HUGO YUSET SAMAYOA-OVIEDO

Curriculum Vitae

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My career objective is to lead a research group that, through critical thinking and creativity, develops analytical chemistry approaches to gain mechanistic understanding of electrocatalytic transformations and leverages that information for the design of efficient functional materials.

EDUCATION

2025-now	**Texas A&M University** Post-doctoral researcher. Advisor: Dr. Lane Baker.
2024	**The University of Utah** Post-doctoral researcher. Advisor: Dr. Scott Anderson.
2018-2024	**Purdue University** Ph.D. in Chemistry. Advisor: Dr. Julia Laskin. Thesis: Probing the structural changes and reactivity of ions on well-defined interfaces prepared using ion soft landing.
2022	**Leipzig University** Visiting scholar for 6 weeks under the supervision of Dr. Jonas Warneke.
2012-2017	**Universidad Nacional Autónoma de México (UNAM), México City.** B.Sc. in Chemistry. Research advisors: Dr. Ernesto Carrillo-Nava and Dr. Olivia Zamora-Martínez.
2016	**University of Technology, Sydney (UTS).** One semester academic exchange

PUBLICATIONS

15) **Samayoa-Oviedo, H.Y.**, Hristov, D., Phillips, B.A., Laskin, J., (2025), "Role of viologen substituents and host size in the gas-phase fragmentation of cucurbituril–viologen host–guest complexes", *Physical Chemistry Chemical Physics*, 27, 24713-24725, https://doi.org/10.1039/D5CP03029C. Selected for journal back cover.

14) Zhang, L., Edwards, M.E., Wahab, O.J., **Samayoa-Oviedo**, **H.Y.**, Freitas, D.P., Yan, X., and Baker, L.A., (2025), "Scanning Electrochemical Cell Microscopy for Sub-Micrometer Mass Spectrometric Studies of Electrochemical Reactions", *ACS Electrochemistry*, 1, 7, 1066-1075, https://doi.org/10.1021/acselectrochem.5c00095.

13) Warneke, J., **Samayoa-Oviedo**, **H.Y.**, Rohdenburg, M., Li, X., Knorke, H., and Laskin, J., (2025), "Molecular synthesis with gaseous fragment ions on surfaces", *Nature Reviews Chemistry*, https://www.nature.com/articles/s41570-025-00719-1.

12) Su, P., Zhu, X., Wilson, S. M., Feng, Y., **Samayoa-Oviedo, H. Y.**, Sonnendecker, C., Smith, A. J., Zimmermann, W., and Laskin, J. (2024), "The Effect of Host Size on Binding in Host–Guest Complexes of Cyclodextrins and Polyoxometalates". *Chemical Science*, *15* (30), 11825–11836. https://doi.org/10.1039/D4SC01061B.

11) **Samayoa-Oviedo, H.Y.**, Knorke, H., Warneke, J., Laskin, J. (2024) "Spontaneous ligand loss by soft landed $[Ni(bpy)_3]^{2+}$ ions on perfluorinated monolayer surfaces", *Chemical Science*, 15, 10770-10783, 10.1039/D4SC02527J.

10) Das, A., **Samayoa-Oviedo, H.Y.**, Mohapatra, M., Basu, S., Laskin, J., (2024) "Enhancing energy storage capacity of 3D carbon electrodes using soft landing of molecular redox mediators", *Small*, 2311585, https://doi.org/10.1002/smll.202311585.

9) Gholipour-Ranjbar, H., **Samayoa-Oviedo, H.Y.**, Laskin, J. (2023) "Controlled fragmentation of fused metal chalcogenide nanoclusters using soft landing of gaseous fragment ions", *ACS Nano*, 17, 17, 17427-17435, https://doi.org/10.1021/acsnano.3c05545.

8) Gholipour-Ranjbar, H., Hu H., Su P., **Samayoa-Oviedo, H.Y.**, Gilpin, C., Wang, H., Zhang, Y., Laskin, J. (2023) "Soft-landing of polyatomic anions onto three-dimensional semiconductive and conductive substrates", *Nanoscale Advances*, 5, 1672-1680, https://doi.org/10.1039/D2NA00632D.

