pittcon, Feb. **2024**, San Diego, CA (The Royce Murray Award Symposium Awardee talk)
4. **Luo, L.,** Alternating Current Electrolysis for Organic Synthesis, Gordon Research Conference, Jan. **2024** Ventura, CA. (Poster)
5. **Luo, L.,** Electrochemical Gelation of Metal Chalcogenide Quantum Dots: Applications in Gas Sensing and Photocatalysis, Sol-Gel Symposium of China & International Meeting, Oct. **2023**, Jinan, China (Plenary talk).
6. **Luo, L.,** Electrochemical Hydrogen Isotope Exchange of Amines Controlled by Alternating Current Frequency, Electrosynthesis Faraday Discussion, July **2023**, Edinburgh, United Kingdom (oral).
7. **Luo, L.,** Rational Design of Alternating Current Electrolysis (ACE) for Organic Synthesis, the 27th ACS Green Chemistry and Engineering Conference, June **2023**, Long Beach, CA (invited oral).
8. **Luo, L.,** Grain-boundary-rich Pt nanoparticle assembly enables room-temperature catalytic hydrogen sensing, Michigan Catalysis Society Symposium, May **2023**, Ann Arbor, MI (oral).
9. **Luo, L.,** Grain Boundary Rich Nobel Metal Nanoparticle Assemblies: Synthesis, Characterization, and Reactivity, MRS Spring Meeting and Exhibit, April **2023**, San Francisco, CA (invonited oral).
10. **Luo, L.,** Quantum Dot Gel as a Highly Sensitivity and Tunable Platform for Gas Sensing, ACS Spring 2023 Meeting & Exposition, Mar. **2023**, Indianapolis, IN (Oral).
11. **Luo, L.,** Grain-boundary-rich Pt nanoparticle assembly enables room-temperature catalytic hydrogen sensing, ACS Spring 2023 Meeting & Exposition, Mar. **2023**, Indianapolis, IN (Oral).
12. **Luo, L.,** 1000-Fold Preconcentration of Per- and Polyfluorinated Alkyl Substances (PFAS) via Electrochemical Bubble-Bursting Aerosol Formation, ACS Spring 2023 Meeting & Exposition, Mar. **2023**, Indianapolis, IN. (invited oral)
13. **Luo, L.**, Bubble-based strategies for PFAS preconcentration and detection, Pittcon, Mar. **2023**, Philadelphia, PA, (invited oral)
14. **Luo, L.**, Understanding and Predicting the Reaction Selectivity in Alternating Current Electrolysis (ACE) by Electroanalytical Tools, Pittcon, Mar. **2023**, Philadelphia, PA, (invited oral)
15. **Luo, L.**, 1000-Fold Preconcentration of Per- and Polyfluorinated Alkyl Substances (PFAS) via Electrochemical Aerosol Formation, ANACHEM, Nov. **2022**, Livonia, MI. (invited oral)
16. **Luo, L.,** Developing High-Performance Hydrogen Sensors Guided by Catalyst Design Principles. Midwest Universities Analytical Chemistry Conference, Oct. **2021**, Columbus, OH. (Oral)
17. **Luo, L.**, Electrochemical Assembly of Quantum Dots, Nanopore Weekly Meeting, July **2021** (invited oral)
18. **Luo, L.**, Reversible Electrochemical Gelation of Metal Chalcogenide Quantum Dots, ACS Spring 2021 Virtual Meeting & Exposition, Mar. **2021** (Oral)
19. **Luo, L.**; Ranaweera, R.; Cao, Y. Bubble-based electrochemical methods for preconcentration and detection of per- and polyfluoroalkyl substances (PFAS) in water, Pittcon, Mar. **2021**(Invited oral)

