

# Johann V. Hemmer

> [github.com/jvhemmer](https://github.com/jvhemmer)

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## Education

2022–curr.	<b>University of Louisville</b>
	<i>Doctor of Philosophy:</i> Chemistry Advisor: Andrew J. Wilson, Ph.D.
2019–2023	<b>Universidade do Vale do Itajaí (UNIVALI)</b>
	<i>Master of Science:</i> Pharmaceutical Sciences Thesis: Preparation of $\gamma$ -Fe <sub>2</sub> O <sub>3</sub> /Fe <sub>3</sub> O <sub>4</sub> /O-Carboxymethylchitosan/Activated Carbon magnetic nanocomposite and its Utilization in the Adsorption of Cr(VI) from Aqueous Media Advisor: Clóvis Antônio Rodrigues, Ph.D.
2014–2018	<i>Bachelor of Science in Engineering:</i> Chemical Engineering
	Thesis: Basic Metallic Oxides as Heterogeneous Catalysts for the Propanolysis of Methyl Paraoxon in a Batch Reactor Advisor: Gizelle I. Almerindo, Ph.D.

## Publications

2025	Marine Algae for Antimicrobial Applications: Silver Nanoparticles Prepared With <i>Sargassum Cymosum</i> Extract Gerlach, O. M. S; <b>Hemmer, J. V.</b> ; Wanderlind, E. H.; Gasparetto, R. L.; de Souza, E. S. M.; Fontoura, A.; dos Santos, A. L. H.; Bella-Cruz, A.; Tamanaha, M.; Radetski, C. M.; Almerindo, G. I. <i>ChemistrySelect</i> 10.1002/slct.202405940
	Heterogenous HER activity of Ni(ii)N <sub>2</sub> S <sub>2</sub> molecular catalysts Paudel, M.; S. Karki; Acharya, N.; Chapagain, S.; <b>Hemmer, J. V.</b> ; Hofsommer, D. T.; Gupta, G.; Buchanan, R. M.; Grapperhaus, C. A. <i>Dalton Transactions</i> 10.1039/D5DT00005J
2024	Suppressing Competing Solvent Reduction in CO <sub>2</sub> Electroreduction with a Magnetic Field Karki, N.; Marquina, I. G.; <b>Hemmer, J. V.</b> ; Yu, Y.; Wilson, A. J. <i>The Journal of Physical Chemistry Letters</i> 10.1021/acs.jpcllett.4c01672
	Quantification and description of photothermal heating effects in plasmon-assisted electrochemistry Al-Amin, M.; <b>Hemmer, J. V.</b> ; Joshi, P. B.; Fogelman, K.; Wilson, A. J. <i>Communications Chemistry</i> 10.1038/s42004-024-01157-8
	Reducing Ensemble Averaging for Mechanistic Understanding of Electrocatalysis in Energy Conversion Reactions <b>Hemmer, J. V.</b> ; Joshi, P. B.; Kaur, A.; Wilson, A. J. <i>The Journal of Physical Chemistry C</i> 10.1021/acs.jpcc.3c06615

## Publications (continued)

2023	Tracking Electrochemistry on Single Nanoparticles with Surface-Enhanced Raman Scattering Spectroscopy and Microscopy <b>Hemmer, J. V.</b> ; Joshi, P. B.; Wilson, A. J. <i>Journal of Visualized Experiments</i> 10.3791/65486
2022	Synthesis and characterization of Schiff base derivatives and its effect on urinary parameters of Wistar rats: A comparative analysis with different classes of diuretics Adão, J. R. U.; de Souza, P.; Boeing, T.; Mariano, L.; Brandt, A. N. B.; <b>Hemmer, J. V.</b> ; Bazani, H. A. G.; de Andrade, S. F.; Corrêa, R.; Klein-Júnior, L. C.; Niero, R. <i>Journal of Molecular Structure</i> 10.1016/j.molstruc.2022.132849
2021	<i>Pterocladia</i> capillacea-stabilized silver nanoparticles as a green approach toward antibacterial biomaterials Cavalli, P. A.; Wanderlind, E. H.; <b>Hemmer, J. V.</b> ; Gerlach, O. M. S.; Emmerich, A. K.; Bella-Cruz, A.; Tamanaha, M.; Almerindo, G. I. <i>New Journal of Chemistry</i> 10.1039/d0nj05150k
2020	Green Synthesis of Gold Nanoparticles Obtained from Algae <i>Sargassum cymosum</i> : Optimization, Characterization and Stability Costa, L. H.; <b>Hemmer, J. V.</b> ; Wanderlind, E. H.; Gerlach, O. M. S.; Santos, A. L. H.; Tamanaha, M.; Bella-Cruz, A.; Corrêa, R.; Bazani, H. A. G.; Radetski, C. M.; Almerindo, G. I. <i>BioNanoScience</i> 10.1007/s12668-020-00776-4  Simple and highly active strontium-based catalyst for detoxification of an organophosphorus chemical warfare agent simulant <b>Hemmer, J. V.</b> ; Wanderlind, E. H.; Bazani, H. A. G.; Campos, C. E. M.; Wagner, T. M.; Emmerich, A. K.; Adão, J. R. U.; Almerindo, G. I. <i>Brazilian Journal of Chemical Engineering</i> 10.1007/s43153-020-00048-4  Use of brewing industry waste to produce carbon-based adsorbents: Paracetamol adsorption study Naldony, B.; Heineck, R. G.; Bazani, H. A. G.; <b>Hemmer, J. V.</b> ; Biavatti, M. L.; Radetski, C. M.; Almerindo, G. I. <i>Journal of Environmental Science and Health - Part A</i> 10.1007/s12668-020-00776-4