7) Rodriguez Segura, L.; Cox, K. E.; **Samayoa-Oviedo, H. Y**.; Ren, T. (2023) "Further Studies of CoIII(TIM) Mono-Alkynyl and Bis-Alkynyl Complexes.", *European Journal of Inorganic Chemistry*, 26, 5, https://doi.org/10.1002/ejic.202200641.

6) **Samayoa-Oviedo, H.Y.**, Mehnert, S.A., Espenship, M.F., Weigand, M., Laskin, J., *(*2023*)* "Measurement of the speciation diagram of thymol blue using spectrophotometry", *Journal of Chemical Education*, 100, 2, 815-821, https://doi.org/10.1021/acs.jchemed.2c00746.

5) **Samayoa-Oviedo, H.Y.**, Laskin, J., *(*2022*)* "An undergraduate laboratory project comparing two analytical techniques for ascorbic acid determination", *Journal of Chemical Education* In the special issue on New Visions for Teaching Chemistry Laboratory, 99, 4043-4050, https://doi.org/10.1021/acs.jchemed.2C00224.

4) **Samayoa-Oviedo, H.Y.**, Halpern, E., Mehnert, S.A., Laskin, J., *(*2022*)* "Potentiometric determination of zinc supplement tablets using a Ca-ion selective electrode", *Journal of Chemical Education*, 99, 7, 2661-2666, https://doi.org/10.1021/acs.jchemed.2c00154.

3) **Samayoa-Oviedo, H.Y.**, Behrend, K.A., Kawa, S., Knorke, H., Su, P., Belov, M.E., Anderson, G., Warneke, J., Laskin, J., *(*2021*)* "Design and performance of a soft-landing instrument for fragment ion deposition", *Analytical Chemistry*, 93, 14489-14496, https://doi.org/10.1021/acs.analchem.1c03009

2) Su, P.; Chen, X.; J. Smith, A.; F. Espenship, M.; **Samayoa-Oviedo, H**. **Y.**; M. Wilson, S.; Gholipour-Ranjbar, H.; Larriba-Andaluz, C.; Laskin, J., (2021*)* "Multiplexing of electrospray ionization sources using orthogonal injection into an electrodynamic ion funnel", *Analytical Chemistry*, 93, 11576-11584, https://doi.org/10.1021/acs.analchem.1c02092

1) Zamora-Martínez, Olivia, Lozano-Santa Cruz, Rufino, **Samayoa-Oviedo, Hugo Yuset**, Velázquez-Castro, Mariana, Prado-Pano, Blanca. (January 2019) Adecuabilidad y comparación de técnicas espectroscópicas para el análisis de muestras de origen geológico *Revista Internacional de Contaminación Ambiental*, [S.l.], v. 35, n. 1, p. 65-79, DOI: 10.20937/RICA.2019.35.01.05

CONFERENCES

15) Hugo Y. Samayoa-Oviedo, Lingjie Zhang, Abdoulie A., Jallow, Coddy Cash, and Lake Baker, "Activity mapping of nitrate reduction on single metal nanocrystals via scanning electrochemical cell microscopy (SEECM)", presented by Hugo Yuset Samayoa-Oviedo (**poster**) at 2026 Pittcon conference, March 7-11, 2026, San Antonio, Texas.

14) Hugo Y. Samayoa-Oviedo, Lingjie Zhang, Coddy Cash, and Lake Baker "Electrochemical-mass spectrometry approaches for mapping selectivity in biomass activation on substrates", presented by

Hugo Yuset Samayoa-Oviedo (**poster**) at 9th annual Texas A&M postdoctoral symposium, September 15, 2025, College Station, Texas.

13) Hugo Y. Samayoa-Oviedo, Lingjie Zhang, Coddy Cash, and Lake Baker "Electrochemical-mass spectrometry approaches for mapping selectivity in biomass activation on substrates", presented by Hugo Yuset Samayoa-Oviedo (**poster**) at GRS and GRC on Chemical Imaging, July 26-Aug 1, 2025, Boston, Massachusetts.

