Eden Dreisbach

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EDUCATION

University of California, Los Angeles — Los Angeles, CA
B.S. Physics — *September 2022 – June 2026*

- Overall GPA: 3.603/4.00
- Relevant Upperdivision Coursework: Quantum Information Science (Graduate Level), Quantum Field Theory I&II (Graduate Level), Quantum Mechanics, Electromagnetism, Classical Mechanics, Linear Algebra (Honors)

PROFESSIONAL & RESEARCH EXPERIENCES

UCLA Physics Departmental Honors Program
Undergraduate Researcher — *September 2025 – Present*

- Extending previous research on Compressional Alfvén Eigenmodes (CAEs) through UCLA's Student Research Program (SRP-199) on the track to earning Departmental Honors.
- Drafting a senior thesis to submit for publication to the Journal of Plasma Physics and Controlled Fusion on eigenmode structure, wave propagation, and warm-plasma modeling in tokamak-relevant geometries.

General Atomics
SULI Research Intern — *June 2025 – August 2025*

- Analyzed Langmuir probe (LP) and divertor Thomson scattering (TS) data to study correlations between upstream pedestal density structure and divertor target conditions.
- Developed Python pipelines for ELM filtering, profile extraction, and neped/nesep vs. target-Te trend analysis to inform predictive modeling of divertor states.
- Presented a research poster at the 2025 APS Division of Plasma Physics Conference (Long Beach, CA).

UCLA REU Summer Program
Undergraduate Researcher — *June 2024 – September 2024*

- Constructed modular NSTX-U geometry and implemented full cold-plasma dielectric tensors in the COMSOL RF Module.
- Solved for 2D axisymmetric eigenmodes and conducted physics-driven parameter studies to determine how damping layers, equilibrium shaping, and search-domain choices influence mode structure.

UCLA BaPSF - Plasma Diagnostics Group
Undergraduate Research Assistant — *January 2024 – June 2025*

- Simulated millimeter-wave beam propagation using Python-based ray tracing for diagnostic development.
- Continuation of Summer REU project
    - Modeled Compressional Alfvén Eigenmode solutions using the cold plasma approximation in COMSOL, implemented analytic Grad–Shafranov equilibrium inputs and analyzed resulting wave-plasma interactions.
    - Extended simulation framework to include warm-plasma kinetic models and MHD-Hall effects.

Abbott Vascular Inc
Supplier Quality High School Summer Intern — *June 2021 – August 2021*

- Updated ISO-certifications and reorganized online filing systems. Gathered resources and data on companies connected to Abbott's SQ division

Environmental Health and Safety High School Summer Intern — *June 2022 – August 2022*

- Performed Industrial Hygiene Monitoring and located Lock-Out Tag-Out Procedures. Aided in COVID-19 test kit distributions and blood drives. Located and organized various products in the Chemical Inventory.

LEADERSHIP & SKILLS

Sigma Pi Sigma Physics Honor Society
Vice President — *April 2024 – Present*

- Facilitated membership growth, tripling chapter size through outreach and recruitment efforts
- Developed academic and professional resources, including document archives, physics review sessions, workshops, and a paired mentorship system
- Directly organized with professors to host student-professor networking events
- Secured multiple grants to raise thousands of dollars for outreach initiatives and funded lab tours
- Currently starting a student-led fellowship initiative to support research in the UCLA physics department

Skills: Python (NumPy, SciPy, Matplotlib, Pandas), COMSOL Multiphysics (RF Module, eigenfrequency studies), LaTeX