

MILO SACK

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EDUCATION

San Francisco State University
M.S. in Chemistry

San Francisco, CA
Expected Spring 2027

- B.S. in Chemistry (Awarded Fall 2025)

City College of San Francisco
Certificate of Achievement in Chemistry

San Francisco, CA
2020 – 2024

- Certificate of Achievement in Chemistry

RESEARCH EXPERIENCE

Polycrystalline Anatase Thin Films

Graduate Researcher | Lab of Dr. Andrew S. Ichimura

SFSU
Spring 2025 – Present

- Investigating the structural and electronic properties of anatase-phase TiO₂ thin films for advanced photocatalytic applications.
- Utilizing specialized instrumentation to characterize and evaluate the performance of the films
- Conducting solar simulation testing to evaluate material efficiency under standard AM1.5G illumination.
- Managing end-to-end experimental workflows, from hydrothermal synthesis to quantitative data processing and technical reporting.

Quantum Dot Photocatalysts

Collaborative Researcher

SFSU
Spring 2025

- Studied quantum dot-based photocatalysts for solar-driven reactions.
- Analyzed structure and morphology using spectroscopic methods.
- Developed novel method of ligand augmentation to improve quantum yield and stability

PRESENTATIONS

Medium-throughput Vessel for Hydrothermal Synthesis

ACS Western Regional Meeting

Poster Presentation | Building Bridges Symposium

2025

- Designed and demonstrated an 8-chamber hydrothermal reaction system enabling high-throughput synthesis of TiO₂ thin films.
- Analyzed the effect of pH and precursor concentration on film crystallinity and surface morphology.

Quantum Dot Functionalization via Surface Ligand Reactions

SFSU

Research Showcase | CoSE MPS-524

2025

- Investigated ligand-exchange mechanisms for tuning the surface chemistry of semiconductor quantum dots.
- Presented findings on how surface functionalization modulates electronic structure for specific photocatalytic applications.

HONORS, AWARDS & FELLOWSHIPS

- **Florence Haimes Scholarship**, San Francisco State University 2025
- **Genentech Foundation Fellowship**, Student Enrichment Opportunities (SEO) 2025
- **Louis Stokes Alliance for Minority Participation (CSU-LSAMP)** 2024 – 2025
- **Educational Opportunity Program (EOP) Scholar**, SFSU 2024
- **Dean's List**, SFSU (Fall 2024) & CCSF (4 Semesters) 2021 – 2024

TECHNICAL EXPERIENCE

Analytical Instrumentation

- Bruker JPK BioAFM, Bruker D6 Phaser XRD, NMR Spectroscopy (1D/2D), Scanning Electron Microscopy (SEM), UV-Vis/IR Spectroscopy, Fluorescence Spectroscopy.

Software & Computation

- SolidWorks 2024 (CAD Design), ImageJ (Image Analysis), Gwyddion (AFM Data Analysis).

Laboratory Techniques

- Thin-film fabrication, Hydrothermal synthesis, Nanomaterial functionalization, Solar simulation testing, Schlenk line techniques, and Cleanroom protocols.