

GABRIELLA (GABI) SEIFERT

Boulder, CO / gase3916@colorado.edu / [linkedin.com/in/gabriella-seifert](https://www.linkedin.com/in/gabriella-seifert)

EDUCATION

Scripps College, Claremont, CA **Graduated 2023**
Bachelor of Arts in Physics, Minor in German, GPA 3.99, Summa Cum Laude

University of Colorado Boulder, Boulder, CO **Exp. 2028**
PhD in Physics

RESEARCH EXPERIENCE

University of Colorado Boulder, Kapteyn-Murnane Group / Research Assistant **May 2024 - Present**
Boulder, CO

- Optimizing ultra-short laser pulses through an OPA, and characterizing pulses with FROG

W.M. Keck Science Department of the Claremont Colleges, Physics / Senior Thesis Student **Aug 2022 - May 2023**
Claremont, CA

- Independently built optical tweezers; aligned laser, calibrated camera, and troubleshoot issues with extensive research to create a functioning optical trap

W.M. Keck Science Department of the Claremont Colleges, Physics / Research Assistant **May 2021 - Aug 2021**
Claremont, CA

- Conducted research involving chemical concentration prediction by networks of E. coli
- Independently modeled E. coli networks in Python, solved differential equations, utilized regression analysis to create predictions, applied results to video prediction, and analyzed accuracy

W.M. Keck Science Department of the Claremont Colleges, Physics / Research Assistant **May 2020 - Apr 2022**
Claremont, CA

- Conducted research involving motion patterns and regeneration of single-celled organism *Stentor coeruleus*
- Surveyed literature, analyzed data in Python, wrote up results, and coordinated with publishers

PUBLICATIONS

Seifert, G., Sealander, A., Marzen, S., Levin, M., "From reinforcement learning to agency: Frameworks for understanding basal cognition." (2024) *Biosystems*, Volume 235, 105107, ISSN 0303-2647,

<https://doi.org/10.1016/j.biosystems.2023.105107>

Seifert, Gabriella, "Optical Tweezers: Exerting Force with Light" (2023). Scripps Senior Theses. 2015.

https://scholarship.claremont.edu/scripps_theses/2015

Sheung, J. Y., Otsuka, M., **Seifert, G.**, Lin, A., Marshall, W. F., "Analysis of Motility Patterns of *Stentor* During and After Oral Apparatus Regeneration Using Cell Tracking." *J. Vis. Exp.* (170), e62352, doi:10.3791/62352 (2021).

<https://www.jove.com/v/62352>

PRESENTATIONS

Seifert, G. "Frameworks for understanding goal-directed agents," American Physical Society March Meeting, Las Vegas, NV, March 2023

Seifert, G. "Environment prediction by E. coli," Keck Science Summer Research Symposium, Claremont, CA, September 2021

Sheung, J. Y., Seifert, G., "Motility and Behavior of S. Coeruleus During Regeneration," 65th Biophysical Society Annual Meeting, Poster, February 2021

TEACHING EXPERIENCE

University of Colorado Boulder / Teaching Assistant
Boulder, CO

Aug 2023 - May 2024

- Taught introductory electromagnetism using small-group tutorials, short lessons, and in-class experiments
- Provided one-on-one support and mentoring to students outside of the classroom through the Physics Helproom, as well as in grading and proctoring tests

Quantitative and Computing Lab of Claremont McKenna College / Head Mentor
Claremont, CA

Aug 2021 - May 2023

- Independently designed lessons around core concepts to address gaps in students' knowledge, mentored students individually or in small groups
- Organized teams of 3-5 mentors to teach physics students core concepts, prepare for tests, or help with homework

Scripps College Academy / Teaching Assistant
Claremont, CA

Aug 2022 - Nov 2022

- Collaborated with an academic advisor to develop a semester-long curriculum to introduce 5 high-achieving underrepresented highschool students to a biophysics lab environment as a part of the Math and Science Scholars program
- Independently led discussions with students, introduced the scientific method and how to keep a lab notebook; guided students through creating a hypothesis, slide preparation, using a confocal microscope, and digital analysis of particle motion

Graz International Bilingual School / Teaching Assistant
Graz, Austria

May 2022 - Aug 2022

- Created lesson plans in English and German for highschool physics classes; independently taught classes on nuclear physics; mentored small groups of students in physics projects

Scripps College / German Department Tutor
Online

Jan 2021 - May 2021

- Guided advanced German students in presentation preparation and speaking

AWARDS

- CU Physics Award for **TA Excellence**, for outstanding contributions to the Phys 1240 teaching team, both working individually with students and suggesting ideas to improve the class, 2024
- Barbara McClintock Award, awarded for the **best senior thesis** written by a graduating Scripps senior in the sciences, 2023
- Annual Alumnae Award, in recognition of **outstanding contributions to the life of the College**, Scripps College, 2023
- Merle A. and Edith G. Potter Award, given annually to a student **excelling in German**, Scripps College, 2023
- Elected to membership in the **Phi Beta Kappa academic honor society**, Scripps College, 2023
- **Scripps College Dean's List**, Fall 2019, Spring 2020, Fall 2020, Fall 2021, Spring 2022, Fall 2022, Spring 2023

- Award for excellence in undergraduate research, The Claremont Chapter of Sigma Xi, 2022
- National Merit Scholarship, 2019

SKILLS

- Proficient in Python, and MATLAB, Mathematica, and Maple
- German (native fluency)