## Professional Experience

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<b>2021–2022</b>	<b>Central de Laboratórios de Ensaios Analíticos (CLEAn) - UNIVALI</b> , Itajaí, SC, Brazil <i>Chromatography Sector Manager</i> Main responsibilities: testing of cosmetics and pharmaceuticals products through HPLC, LC–MS and FTIR; method development and validation; corrective and preventive maintenance, and calibration of analytical instruments.
<b>2019–2020</b>	<i>Laboratory Technician</i> Main responsibilities: physical-chemical analysis in water, wastewater and foodstuffs; method development and validation; maintenance of equipment, instruments and laboratory materials; sampling; internal quality control; inventory management; SOP writing and reviewing; ISO 17025 implementation.
<b>2016–2018</b>	<i>Laboratory Technician (Student Worker)</i> Main responsibilities: physical-chemical analysis in water and wastewater; maintenance of equipment, instruments and laboratory materials; sampling.
<b>2012–2016</b>	<b>Wizard Idiomas</b> , Navegantes, SC, Brazil <i>English ASL teacher</i>

## Awards

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- **2024** *Best Laboratory Teaching Assistant*  
Department of Chemistry, University of Louisville
- **2023** *Most Auspicious First Year Graduate Student*  
Department of Chemistry, University of Louisville
- **2019** *Certificate of Merit upon Graduation (“Honra ao Mérito”)*  
Conselho Regional de Química (CRQ)
- **2019** *Certificate of Merit upon Graduation (“Honra ao Mérito”)*  
Conselho Regional de Engenharia e Arquitetura (CREA)

## Mentoring

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- **2024** Mentored Undergraduate Research and Creative Activities Grant (MURC)  
Colin Ackerman, August 2024–present

## Presentations

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- **Graduate Student Regional Research Conference**  
“Measuring intermediates of electrochemical CO<sub>2</sub> reduction with spatially and temporally resolved SERS spectroscopy”  
University of Louisville, Louisville, KY, March 22, 2023
- **II Simpósio de Investigações Químico-Farmacêuticas**  
“Alumina-supported Strontium Oxide as Heterogeneous Catalyst for the Detoxification of an Organophosphorus Chemical Warfare Agent Simulant”  
Universidade do Vale do Itajaí (UNIVALI), Itajaí, BR, September 19, 2019
- **IV Simpósio de Ciência e Tecnologia Ambiental**  
“Adsorção de Paracetamol em Coluna de Leito Fixo Empacotada com Carvão Obtido de Bagaço de Malte”  
 (“Adsorption of Paracetamol in a Fixed-bed Column Packed with Activated Carbon from Malt Bagasse”)  
Universidade do Vale do Itajaí (UNIVALI), Itajaí, BR, June 4, 2019

## Teaching Experience

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<b>F2025</b>	<b>Univeristy of Louisville</b> <i>CHEM210: Introduction to Chemical Analysis 4</i> Instructor: Richard Baldwin, Ph.D.
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<b>F2024</b>	<i>CHEM426: Instrumental and Statistical Analysis</i> Instructor: Andrew J. Wilson, Ph.D.
<b>S2024</b>	<i>CHEM210: Introduction to Chemical Analysis 4</i> Instructor: Richard Baldwin, Ph.D.
	<i>CHEM209: Introduction to Chemical Analysis 3</i> Instructor: Richard Baldwin, Ph.D.
<b>F2023</b>	<i>CHEM210: Introduction to Chemical Analysis 4</i> Instructor: Xiang Zhang, Ph.D.
	<i>CHEM209: Introduction to Chemical Analysis 3</i> Instructor: Xiang Zhang, Ph.D.
<b>Su2023</b>	<b>Univeristy of Louisville</b> <i>CHEM344: Organic Chemistry 2</i> Instructor: Andrea Gorce, Ph.D.
	<i>CHEM344: Organic Chemistry 2</i> Instructor: Andrea Gorce, Ph.D.
	<i>CHEM208: Introduction to Chemical Analysis 2</i> Instructor: Richard Baldwin, Ph.D.
<b>F2022</b>	<i>CHEM207: Introduction to Chemical Analysis 1</i> Instructor: Richard Baldwin, Ph.D.
<b>2021.1</b>	<b>University of Vale do Itajaí (UNIVALI)</b> <i>Análise Instrumental (Instrumental Analysis)</i> Instructor: Rodolfo Moresco, Ph.D.

## Outreach

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- **Poster presentation organizer and presenter**  
Fairdale High School, Louisville, KY, February 2, 2024
- **Outreach experiment organizer**  
“Synthesis and optical characterization of Ag and Au nanoparticles”  
Fairdale High School, Louisville, KY, October 25, 2023
- **Organizer and panel presenter**  
Opção Profissional por Área (OPA)  
University of Vale do Itajaí (UNIVALI), Itajaí, BR, October, 2021