

Stephen A. Lee

University of Miami
Department of Chemistry
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Academic Positions

Assistant Professor of Chemistry (since August 2024)

Department of Chemistry, University of Miami, Coral Gables, Florida

Postdoctoral Research Associate (January 2024–June 2024)

Department of Chemistry, University of Illinois Urbana-Champaign; Supervisor: Prof. Christy F. Landes

Postdoctoral Research Associate (July 2019–December 2023)

Department of Chemistry, Rice University, Houston, TX; Supervisor: Prof. Stephan Link

Education

Ph.D. in Chemistry (May 2019)

University of Michigan, Ann Arbor, MI; Supervisor: Prof. Julie S. Biteen

Ph.D. Thesis: “Enhanced, live-cell, super-resolution imaging and single-molecule emission spectrum reshaping.”

M.S. in Chemistry (May 2016)

University of Michigan, Ann Arbor, MI; Supervisor: Prof. Julie S. Biteen

B.S. in Chemistry and Biology (May 2014)

Sam Houston State University, Huntsville, TX; Supervisor: Prof. David E. Thompson

Undergraduate Thesis: “Developing figures of merit for using surface-enhanced Raman spectroscopy for detection of cyanide metabolite 2-aminothiazoline-4-carboxylic acid.”

Honors and Awards

- Provost Research Award, University of Miami, 2025
- Department of Chemistry Dissertation Fellowship, University of Michigan, 2018
- Rackham Graduate Student Research Grant, University of Michigan, 2018
- PPG Graduate Summer Research Fellowship, University of Michigan, 2018
- Margaret & Herman Sokol Graduate Summer Research Fellowship, University of Michigan, 2017
- Rackham Graduate Student Research Grant, University of Michigan, 2015
- NSF-GRFP Honorable Mention, University of Michigan, 2015
- Dow Summer Research Fellowship, University of Michigan, 2014
- Cume Laude with Highest Honors, Sam Houston State University, 2014

Publications (948 Citations, h-index 17, Source: Google Scholar, September 2026)

† Equal contribution, *Corresponding author

27. [Lee, S. A.[†]](#); Loirette-Pelous, A.[†]; Adhikari, S.[†]; Ghorai, N.; Kuhs, C. T.; Yuan, T.; Dutta, S.; Esteban, R.; Lian, T.; Aizpurua, J.; Link, S. Resolving athermal electron and hole dynamics in plasmonic photocatalysts. *Under Review. Preprint: ChemRxiv* [10.26434/chemrxiv.15006883/v1](https://doi.org/10.26434/chemrxiv.15006883/v1)