20. **Luo, L.**; Rodrigo, S.; Um, C.; Gunasekera, D.; Mixdorf, J.; Nguyen, H. M. Mimicking Photoredox Catalysis using Electrochemistry for Organic Synthesis, ACS Fall 2020 Virtual Meeting & Exposition, Aug. **2020** (Oral)
21. **Luo, L.**; Ranaweera, R.; Cao, Y. Bubble-based electrochemical methods for detection of per- and polyfluoroalkyl substances (PFAS) in water, ACS Fall 2020 Virtual Meeting & Exposition, Aug. **2020** (Oral)
22. **Luo, L.**, Hewa-Rahinduwage, C.; Geng, X.; Silva, K. L.; Niu, X.; Zhang, L.; Brock, S. L. Reversible Electrochemical Gelation of Metal Chalcogenide Quantum Dots, ACS Fall 2020 Virtual Meeting & Exposition, Aug. **2020** (Oral)
23. **Luo, L.**; Rodrigo, S.; Um, C.; Gunasekera, D.; Mixdorf, J.; Nguyen, H. M. Mimicking Photoredox Catalysis using Electrochemistry for Organic Synthesis, Gordon Research Conference,**2020** Ventura, CA. (Poster)
24. **Luo, L.**, the November meeting of the Detroit Section of the Electrochemical Society, Nov. **2019**, Livonia, MI. (Invited oral)
25. **Luo, L.** the 2019 Telluride Workshop on Computational Materials Chemistry, Jul. **2019**, Telluride, CO. (Invited oral)
26. **Luo, L.**; Zhao, X.; Ranaweera, R. Highly Efficient Hydrogen Evolution of Platinum via Tuning Interfacial Dissolved-Gas Concentration, the 235th ECS meeting, May **2019,** Dallas, TX. (Oral)
27. **Luo, L.**; Ranaweera, R. Bubble Nucleation-Based Electrochemical Sensor for Detection of Per- and Polyfluoroalkyl Substances (PFAS) in Water, the 235th ECS meeting, May **2019,** Dallas, TX. (Oral)
28. **Luo, L.** Controlling Concentration Overpotentials for High Efficiency Gas Evolution Reactions, 40th Annual Spring Symposium of the Michigan Catalysis Society, May **2019**, Dearborn, MI. (Oral)
29. **Luo, L.**; Ranaweera, R. Bubble Nucleation-Based Electrochemical Sensor for Detection of Per- and Polyfluoroalkyl Substances (PFAS) in Water, Pittcon Conference& Expo, Mar. **2019**, Philadelphia, PA. (Oral)
30. **Luo, L.**; Ranaweera, R. Bubble Nucleation-based Electrochemical Detection of Per- and Polyfluoroalkyl Substances (PFASs) in Water, Midwest Universities Analytical Chemistry Conference, Nov. **2018**, East Lansing, MI. (Oral)
31. **Luo, L.**; Ranaweera, R. Nanobubble Nucleation-based Electrochemical Sensor for Environmental Monitoring, 70th Southeastern Regional Meeting, Nov. **2018**, Augusta, GA. (Invited oral)
32. **Luo, L.** Exploring New Frontiers in Electroanalytical and Electrocatalytic Sciences, BASF/Wayne State University Science Event, Oct. **2018**, Wyandotte, MI. (Invited poster)
33. **Luo, L.**; Gunasekera, D.; Kilani, M.; Yu, X.; Mao, G. Controlled Electrodeposition of Tetrathiafulvalene Bromide (TTFBr) Nanowires for Gas Sensing, 256th ACS National Meeting & Exposition, Aug. **2018**, Boston, MA. (Oral)
34. **Luo, L.**; Chen, Q. New Insights into Electrochemical Nucleation Processes, Electrochemistry Gordon Research Conference,**2018** Ventura, CA. (Poster)
35. **Luo, L.**; Kim, J.; Duan, Z.; Li, H.; Henkelman, G.; Crooks, R. M. A Comparative Study of Dendrimer-Encapsulated PtAu and PdAu Alloy Nanoparticles for Allyl Alcohol Hydrogenation, Center for Electrochemistry (CEC) Annual Workshop on Electrochemistry, **2016** Austin, TX. (Poster)
36. **Luo, L.**; Zhang, L.; Duan, Z.; Kim, J.; Li, H.; Henkelman, G.; Crooks, R. M. Theoretical and Experimental Approach for Correlating Nanoparticle Structure and Catalytic Activity, Electrochemistry Gordon Research Conference, **2016** Ventura, CA. (Poster)
37. **Luo, L.**; Li, X.; Crooks, R. M. Low Voltage Origami Paper-Based Electrophoretic Devices (*o*PEpDs) for Rapid Protein Separation Applications, Pittcon Conference & Expo, **2015** New Orleans, LA. (Oral)
38. **Luo, L.**; Li, X.; Crooks, R. M. Low Voltage Paper-based Electrophoretic Devices, Center for Electrochemistry (CEC) Annual Workshop on Electrochemistry, **2015** Austin, TX. (Poster)
39. **Luo, L.**; Johnson, R. P.; White, H.S. Numerical Modeling of the Bistability of Electrolyte Transport in Conical Nanopores, COMSOL Conference, Oct. **2013,** Boston, MA. (Oral & Poster)
40. **Luo, L.**; Holden, D. A.; White, H. S. Electrolyte Negative Differential Resistance (NDR) in Glass Nanopores and its Sensing Applications, the 87th ACS 2013 Colloid & Surface Science Symposium, Jun. **2013**, Riverside, CA. (Oral)

