

# BAILEY S. ROSE

Ph.D. Vanderbilt University



## EDUCATION

2022  
|  
2017

### Ph.D., Chemistry

Vanderbilt University

Nashville, TN

- Dissertation: Improving Untargeted Molecular Annotation Using Structurally-Specific Ion Mobility-Mass Spectrometry
- <https://ir.vanderbilt.edu/handle/1803/17403>
- John A. McLean Research Group

2017  
|  
2013

### B.S., Chemistry

Belmont University

Nashville, TN



## INDUSTRY EXPERIENCE

Current  
|  
2022

### Field Sales Account Manager

Waters Corporation

Nashville, TN

- Created and executed business plans for a large geographic territory, including sales of analytical instrumentation (LC-MS), managing customer relationships, and coordinating outreach and prospecting events.

2016

### Analytical Chemist Summer Intern

Carlisle Construction Materials

Carlisle, PA

- Completed analytical projects relating to production QC and warranty claims. Developed rheological methods and SOPs for new product lines, and trained staff on use and maintenance of the rheometer.



## RESEARCH EXPERIENCE

2022  
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2017

### Graduate Research Assistant

McLean Laboratory

Vanderbilt University

- Explored strategies for improving compound identifications in untargeted -omics studies using ion mobility-derived collision cross sections (CCS). Developed standardization and reporting recommendations for CCS values in order to build databases and implement algorithms for obtaining high-confidence molecular identifications. Other projects included LC-MS/MS method optimization and data analysis pipeline development for application to various biological systems in collaboration with the Center for Innovative Technology.

## CONTACT

✉ [baileysutton@gmail.com](mailto:baileysutton@gmail.com)

in [linkedin.com/in/bailey-s-rose](https://www.linkedin.com/in/bailey-s-rose)

View this CV online at [\\_https://github.com/bsrose25/Rose-cv/cv.html](https://github.com/bsrose25/Rose-cv/cv.html)

## HIGHLIGHTED SKILLS

LC-MS data analysis

LC-MS method development

Microsoft office

Data visualization

R statistical programming

Client relationship management

Made with the R package  
[pagedown](#).

The source code is available on  
[github.com/bsrose25/Rose-cv](https://github.com/bsrose25/Rose-cv).

Last updated on 2024-03-04.

2017  
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2016



### **Undergraduate Researcher**

Spence Laboratory

📍 Belmont University

- Alignment and completion of the optical set up of a cavity ring-down spectroscopy instrument.

2016  
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2015



### **Undergraduate Researcher**

Stace Laboratory

📍 Belmont University

- Synthesis and characterization of an enzyme-mimic copper(II) Schiff-base complex. Exploration of the kinetics of its reaction with oxalic acid using spectroscopic methods.



## TEACHING EXPERIENCE

2021  
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2017



### **Graduate Teaching Assistant**

Vanderbilt Chemistry Department

📍 Nashville, TN

- General Chemistry Lab, Analytical Chemistry Lab, and Capstone Advanced Integrated Lab



## PRESENTATIONS

2022



### **Structural Characterization of Previously Unresolved Lipids with HRIM-Mass Spectrometry**

Rose, B. S., Reardon, A. R., Leaptrot, K. L., May, J. C., McLean, J. A.

- MOBILion Systems Technical Breakfast Seminar at ASMS. Minneapolis, MN
- Invited oral presentation

2021



### **Lipid Collision Cross Section Calibration Strategies for High Resolution SLIM-based Traveling Wave Ion Mobility Separations**

Rose, B. S., Leaptrot, K. L., Reardon, A. R., May, J. C., McLean, J. A.

- 69th Annual Conference for the American Society of Mass Spectrometry and Allied Topics. Philadelphia, PA
- Poster presentation

2020



### **Collision cross section calibration strategies for a prototype SLIM-based ion mobility instrument**

Rose, B. S., Leaptrot, K. L., Wormwood, K. L. M., May, J. C., McLean, J. A.