26. Piedra, W. M.; Tomassini, A.; Singh, K. I.; Lee, S. A.*; Raymo, F. Photochemical fluorescence activation in arrays of microspherical containers. *Responsive Mater.* **2026**, e70080.
25. Yuan, T.; Brasel, S.; Shiratori, K.; Chakraborty, A.; Jain, P. K.; Lee, S. A.*; Link, S. Untangling optical effects from electron transfer signatures in chemical interface damping. *J. Phys. Chem. C.*, **2026**, *130*, 12682–12689.
24. Oh, H.; Chatterjee, S.; Jia, Z.; Gomez, E.; Lee, S. A.; Lin, J.; Verma, O.; Link, S.; Landes, C. F. Plasmonic pathway to hybrid nanomaterials through energy transfer. *Sci. Adv.*, **2025**, *11*, eady7016.
23. Gomez, E.; Mehmood, A.; Bian, Z.; Lee, S. A.; Tauzin, L. J.; Adhikari, S.; Gruebele, M.; Levine, B. G.; Link, S. Single-particle correlated imaging reveals multiple chromophores in carbon dot fluorescence. *J. Am. Chem. Soc.* **2025**, *147*, 17784–17794.
22. Yuan, T.; Guo, X.; Lee, S. A.; Brasel, S.; Chakraborty, A.; Masiello, D. J.; Link, S. Chemical Interface Damping Revealed by Single-Particle Absorption Spectroscopy. *ACS Nano*, **2025**, *19*, 10277–10288.
21. Shiratori, K.; West, C. A.; Jia, Z.; Lee, S. A.; Cook, E.; Murphy, C.; Landes, C. F.; Link, S. Machine Learning to Adaptively Predict Gold Nanorod Sizes on Different Substrates. *J. Phys. Chem. C.* **2025**, *129*, 5913–5920.
20. Ostovar, B.[†]; Lee, S. A.[†]; Mehmood, A.; Farrell, K.; Searles, E. K.; Bourgeois, B.; Chiang, W.-Y.; Misiura, A.; Gross, N.; Al-Zubeidi, A.; Dionne, J. A.; Landes, C. F.; Zanni, M.; Levine, B. G.; Link, S. Efficient hot-electron transfer through a direct plasmon-mediated pathway. *Science Adv.* **2024**, *10*, eadp3353.
19. Carlin, C. C.; Dai, A. X.; Al-Zubeidi, A.; Simmerman, E. M.; Oh, H.; Gross, N.; Lee, S. A.; Link, S.; Landes, C. F.; da Jornada, F. H.; Dionne, J. A. Nanoscale and ultrafast *in situ* techniques to probe plasmon photocatalysis. *Chem. Phys. Rev.* **2023**, *4*, 041309.
18. Oh, H.; Searles, E. K.; Chatterjee, S.; Jia, Z.; Lee, S. A.; Link, S.; Landes, C. F. Plasmon energy transfer driven by electrochemical tuning of methylene blue on single gold nanorods. *ACS Nano* **2023**, *17*, 18280–18289.
17. Lee, S. A.[†]; Kuhs, C. [†]; Searles, E. K.; Everitt, H. O.; Landes, C. F.; Link, S. *d*-band hole lifetimes in gold nanoparticles revealed by femtosecond time-resolved emission upconversion microscopy. *Nano Lett.* **2023**, *23*, 3501–3506.
16. Searles, E. K.; Gomez, E.; Lee, S. A.; Ostovar, B.; Link, S.; Landes, C. F. Single-particle photoluminescence under applied potentials shows increased modulation compared to dark-field scattering. *J. Phys. Chem. Lett.* **2023**, *14*, 318–325.
15. Al-Zubeidi, A.; Ostovar, B.; Carlin, C. C.; Li, B.-C.; Chiang, W.-Y.; Gross, N.; Searles, E. K.; Lee, S. A.; Chakraborty, A.; Roberts, S. T.; Dionne, J. A.; Rossky, P. J.; Landes, C. F.; Link, S. Plasmons generate solvated electrons. *Proc. Natl. Acad. Sci.* **2023**, *120*, e2217035120.
14. West, C. A.[†]; Lee, S. A.[†]; Shooter, J.; Searles, E. K.; Goldwyn, H. J.; Willets, K. A.; Link, S.; Masiello, D. J. Nonlinear effects in single-particle photothermal imaging. *J. Chem. Phys.* **2023**, *158*, 024202.
13. Lee, S. A.; Ostovar, B.; Landes, C. F.; and Link, S. Spectroscopic signatures of plasmon induced charge transfer. *J. Chem. Phys.*, **2022**, *156*, 064702.
12. Cai, Y.-Y.; Tauzin, L. J.; Ostovar, B.; Lee, S. A.; Link, S. light emission from plasmonic nanostructures. *J. Chem. Phys.* **2021**, *155*, 060901.
11. Hosseini Jebeli, S. A.; West, C. A.; Lee, S. A.; Goldwyn, H. J.; Bilchak, C. R.; Fakhraai, Z.; Willets, K. A.; Link, S.; Masiello, D. J. Wavelength-dependent photothermal imaging probes nanoscale temperature differences among subdiffraction coupled plasmonic nanorods. *Nano Lett.* **2021**, *21*, 5386–5393.
10. Lee, S. A. and Link, S. Chemical interface damping of surface plasmon resonances. *Acc. Chem. Res.* **2021**, *54*, 1950–1960.

