

# Lucille Sternberg

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## EDUCATION

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Boston University, *Boston, MA 02215* Sept. 2023 – Present  
Ph.D. in Mechanical Engineering

Mount Holyoke College, *South Hadley, MA 01075* Sept. 2019 – May 2023  
Bachelor of Arts | Major: Computer Science and Physics | GPA: 3.84/4.00

## RESEARCH INTERESTS

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Condensed Matter Physics, Computational Physics, Machine Learning, Materials Science and Sustainability, Nanomaterials, Energy Generation and Storage, Mechanical Engineering, Electrical and Computer Engineering

## RESEARCH EXPERIENCE

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**Boston University, Department of Mechanical Engineering** Sept. 2023 – Present  
*Graduate Assistant Researcher, Materials Informatics Lab*  
*Advisor: Professor James Chapman*

- Conducting molecular dynamics simulations, and static calculations using VASP to compile reference data for disordered high entropy alloy systems
- Writing scripts to randomly generate high entropy alloy systems of varying levels of disorder

**Mount Holyoke College, Department of Physics** May 2021 – May 2023  
*Student Researcher, C.R.A.M Lab*  
*Advisor: Professor Kerstin Nordstrom*

- **Project:** “Active Granular Robots”
- Improved experimental setup by manufacturing a new enclosure for lab robots with a CNC machine, and writing a script to randomize motion of robots
- Troubleshoot and edited various MATLAB scripts to improve particle tracking
- Communicated with other project members to organize the lab and set weekly goals

**Binghamton University, Department of Physics** June 2022 – Aug. 2022  
*Student Researcher, Research Experience for Undergraduates (REU)*  
*Advisor: Professor Manuel Smeu*

- **Project:** Investigate how dopants impact the electronic conductivity of the solid electrolyte  $\text{Li}_7\text{La}_3\text{Zr}_2\text{O}_{12}$  (LLZO)
- Used VASP to run density functional theory calculations on systems of computationally modeled LLZO to estimate characteristics of electronic structure
- Dedicated approximately 40 hours a week collaborating with PhD candidate mentor, modeling systems of molecules, and submitting calculations to a High-Performance Computing Cluster
- Culminated in two presentations (see “Presentations”)

## PRESENTATIONS

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**L. Sternberg** (presenting author), K. Nordstrom, “Characterizing the Behavior of Swarms of Active Robots”, 2023 Senior Symposium, Mount Holyoke College, 2023

**L. Sternberg** (presenting author), K. Batzinger, M. Smeu, “The Effect of Dopants on the Electronic Conductivity of  $\text{Li}_7\text{La}_3\text{Zr}_2\text{O}_{12}$ ”, 2022 Energy REU Poster Session, Binghamton University, 2022

**L. Sternberg** (presenting author), K. Batzinger, M. Smeu, “The Effect of Dopants on the Electronic Conductivity of  $\text{Li}_7\text{La}_3\text{Zr}_2\text{O}_{12}$ ”, 2022 Summer Research Poster Session, Mount Holyoke College, 2022

## TEACHING EXPERIENCE

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**Mount Holyoke College, Department of Physics**  
*Student Tutor (Physics PLUM Mentor) for Electromagnetism*  
*Supervisor: Professor Desalegn Debu* Sept. 2022 – May 2023

*Professor Alexi Arango*

Jan. 2021 – Dec. 2021

- Met with supervisor for an hour each week to review topics and problem sets
- Created a weekly worksheet pertaining to materials covered in class and on the homework
- Held three-hour weekly sessions to answer questions about homework and course material from students

**Mount Holyoke College, Department of Physics**

Aug. 2022 – Sept. 2022

***Science Launch Teaching Assistant***

*Supervisor: Professor Kerstin Nordstrom*

- Met with a supervisor daily to review, prepare, and clean up lab activities for students
- Assisted supervisors and students in daily labs by answering questions and handling equipment
- Collaborated with other teaching assistants to create a welcoming and fun environment for new students interested in physics and science

**SKILLS**

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**Computer:** Python, MATLAB, Java, Linux, C (Programming Language), Microsoft Office Suite, Windows and Mac OS, Vienna Ab initio Simulation Package (VASP), VESTA, Avogadro, OVITO, Functional Programming, Assembly Language Programming

**RELEVANT COURSES**

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**Mechanical Engineering:** Finite Element Methods and Analysis, Continuum Mechanics,

**Physics:** Computational Physics Lab, Analytical (Advanced Classical) Mechanics, Statistical Mechanics, Quantum Mechanical Phenomena, Waves and Optics, Electromagnetism, Introduction to Math Methods in Physics, Techniques in Experimental Physics (Machine Shop)

**Math:** Calculus I, II, III, Discrete Math, Linear Algebra

**Computer Science:** Operating Systems, Programming Language Design and Implementation, Software Design and Development, Data Structures, Introduction to Computing Systems, Java Programming Language

**LEADERSHIP EXPERIENCE**

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**Mount Holyoke College, Track and Field Team (Varsity Sport)**

Oct. 2019 – May 2023

*Captain*

Oct. 2021 – May 2023

*SAAC Representative*

**HONORS AND AWARDS:**

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**Convergent Fellowship in Energy and Sustainability (2023)**

**Sigma Pi Sigma Member (Inducted May 2022):** Honor Society in Physics

**NEWMAC Women's Track and Field Academic All-Conference (2022):** Awarded to student athletes who earned a minimum cumulative GPA of 3.5/4.0 scale, achieved second year academic status at their institution, and have been a member of the varsity team for the entire season.

**Sarah Williston Scholar (2021):** The title of Sarah Williston Scholar is conferred on those students whose cumulative averages based on 64 credits at the end of their sophomore year place them approximately in the top 15 percent of their class.

**Bennett Prize (2020):** Awarded to an undergraduate for excellence in physics.

**Mildred L. Sanderson Prize Math (2020):** Awarded to an undergraduate for excellence in mathematics.