Finn G. Kennedy

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Education

Cornell University, B.S., *cum laude*, Engineering Physics 2021 – 2025

- **Cumulative GPA:** 3.643
- **Relevant Coursework:** Quantum Mechanics, Advanced Mathematical Physics, Electronic Circuits, Group Theory, Computational Physics, Solid State Physics, Advanced Experimental Physics, Modern Condensed Matter Physics.

Work and Research Experience

Student Researcher, Ralph Lab, Cornell University, Ithaca, NY 2023 – 2025

- Beginning winter 2023, fabricated and investigated the electronic properties of ferroelectric van der Waals tunnel junctions for development of next-generation memory technologies.
- Conducted nanofabrication at the Cornell NanoScale Facility (CNF) clean room, including E-beam lithography and thin-film deposition. Performed exfoliation and stacked 2D materials (e.g., graphene, hBN). Ran low-temperature quantum transport measurements to measure tunnel junction conductances.
- Developed computational models to simulate tunneling behavior.
- Second author on paper in review at *Nature Electronics*.
- Briefly began project investigating the non-linear Hall effect using angle resolved transport measurements.

Student Researcher, Barstow Lab, Cornell University, Ithaca, NY 2021 – 2023

- Beginning fall 2022, computationally investigated the efficiency of carbon assimilation pathways. Developed growth media for *V. natriegens*, a fast-growing bacterial host for biological engineering.
- Third author on paper published in *PNAS Nexus*.

Receptionist, Engineering Advising Office, Cornell University, Ithaca, NY 2023

- Assisted students at the front desk and helped to organize the office. Developed customer service and communication skills.

Math Tutor, John M. Barry Boys and Girls Club, Newton, MA 2018 – 2020

- Collaborated with a team of tutors to work through math problems with 1st-5th graders. Developed strong teaching skills through one-on-one support.

Honors and Activities

Dean's List, three semesters, Cornell University 2022 – 2025

Dean Archer Undergraduate Research Award 2024

- Awarded funding to research a ferroelectric project with the Ralph Lab.

Fund for Undergraduate Research on Solutions to Climate Change Award 2022

- Awarded funding for research in the Barstow Lab.

Newton South High School Debate Team, Varsity Member and Novice Mentor 2018 – 2021

- Developed strong public-speaking and communication skills.
- Massachusetts State Championship finalist, 2020.
- Harvard Invitational quarter finalist, 2019.

Experimental Techniques and Skills

Thin-film deposition	E-beam lithography, CAD
Nabity Nanometer Pattern Generation System (NPGS)	Extensive clean room experience
Mechanical exfoliation	Van der Waals heterostructure assembly
Electronics: multimeter, oscilliscope/Picoscope	Nuclear magnetic resonance (NMR) spectroscopy
Atomic force microscopy (AFM)	Raman spectroscopy
Python, MATLAB, Java, Arduino	PCR, gel casting, plating bacteria

Presentations and Publications

- Vareskic, B.; Kennedy, F.G.; Taniguchi, T.; Watanabe, K.; Yasuda, K.; Ralph, D.C. 2025. "Gate-tunable electroresistance in a sliding ferroelectric tunnel junction." In review.
- Kennedy, F. 2024. "Fabrication of Ferroelectric van der Waals Tunnel Junctions." Lab of Atomic and Solid State Physics Students and Postdocs Seminar Series, August 1.
- Kennedy, F. 2024. "Fabrication of Ferroelectric van der Waals Tunnel Junctions." Engineering Learning Initiatives Presentation Workshop, July 10.
- Specht, D.A.; Sheppard, T.J.; Kennedy, F.; Li, S.; Gadikota, G.; Barstow, B. 2024. "Efficient natural plasmid transformation of *Vibrio natriegens* enables zero-capital molecular biology." *PNAS Nexus*, 3(2):pgad444. doi.org/10.1093/pnasnexus/pgad444.
- Kennedy, F. 2023. "Thermodynamic Constraints on Electromicrobial C1-assimilation." Engineered Living Materials Institute Symposium, April 24.
- Numerous lab and group meeting presentations (2021–present).