9. Ostovar, B.; Cai, Y.-Y.; Tauzin, L. J.; Lee, S. A.; Ahmadvand, A.; Zhang, R.; Nordlander, P.; Link, S. Increased intraband transitions in smaller gold nanorods enhance light emission. *ACS Nano* **2020**, *14*, 15757–15765.
8. Lee, S. A. and Biteen, J. S. Spectral reshaping of single dye molecules coupled to single plasmonic nanoparticles. *J. Phys. Chem. Lett.* **2019**, *10*, 5764–5769.
7. Isaacoff, B. P.; Li, Y.; Lee, S. A.; Biteen, J. S. SMALL-LABS: an algorithm for localizing and measuring single molecules in the presence of obscuring backgrounds. *Biophys. J.* **2019**, *116*, 975–982.
6. Hinton D.; Ng, J.; Sun, J.; Lee, S. A.; Saikin, S.; Logsdon, J.; White, D.; Marquard, A.; Cavell, A.; Knapper, K.; Lupo, K.; Wasielewski, M.; Aspuru-Guzik, A.; Biteen, J. S.; Gopalan, P.; Goldsmith, R. Mapping forbidden emission to structure in self-assembled organic nanoparticles. *J. Am. Chem. Soc.* **2018**, *140*, 15827–15841.
5. Lee, S. A. and Biteen, J. S. Interplay of nanoparticle resonance frequency and array surface coverage in live-cell plasmon-enhanced single-molecule imaging. *J. Phys. Chem. C.* **2018**, *122*, 5705–5709.
4. Kovacs, K.; Duke, A.; Shifflet, M.; Winner, B.; Lee, S. A.; Rockwood, G.; Petrikovics, I. Parenteral dosage form development and testing of dimethyl trisulfide, as an antidote candidate to combat cyanide intoxication. *Pharm. Dev. And Tech.*, **2017**, *22*, 958–963.
3. Lee, S. A.; Ponjavic, A.; Siv, C.; Lee, S. F.; Biteen, J. S. Nanoscopic cellular imaging: confinement broadens understanding. *ACS Nano*, **2016**, *10*, 8143–8153.
2. De Silva, D.; Lee, S. A. Duke, A.; Angalakurthi, S.; Chou, C.-E.; Ebrahimpour, A.; Thompson, D. E.; Petrikovics, I.; Intravascular residence time determination for the cyanide antidote dimethyl trisulfide in rat by using liquid-liquid extraction coupled with high performance liquid chromatography. *J. Anal. Meth. Chem.*, **2016**, *2016*, 6546475.
1. Kovacs, K.; Ancha, M.; Jane, M.; Lee, S. A.; Angalakurthi, S.; Negrito, M.; Rasheed, S.; Nwaneri, A.; Petrikovics I. Identification, solubility enhancement and in vivo testing of a cyanide antidote candidate. *Euro. J. of Pharm. Sci.*, **2013**, *49*, 352–358.

Teaching Experience

University of Miami Fall 2024 – Present

CHEM 110: Chemical Problem Solving

CHEM 214: Quantitative Chemical Analysis

University of Michigan (Graduate Student Instructor) 2014 – 2018

CHEM 125 General Chemistry Laboratory; CHEM 130 General Chemistry Discussion; CHEM 211 Organic Chemistry Laboratory; CHEM 260 Physical Chemistry Discussion; CHEM 483 Physical/Analytical Laboratory

Discussions: Prepared and lectured over discussion material and administered evaluations of students' subject learning.

Laboratories: Facilitated learning of basic laboratory techniques and safety practices (CHEM 125) and directed original research projects and use of advanced analytical instruments (CHEM 483).

Graduate Student Mentees

Dipto Das 2025 – Present

Ashfia Tasnim 2025 – Present

Postdoctoral Mentees

Jyotirban Dey 2026 – Present

Undergraduate Student Mentees

Tiffany Bello-Spence 2026 – Present

McKenzie Gayheart 2025 – 2026

High School Student Mentees

Maria Fernandez 2026

Daniel Koshy 2026

Outreach

2026–Present ACS Project Seed Mentor

2026–Present College of Arts and Sciences Young Scholar Program Mentor

2026–Present Scientist in Every Florida School – Gordon Elementary School

2025 Poster Judge – Florida Inorganic and Materials Symposium

2021 Rice University Mentor for Research Experience for Teachers with Rafferty Deeds

2018–2022 Co-Chair for Gordon Research Seminar on Noble Metal Nanoparticles with Melissa King