41. The Second Nanobubbles and Biological Systems Conference, April **2013**, Tacoma, WA. (Invited attendee)
42. NanoUtah 2012 Conference & Expo, Oct. **2012,** Salt Lake City, UT.

Reviewer for Journals (40+)

Journal of the American Chemical Society, Journal of Physical Chemistry Letters, Langmuir, ACS Applied Materials & Interfaces, RSC Advances, Journal of Electroanalytical Chemistry, Sensors & Actuators: B. Chemical, Electrochemistry Communications, The Journal of Physical Chemistry, Analytical Chemistry, Nature Catalysis, Chemical Communications, ACS Nano, Chemical Science, Electroanalysis, Nature Communications, Small, Analyst, Journal of Materials Chemistry A., Chemistry of Materials, Joule, Journal of The Electrochemical Society, Electrochimica Acta, Applied Catalysis B: Environmental, ChemElectroChem, Scientific Reports, Medical Devices & Sensors, The Innovation, Nano Research, Synlett, Applied Energy, Materials Advances, Organic Letters, Nano Select, Nature Synthesis, Nano Letters, ACS Applied Nano Materials, Angewandte Chemie, JACS Au, ACS Measurement Science Au, Energy & Fuels, Advanced Energy Materials, ACS Energy Letters, Nature Materials, Advanced Synthesis & Catalysis, Green Chemistry, Sens Actuators Rep

Reviewer for Funding Agencies

- The European Research Council
- The Department of Defense, Strategic Environmental Research and Development Program
- The U.S. Department of Energy
- National Science Foundation
- Czech Science Foundation
- ACS Petroleum Research Fund
- The Netherlands Organisation for Scientific Research (NWO, the Dutch Research Council)
- The Center for the Advancement of Science in Space, International Space Station U.S. National Laboratory
- Research Corporation for Science Advancement

Courses Taught

CHM 1140/1145 General Chemistry II, Winter 2024
CHM 3120 Analytical Chemistry, Fall 2022, Fall 2023
CHM 7740 Instructor for the topic of Publication Ethics & Authorship Allocation, Fall 2021, Fall 2022
CHM 5900 Biomedical Research as Discovery, Winter 2021
CHM 2280 General Chemistry II, Fall 2020
CHM 7120 Electroanalytical Chemistry, Fall 2017, Fall 2018, Winter 2022
CHM 5570 Instrumental Analytical Chemistry Laboratory, Winter 2018, Winter 2019, Winter 2020
CHM 7142 Data Analysis, Fall 2019
CHM 8800 Analytical Seminar, Fall 2023

Departmental and University Service

- Chair, Departmental Seminar and Colloquium Committee, Chemistry Department, University of Utah, 2024
- Member, Graduate Education Committee, Chemistry Department, University of Utah, 2024
- Analytical Division Head, Chemistry Department, Wayne State University, 2023-2024
- Election Committee Member, Wayne State University Association of Chinese Faculty and Staff, 2022
- ReBUILDetroit Faculty Pilot Award Review Panel, 2022
- Member, Wayne State University Chemical Safety Committee, 2021-present
- Member, Departmental Teaching Assignments Committee, 2021-2022，2022-2023
- Member, Departmental Green Chemistry Committee, 2020-202, 2021-2022，2022-2023
- Member, Departmental Gopal Symposium Committee, 2020-present

- Session leader and presenter, STEM Day, Mar. 2020 and 2023
- Presenter, Advanced Placement Day, 2019
- Member, Departmental Graduate Recruiting Committee, 2019-2020, 2020-2021, 2021-2022
- Member, Departmental By-laws Committee, 2019
- Member, Master of Arts in Chemistry Program Special Committee, Nov. 2018
- Judge for the C.P. Lee Endowed Graduate Student Research Presentation Day, Oct. 2018
- Member, Graduate Admission Committee, 2017-2018, 2018-2019, 2019-2020，2022-2023, 2023-2024
- Member, Departmental Safety Committee, 2018-2019, 2021-2022
- Judge for the College of Arts and Sciences Undergraduate Research Fair, Mar. 2018
- Reviewer for the Undergraduate Research Opportunities Program (UROP)-Barber Undergraduate Research Award, Aug. 2018