12) Hugo Y. Samayoa-Oviedo, Daniel M. Hristov, Bethany A. Phillips, and Julia Laskin. "Reduction of guests in gas-phase fragmentation of host-guest complexes", presented by Hugo Yuset Samayoa-Oviedo (**poster**) at 73rd ASMS Conference, June 1-5, 2025, Baltimore, Maryland.

11) Hugo Y. Samayoa-Oviedo, Ronald Cutler, Daniel M. Hristov, and Julia Laskin. "*In situ* electrochemical characterization of well-defined interfaces prepared using ion soft landing", presented by Hugo Yuset Samayoa-Oviedo (**talk**) at 2025 Bard CEC Workshop on Electrochemistry, April 28-30, 2025, Austin, Texas.

10) Hugo Y. Samayoa-Oviedo, Ronald Cutler, Daniel M. Hristov, and Julia Laskin. "Effect of alkyl chain loss of disubstituted viologens on their electrochemical performance", presented by Hugo Yuset Samayoa-Oviedo (**poster-received honorable mention**) at LatinXChem X Conference 2023, Oct 16-17, 2023.

9) Hugo Y. Samayoa-Oviedo, Ronald Cutler, Daniel M. Hristov, and Julia Laskin. "Effect of alkyl chain loss of disubstituted viologens on their electrochemical performance", presented by Hugo Yuset Samayoa-Oviedo **(poster**) at Turkey Run Analytical Chemistry Conference 2023, Sep 29, 2023, Marshall, Indiana.

8) Hugo Yuset Samayoa-Oviedo, Robert Schiewe, Harald Knorke, Jonas Warneke, Julia Laskin. "Stabilization of fragment ions on surfaces: understanding the reactivity of undercoordinated metal complexes in the condensed phase using ion soft-landing", presented by Hugo Yuset Samayoa-Oviedo (**poster**) at 71st ASMS Conference, June 4-8, 2023, Houston, Texas.

7) Hugo Yuset Samayoa-Oviedo, Robert Schiewe, Kay-Antonio Behrend, Harald Knorke, Jonas Warneke, Julia Laskin. "Understanding the reactivity of undercoordinated ions on surfaces using ion soft-landing", presented by Hugo Yuset Samayoa-Oviedo (**poster**) at 2023 GRS and GRC: Gaseous Ions: Structures, Energetics and Reactions, Feb 18-24, 2023.

6) Hugo Yuset Samayoa-Oviedo, Robert Schiewe, Kay-Antonio Behrend, Harald Knorke, Jonas Warneke, Julia Laskin. "Understanding the reactivity of undercoordinated ions on surfaces using ion soft-landing: can undercoordinated transition metal complexes undergo ligand exchange?", presented by Hugo Yuset Samayoa-Oviedo (**poster**) at LatinXChem Twitter Conference 2022, Nov 28, 2022.

5) Hugo Yuset Samayoa-Oviedo, Robert Schiewe, Kay-Antonio Behrend, Harald Knorke, Jonas Warneke, Julia Laskin. "Understanding the reactivity of undercoordinated ions on surfaces using ion soft-landing: can undercoordinated transition metal complexes undergo ligand exchange?", presented by Hugo Yuset Samayoa-Oviedo (**poster**) at Turkey Run Analytical Chemistry Conference 2022, Sep 30, 2022, Marshall, Indiana.

4) Hugo Yuset Samayoa-Oviedo, Michael Espenship, Julia Laskin. "Understanding of the reactivity of partially solvated ions on surfaces using ion soft-landing", presented by Hugo Yuset Samayoa-Oviedo (**talk**) at 70th ASMS Conference, June 5-9, 2022, Minneapolis, Minnesota.

3) Hugo Yuset Samayoa-Oviedo, Kay-Antonio Behrend, Sebastian Kawa, Harald Knorke, Pei Su, Mikhail E. Belov, Gordon Anderson, Jonas Warneke, Julia Laskin. "Development of a high flux soft-landing instrument for deposition of fragment ions", presented by Hugo Yuset Samayoa-Oviedo (**talk**) at 69th ASMS Conference, November 1-4, 2021, Philadelphia, Pennsylvania.