2018–2019 ACS/AACT Science Coach – Allen Park High School with Mary McMaster

2018–2019 University of Michigan Chemistry Graduate Student Mentorship Program

2017 Mentor for NSF-Research Experience for Undergraduates with Katie Perrotta

2015–2019 University of Michigan – Chemistry Graduate Student Recruiter

Presentations

Independent Career

Lee, S. A. Defect engineering in nanomaterials and their implications for sensing and heterogeneous catalysis. *Florida Annual Meeting and Exposition 2026*, September **2026**, Palm Harbor, FL. (Invited)

Lee, S. A. Femtosecond time-resolved light emission of a single gold nanorod reveals the photoluminescence mechanism. *The International Chemical Congress of Pacific Basin Societies 2025*, December **2025**, Honolulu, HI. (Invited, Session Chair)

Lee, S. A. Quantifying femtosecond emission lifetimes from individual emitters. *ACS Spring Meeting*, March **2025**, San Diego, CA. (Invited, Session Chair)

Lee, S. A. Plasmonic nanoparticles for enhanced, live-cell, single-molecule imaging and localized biotoxicity. *University of Miami, BioNIUM Seminar Series*, February **2025**, Coral Gables, FL. (Invited)

Lee, S. A. Understanding and controlling emission from individual and coupled emitters. *University of Miami, Department of Physics*, October **2024**, Coral Gables, FL. (Invited)

Postdoctoral

Lee, S. A.; Kuhs, C.; Searles, E. K.; Everitt, H. O.; Landes, C. F.; Link, S. Femtosecond time-resolved emission spectroscopy reveals emission mechanism in single gold nanorods. *Gordon Research Conference/Seminar: Noble Metal Nanoparticles*, June **2024**, South Hadley, MA.

Lee, S. A.; Kuhs, C.; Searles, E. K.; Everitt, H. O.; Landes, C. F.; Link, S. Hot electrons generated through Auger scattering dominate charge transfer under interband excitation. *Wintergreen Meeting of Physical Chemists*, September **2023**, Wintergreen, VA. (Invited, Discussion Leader)

Lee, S. A.; Kuhs, C.; Searles, E. K.; Everitt, H. O.; Landes, C. F.; Link, S. Time-resolved emission upconversion microscopy reveals photoluminescence dynamics in gold nanoparticles. *ACS Fall Meeting*, August **2023**, San Francisco, CA. (Session Chair)

Lee, S. A.; Kuhs, C.; Searles, E. K.; Everitt, H. O.; Landes, C. F.; Link, S. d-band hole dynamics in gold nanoparticles measured with time-resolved emission upconversion microscopy. *The International Conference on Surface Plasmons Photonics*, May **2023**, Houston, TX.

Lee, S. A.; Ostovar, B.; Link, S. Chemical interface damping of plasmonic nanoparticles. *ACS Fall Meeting*, August **2022**, Chicago, IL. (Session Chair)

- Lee, S. A.; Ostovar, B.; Link, S. Efficient hot-electron transfer *via* a direct plasmon-mediated pathway. *Gordon Research Conference/Seminar: Plasmonics and Nanophotonics*, July **2022**, Newry, ME. (Discussion Leader)
- Lee, S. A.; Ostovar, B.; Link, S. Efficient hot-electron transfer *via* a direct plasmon-mediated pathway. *Gordon Research Conference/Seminar: Noble Metal Nanoparticles* June **2022**, South Hadley, MA. (Seminar Chair)
- Lee, S. A.; Ostovar, B.; Link, S. Chemical interface damping of plasmonic nanoparticles. *Wintergreen Meeting of Physical Chemists*, September **2021**, Wintergreen, VA. (Invited)
- Lee, S. A.; Link, S. Chemical Interface Damping. *METANANO*, September **2021**, Tbilisi, Georgia. (Keynote)
- Lee, S. A.; Ostovar, B.; Link, S. Spectroscopic signatures of coherent plasmon-induced charge separation in gold nanorods on metal-oxide semiconductors. *ACS National Meeting*, August **2021**, Atlanta, GA.
- Lee, S. A.; Ostovar, B.; Link, S. Spectroscopic signatures of plasmon-induced charge separation in gold nanorods on metal-oxide semiconductors. *ACS Colloids and Surface Science Symposium*, June **2021**, Houston, TX.
- Lee, S. A.; Ostovar, B.; Link, S. Spectroscopic signatures of plasmon-induced charge separation in gold nanorods on metal-oxide semiconductors. *PITTCON*, March **2021**, New Orleans, LA.