Professional Society Membership

- The Michigan Chapter of the North American Catalysis Society (2022-2024)
- Society of Electroanalytical Chemistry (Mar. 2019-present)
- International Society of Electrochemistry (Jan. 2019−present)
- The Electrochemical Society (Jan. 2019−present)
- American Chemical Society (May 2018−present)

Other Professional Activities

- Co-organizer of “Advances in Gas Sensing Material Development”, Pacifichem 2025.
- Co-organizer of Midwestern Universities Analytical Chemistry Conference, Detroit, Oct 3-5, 2024
- Co-organizer of the 2024 UT Electrochemistry Symposium, Austin, May 31-June 1, 2024
- Session Presider, Informed Design of Quantum Dots and Quantum Dot Assemblies for Energy Applications, ACS Spring 2024 Meeting & Exposition, New Orleans.
- Organizer of the All-Hands Meeting, The Center for Synthetic Organic Electrochemistry, Wayne State University, Detroit, MI, Aug 21, 2023.
- Mentor, ACS SEED project, summer 2023.
- Session chair, Rare Earth and Lithium Session II, 2023 MRS Spring Meeting and Exhibit, 2023.
- Member, Board of Directors for the Society for Electroanalytical Chemistry, 2023-2028
- Organizer of “Electrochemistry of Bubbles” Symposium at ACS Spring National Meeting, 2023.
- Organizer and founder of “Advances in Gas Sensing” Symposium at ACS Spring National Meeting, 2023.
- Secretary, The Michigan Chapter of the North American Catalysis Society, 2022
- Session Presider, Advances in Electrochemistry, ACS Fall 2022 Meeting & Exposition, Chicago
- Session Presider, Advances in Electrochemistry, ACS Spring 2021 Virtual Meeting & Exposition
- Faculty Advisor, The Electrochemical Society Detroit Student Chapter, 2020-now
- Session Chair, the ANACHEM/SAS Symposium 2019, Livonia, MI, 2019
- Member-at-Large, The Detroit Section of the Electrochemical Society, 2019-2021
- Session Chair, the ANACHEM/SAS Symposium, Livonia, MI, 2018, 2021
- Founder and presenter, **Bubble T SciShow**

Current Group Members

Postdocs

1. Dr. Rajendra Maity (2022-present)
2. Dr. Atanu Hazra (2022-present)
3. Dr. Nibedita Behera (2022-present)
4. Dr. Chanaka Navarathna (2023-present)
5. Dr. Diptangshu Datta Mal (2023-present)
6. Dr. Sulekha (2023-present)
7. Dr. Sachini Rodrigo (2023-present)

8. Dr. Jie Gao (2023-present)

Graduate Students

1. Ms. Daohua (Trista) Liu (2019-present)
   Thomas C. Rumble University Graduate Fellowships 2023-2024
   Graduate Student Professional Travel Award 2022
   David F. Boltz Award in Analytical Chemistry 2024

2. Ms. Sethma Dinushi Wijesinghe (2022-present, co-advised by Prof. Matthew Allen at Wayne State University)

3. Ms. Udeshika Kangane Arachchige (2023-present)

4. Ms. Sreesaila Sreekumar (2023-present)

Undergraduate and High School Students

1. Ms. Christa Kovaci (2023-present)
2. Ms. Alba Xhupi (2024-present)
3. Mr. Mitchel Horn(2024-present)

Alumni

Former Postdocs

1. Dr. Qianjin Chen (2017)
   Current position: Professor, Donghua University
2. Dr. Xu Zhao (2018-2019)
   Current position: Associate Professor, Huazhong University of Science &Technology
3. Dr. Jyoti P. Mahajan (2020-2022)
   Current position: Postdoc, The University of North Carolina at Chapel Hill
4. Dr. Bingwen Wang (2022)
   Current position: Polymer Scientist III, BASF (Southfield, MI)
5. Dr. Xin Geng (2019-2022)
   Current position: Postdoc, Max Planck Institutes
6. Dr. Yi Peng (2021-2022)
   Current position: Princeton NuEnergy

