

Benjamin Kleinman

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Education

University of Maryland

College Park, MD

Bachelor of Science: Chemical Engineering

Aug. 2024 – Expected May 2028

- Honors: ASPIRE Scholar (Fall 2026), a competitive Clark School scholarship supporting my lab research; Dean's List
- Activities: AIChE; Zeta Beta Tau Fraternity; Treasurer, East Asian Media Appreciation Club

Beth Tfiloh Dahan Community Day School

Pikesville, MD

High School Diploma

Aug. 2020 – Jun. 2024

- National Honor Society; Honor Roll all trimesters; President, DJ Club and Virtual Reality Club

Research Experience

Undergraduate Researcher

Jun. 2026 – Present

Functional Macromolecular Lab · Advisors: Dr. Peter Kofinas, Christopher Johnson

College Park, MD

- Own the full battery-lab workflow: literature review, formulation, electrode/separator prep, glovebox cell builds, testing

Low-Temperature Electrolyte Additives (Fall 2026 – Present)

- Lead development of electrolyte additives that improve lithium-ion battery performance at low temperatures, benchmarked against an industry-standard additive
- Designed a multi-formulation additive study; testing coin and pouch cells for ionic conductivity, rate capability, and cold-temperature capacity from 35 °C down to -40 °C
- Identified a lead formulation that outperformed the baseline at every temperature tested so far

High-Temperature Liquid Polymer Electrolytes (Summer 2026)

- Engineered thermally stable liquid polymer electrolytes for batteries up to 75 °C, tuning salt and plasticizers
- Measured conductivity by EIS from 25–75 °C with Arrhenius analysis; confirmed thermal stability by DSC

Undergraduate Researcher

Aug. 2024 – Dec. 2025

FIRE Gene Silencing Stream · Mentor: Dr. Mary Chey

College Park, MD

- Investigated how histone regulatory sequences control heritable, mating-induced RNA silencing in *C. elegans* using CRISPR/Cas9-edited his-64/mCherry reporter strains
- Genotyped edited lines via PCR and gel electrophoresis; prepared and analyzed Sanger sequencing samples

Projects

FML Plot | Python desktop app for battery and dielectric data analysis

2026

- Designed and built, as sole developer, a Python app (Tkinter, pandas, matplotlib) that converts BioLogic, Arbin, and Touchstone files, auto-detects the test type, and overlays full temperature sweeps in one view
- Automated the lab's analysis: model-free extraction of ohmic, SEI, and charge-transfer resistance from EIS, Arrhenius activation energy, coulombic efficiency, and dielectric permittivity, with auto-generated reports

Work History

Dental Assistant

Jun. 2022 – Aug. 2024

Carroll Periodontics & Implant Dentistry

Carroll County, MD

- Advanced from observer (2022) to intern (2023) to dental assistant (2024); provided chairside, four-handed assistance and ran instrument sterilization under infection-control and HIPAA protocols

Leadership and Volunteer Work

Community Service and Philanthropy Chair | Zeta Beta Tau Fraternity

Aug. 2025 – Aug. 2026

- Led the chapter's Get On The Ball campaign, raising \$1,500+ for Children's Miracle Network Hospitals, and partnered with Alpha Chi Omega, Phi Sigma Sigma, and Delta Gamma to contribute \$500+ to their causes

Sexual Assault Prevention Chair | Zeta Beta Tau Fraternity

Aug. 2024 – Present

- Designed and delivered training on consent, personal accountability, and bystander intervention

Co-Founder | Cat's Closet and Liz's Locker

Jun. 2023 – Aug. 2024

- Wrote the mission statement and raised donations from corporate and private donors for children in foster care

Skills

Battery Lab: Glovebox work and maintenance, electrode/separator prep, coin/pouch cell builds, vacuum ovens, micropipettes

Characterization: EIS and equivalent-circuit fitting, galvanostatic cycling and rate capability, DSC, Arrhenius analysis

Biology: CRISPR/Cas9 strain work, PCR, gel electrophoresis, Sanger sequencing analysis, sterile technique

Software & Languages: Python (pandas, NumPy, matplotlib, Tkinter); English (native), Hebrew (professional)