2) Hugo Yuset Samayoa-Oviedo, Julia Laskin. "Controlled deposition of mass-selected ions to evaluate the effect of ion pairing on the electrochemical performance of redox active anions", presented by Hugo Yuset Samayoa-Oviedo (**poster**) at Turkey Run Analytical Chemistry Conference 2021, Sep 25, 2021, Marshall, Indiana.

1) Hugo Yuset Samayoa-Oviedo, Olivia Zamora-Martinez, Rufino Lozano-Santa Cruz, "Optimization and validation for quantification of seven potentially toxic elements in geological samples using flame atomic absorption spectroscopy", presented by Hugo Yuset Samayoa-Oviedo (**talk**) at XXX National Congress of the Mexican Association of Analytical Chemistry, June, 2017, Guanajuato, Mexico.

TEACHING EXPERIENCE

2026	**Texas A&M University** Instructor of record for the Instrumental Analysis lab at the undergraduate level (class size 23 students).
2018-2022	**Purdue University** TA supervisor Analytical Chemistry I (supervising 5 TAs). Teaching assistant for Analytical Chemistry I, General Chemistry I and II (class sizes of 40 students).
2017-2018	**Universidad Iberoamericana High School, México City Campus.** Teacher for Chemistry I and II, Math I (Algebra), Math II (geometry and trigonometry) and Introduction to probability and statistics I and II (class sizes of 30 students).
2017-2018	**Universidad Nacional Autónoma de México (UNAM), México City.** Laboratory Instructor (A level) for Analytical Chemistry I (class size of 15 students). TA for Analytical Chemistry (II) (class size of 30 students).
2013-2014, 2017	**Colegio Nacional de Matemáticas (CONAMAT)** Lecturer for courses in Math (algebra, trigonometry, geometry, calculus), Chemistry, Biology and Physics for students who intended to take an admission exam to high school or university.

AWARDS

- Research Corporation for Science Advancement (RCSA) Fellow, 2026.
- Bilsland Dissertation Fellowship, Purdue University, 2023.
- Purdue Teaching Academy Award for "outstanding contributions to teaching and learning". 2022.
- W. Brooks Fortune Fellowship, Purdue University, 2019-2020.

MENTORING

Undergraduate students.

- Daniel M. Hristov (2020-2024). Project: Gas-phase fragmentation of viologen-based host-guest complexes. This project was published in: **Samayoa-Oviedo, H.Y.**, Hristov, D., Phillips, B.A., Laskin, J., (2025), "Role of viologen substituents and host size in the gas-phase fragmentation of

cucurbituril–viologen host–guest complexes", *Physical. Chemistry Chemical Physics*, 27, 24713-24725, https://doi.org/10.1039/D5CP03029C. Selected for journal back cover.

- Ronald Cutler (2022-2024). Project: Electrochemical performance of viologen species in aqueous solution and ionic liquids.

SURF mentor Summer 2021. Mentee: Daniel M. Hristov, project: Systematic study of the viscosity of room temperature ionic liquids on the electrochemical performance of redox active species.

PROFESSIONAL ACTIVITIES

- 70th ASMS Conference Program Committee.
- Reviewer for the Journal of Chemical Education (*J.Chem.Ed*), International Journal of Mass Spectrometry (*Int. J. Mass. Spectrom.*), Analytical Chemistry (*Anal. Chem.*) and Inorganic Chemistry (*Inorg. Chem.*).
- Member of the General Assembly of Basic Partners of the YMCA of México City, 2015-2026.
- Student Panelist for the Community Standards Board of Purdue University. 2020-2024.
- Co-chair of Graduate Student Advisory Board (GSAB) of the Chemistry Department at Purdue University. 2021-2022.
- Analytical Chemistry division representative for GSAB of the Chemistry Department at Purdue University, 2020-2021.
- Lab safety representative for the J. Laskin group. 2019-2022.
- Member of the Grant Review and Allocation Committee (GRAC) of the Purdue Graduate Student Government (PGSG), 2019-2022.
- Volunteer in the National Chemistry Week Lafayette IN, 2018, 2019, 2022.
- 2019 Center for Analytical Instrument Development (CAID) Annual Meeting. Presenter of the work "Electroosmotic extraction and mass spectrometry analysis of biomolecules from individual onion cells".