Graduate

- Lee, S. A.; Isaacoff, B. P.; Biteen, J. S. Hyperspectral PAINT super-resolution imaging of single-molecule emission spectrum reshaping by gold nanoparticles. *Gordon Research Seminar: Single Molecule Approaches to Biology*, July **2018**, Mount Snow, VA.
- Lee, S. A.; Isaacoff, B. P.; Biteen, J. S. Single-molecule emission spectrum reshaping and all-fluorescence nanothermometry using gold nanoparticles. *Gordon Research Conferences: Noble Metal Nanoparticles*, June **2018**, South Hadley, MA.
- Lee, S. A.; Biteen, J. S. Enhancing by design: gold nanoparticle arrays for enhanced live-cell fluorescence imaging. *UM Karle Symposium*, August **2017**, Ann Arbor, MI.
- Lee, S. A.; Biteen, J. S. Plasmon-enhanced single-molecule imaging in live bacteria. *Sam Houston State University*, March **2017**, Huntsville, TX. (Invited Oral Presentation)
- Lee, S. A.; Biteen, J. S. Gold nanoparticle arrays for plasmon-enhanced single-molecule fluorescence in live bacteria. *ACS National Meeting*, August **2016**, Philadelphia, PA.
- Lee, S. A.; Flynn, J. D.; Biteen, J. S. Metal nanoprisms for plasmon-enhanced single-molecule fluorescence in live bacteria. *Gordon Research Conferences: Noble Metal Nanoparticles*, June **2016**, South Hadley, MA.
- Lee, S. A.; Flynn, J. D.; Biteen, J. S. Metal nanoprisms for plasmon-enhanced single-molecule fluorescence in live bacteria. *ACS CERM*, May **2016**, Covington, KE.

Undergraduate

- Lee, S. A.; Miller, E. N.; Thompson, D. E. Developing a novel method for identifying 2-aminothiazoline-4-carboxylic acid using surface enhanced Raman spectroscopy. *SHSU Undergraduate Research Symposium*, April **2014**, Huntsville, TX. (Oral Presentation)
- Lee, S. A.; De Silva, D.; Miller, E. N.; Thompson, D. E. Reaction of ATCA and 2-IT to use ATCA as a biomarker for cyanide intoxication. *ACS National Meeting*, March **2014**, Dallas TX. (Poster Presentation)
- Lee, S. A.; Miller, E. N.; Thompson, D. E. Developing a novel method for identifying 2-aminothiazoline-4-carboxylic acid using surface enhanced Raman spectroscopy. *ACS SWRM*, November **2013**, Waco TX. (Oral Presentation)
- Lee, S. A.; Miller, E. N.; Fisher, D. M.; Jane, M. A.; Rojas, M. A.; Petrikovics, I. Use of synthetic and garlic sulfur donors to treat cyanide intoxication. *ACS SWRM*, November **2013**, Waco TX. (Poster Presentation)

Lee, S. A.; Jane, M. A.; Petrikovics, I. US Army invited *in vivo* cyanide antidote demonstration. November **2012**, Edgewood, MD. (Oral Presentation and Technical Demonstration)

Lee, S. A.; Shifflet, M.; Ancha, M.; Angalakurthi, S. K.; Jane, M. A.; Nwaneri, A. C.; Rasheed, S.; Kovacs, K.; Petrikovics, I. Preclinical drug formulation and animal studies in cyanide antidote development. *SHSU Undergraduate Research Symposium*, April **2012**, Huntsville, TX. (Poster Presentation)