Former Graduate Students

1. Ms. Janya Lumbini (2023-2024)
   Current position: Wayne State University

2. Mr. Blake Stringer, M.A. May 2024
   Significant awards and honors:
   Departmental Citation for Excellence in Teaching 2023-2024
   Current position: Wayne State University

3. Mr. Ransford Appianin Boateng, M.A. May 2024
   Significant awards and honors:
   Departmental Citation for Excellence in Teaching 2022-2023
   Current position: Wayne State University

4. Ms. Sumudu Nimasha; M.A. May 2024
   Significant awards and honors:
   Departmental Citation for Excellence in Teaching 2022-2023
   Current position: Wayne State University

5. Mr. Yanick Wanzi; M.A. May 2021
   Current position: Good manufacturing practices (GMP) operator 1, Aldevron, L.L.C., (Fargo, North Dakota)

6. Dr. Chathurange Chinthana Hewa Rahinduwage; Ph.D. December 2021
   Dissertation: "ELECTROCHEMICAL GELATION OF METAL CHALCOGENIDE QUANTUM DOTS".
   Significant awards and honors:
   Departmental Citation for Excellence in Teaching 2018-2019
   Summer Dissertation Award 2021
   Thomas C. Rumble University Graduate Fellowships 2021
   David F. Boltz Award in Analytical Chemistry 2021
   Current position: Senior Scientist, Boehringer Ingelheim

7. Dr. Ruchiranga Ranaweera; Ph.D. June 2022
   Dissertation: "ELECTROCHEMISTRY OF BUBBLES: DEVELOPING NEW SENSORS, PROMOTING GAS EVOLUTION REACTIONS, AND EXTRACTION OF RARE EARTH ELEMENTS"
   Significant awards and honors:
   Graduate Student Professional Travel Award 2019-2020
   Competitive GRA Award from the Graduate School 2020-2021
   Thomas C. Rumble University Graduate Fellowship 2020-2021
   David F. Boltz Award in Analytical Chemistry 2020-2021
   Departmental Citation for Excellence in Teaching 2019-2020
   Current position: Intel (Oregon)

8. Dr. Henadeera Appuhamilage Dona Disni Gunasekera; Ph.D. March 2023
   Dissertation: "ALTERNATING CURRENT ELECTROLYSIS FOR AMINE FUNCTIONALIZATION AND HYDROGEN ISOTOPE EXCHANGE"
   Significant awards and honors:
   Thomas C. Rumble University Graduate Fellowships 2019
   Departmental Citation for Excellence in Teaching 2018-2019
   David F. Boltz Memorial Award in Analytical Chemistry 2022
   Graduate Student Professional Travel Award, 2022
   Current position: Postdoc, Texas A&M University

9. Dr. Sachini Dilrukshi Rodrigo Nambukara Wasam Payagala Welivitage Don, September 2023
   Dissertation: "ALTERNATING CURRENT ELECTROLYSIS FOR TRIFLUOROMETHYLATION OF (HETERO)ARENES AND ALKENES"
   Significant awards and honors:
   Organic Chemistry Top Graduate Students Award 2023
   Summer Dissertation Award 2023
   David F. Boltz Award in Analytical Chemistry 2023
   Graduate Student Professional Travel Award 2019, 2022
   Thomas C. Rumble University Graduate Fellowships 2021
   Current position: Postdoc, Wayne State University

<u>Visiting Students and Scholars</u>

1. Mr. Yue Cao (2018-2019), Shandong University of Technology
2. Dr. Shizhong An (2019-2020), Associate Professor, Henan University of Science and Technology

<u>Research Associates</u>

Ms. Udeshika Weerarathna (2022), Analytical Chemist, Piramal Pharma Solutions (Riverview, MI)

<u>Undergraduate and High School Students</u>

Ms. Carina Ghafari (2018 summer); Ms. Kelly Shaye Patero (2017-2020); Mr. Srihari Ganesh (2018 summer); Ms. Sahar Almatrahi (2020-2022); Ms. Sarah Alhader(2020-2022); Aneesa Chowdhury (2022-

2023); Travis Lenhausen (2022 summer), Siham Azom (2023 summer), Grace Sun (2023 summer), Arriea Bonds (2023 summer, ACS SEED Project)