- Annual Conference for the American Society of Mass Spectrometry and Allied Topics "Reboot"
- Poster presentation

- 2019 ● **Achieving a Consistent and Unified Community-wide Molecular Database: The Collision Cross Section Compendium**  
 Rose, B. S., Picache, J. A., May, J. C., McLean, J. A.  
 • 1st Annual Agilent North American Ion Mobility Workshop. Raleigh, NC.  
 • Invited oral presentation
- 2019 ● **Integrated multidimensional liquid chromatography-ion mobility-tandem mass spectrometry (LC-IM-MS/MS) workflow for high-confidence annotations in untargeted lipidomics**  
 Rose, B. S.; Codreanu, S. G., May, J. C., Sherrod, S. D., McLean, J. A.  
 • 67th Annual Conference for the American Society of Mass Spectrometry and Allied Topics. Atlanta, GA.  
 • Oral presentation
- 2018 ● **Development of a LC-IM-MS/MS workflow for high confidence lipidomics**  
 Rose, B. S.; Codreanu, S. G.; May, J. C., Sherrod, S. D., McLean, J. A.  
 • Southeastern Lipid Research Conference. Nashville, TN.  
 • Poster presentation



## PUBLICATIONS

- 2022 ● **A Collision Cross Section Calibration Strategy for Lipid Measurements in SLIM-based High Resolution Ion Mobility**  
 Rose, B. S.; May, J. C.; Reardon, A. R.; McLean, J. A.  
 • Journal of the American Society for Mass Spectrometry  
 • DOI: 10.1021/jasms.2c00067
- 2022 ● **Improving confidence in lipidomic annotations by incorporating empirical ion mobility regression analysis and chemical class prediction**  
 Rose, B. S.; May, J. C.; Picache, J. A.; Codreanu, S. G.; Sherrod, S. D.; McLean, J. A.  
 • Bioinformatics  
 • DOI: 10.1093/bioinformatics/btac197
- 2021 ● **High confidence shotgun lipidomics using structurally selective ion mobility-mass spectrometry**  
 Rose, B. S.; Leaptrot, K. L.; Harris, R. A.; Sherrod, S. D.; May, J. C.; McLean, J. A.  
 • Shotgun Lipidomics: Methods and Protocols  
 • DOI: 10.1007/978-1-0716-1410-5\_2

- 2021 ● **Resolving Power and Collision Cross Section Measurement Accuracy of a Prototype High-Resolution Ion Mobility Platform Incorporating Structures for Lossless Ion Manipulation**  
May, J. C.; Leaptrot, K. L.; Rose, B. S.; Moser, K. L. M.; Deng, L.; Maxon, L.; DeBord, D.; McLean, J. A.  
• Journal of the American Society for Mass Spectrometry  
• DOI: 10.1021/jasms.1c00056
- 2019 ● **Collision cross section compendium to filter and predict multi-omic compound identities.**  
Picache, J. A.; Rose, B. S.; Balinski, A.; Leaptrot, K. L.; Sherrod, S. D.; May, J. C.; McLean, J. A.  
• Chemical Science  
• DOI: 10.1039/c8sc04396e
- 2018 ● **Untargeted molecular discovery in primary metabolism: collision cross section as a molecular descriptor in ion mobility-mass spectrometry**  
Nichols, C. M.; Dodds, J. N.; Rose, B. S.; Picache, J. A.; Morris, C. M.; May, J. C.; Sherrod, S. D.; McLean, J. A.  
• Analytical Chemistry  
• DOI: 10.1021/acs.analchem.8b04322

## ★ AWARDS AND RECOGNITION

- 2020 ● **ASMS Student Travel Award**  
American Society for Mass Spectrometry
- 2019 ● **Student Travel Award**  
May Institute for Computational Statistics in Mass Spectrometry
- 2018 ● **VICB Research Fellowship**  
Vanderbilt Institute of Chemical Biology
- 2017 ● **Mitchum E. Warren Fellowship**  
Vanderbilt Chemistry Department