Liam Daly

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EDUCATION

University of Michigan, Ann Arbor, MI — August 2024 - Present
PhD Pre-Candidate, Physics
GPA: 3.91

University of North Texas, Denton, TX — August 2020 - May 2024
Bachelor of Science in Physics, *summa cum laude*
Minor in Mathematics
GPA: 3.99

RESEARCH EXPERIENCE

Rajagopal Laboratory, Department of Physics, University of Michigan — April 2025 – Present
Graduate Research Assistant

- Currently designing and constructing a hybrid cavity-Rydberg cold atom experiment to explore many-body entanglement dynamics. Specifically, we will leverage local and global interactions to probe the relationship between chaos and entanglement in the quantum kicked rotor.

Cundiff Laboratory, Department of Physics, University of Michigan — August 2024 – April 2025
Graduate Research Assistant

- Investigated possible experimental schemes to measure bright squeezed vacuum states of light
- Gained hands on experience with the group's multidimensional optical nonlinear spectrometer

Neu Research Group, Department of Physics, University of North Texas — April 2023 – June 2024
Undergraduate Research Assistant

- Investigated the temperature-dependent electro-optical properties of topological semimetals (e.g. ZrSiS) using Terahertz-Time Domain Reflection Spectroscopy
- Designed and implemented various components of the newly-formed group's lab including the Optical Pump-Terahertz Probe spectrometer

Goldman Research Group, Department of Physics, University of Michigan — June 2023 - August 2023
REU Researcher

- Simulated carrier concentration in sub-monolayer quantum dots from data taken in local-electrode atom probe tomography experiments
- Gained hands-on experience operating and troubleshooting the group's scanning tunneling microscope

OTHER EXPERIENCE

Graduate Student Instructor, Department of Physics, UM — August 2024 – December 2025

- Most recently taught an introductory physics course made up of more than 500 students. Responsible for maintaining the course's online services (e.g. Canvas), supervising learning assistants, and occasionally giving lectures
- Provided instruction for undergraduate students in introductory physics and biophysics laboratory courses
- Wrote Python programs to streamline the generation of a gradebook for physics introductory lab courses
- Selected evaluations:
    - *"Liam was awesome at making sure we all got help and understood the topics well"* (Fall '24)

- *"Liam was very helpful and supportive when needed during the lab. He was able to bring clarity to increase our learning."* (Winter '25)

Tutor, Department of Physics, UNT June 2022 – March 2024

- Led group and one on one tutoring sessions for students in physics courses, including homework help, lab report writing, and general lessons in physics concepts

Demo Room Assistant, Department of Physics, UNT February 2022 – August 2022

- Created a catalogue for, performed maintenance on, and prepared various lecture demonstrations
- Designed, acquired, and implemented new demos and improvements to existing demos

PRESENTATIONS AND POSTERS

Midwest Cold Atom Workshop November 2025

- Poster: A Hybrid Cavity-Rydberg Cold Atom Experiment

UNT Scholar's Day April 2024

- Presentation: Terahertz Spectroscopy and Applications to Novel Quantum Materials

Texas Section of the American Physical Society Meeting October 2023

- Poster: Characterization of Topological Quantum Materials by Terahertz-Time Domain Spectroscopy

UNT University Research Day October 2023

- Poster: Characterization of Topological Quantum Materials by Terahertz-Time Domain Spectroscopy

University of Michigan REU Symposium August 2023

- Presentation: Semiconductor Quantum Dots: Influence of Atomic Structure on Electronic States

SKILLS

- Computational Languages and Software: CAD, COMSOL, Python (Numpy, Pandas, Matplotlib, SciPy), Jupyter Notebooks, Mathematica, MATLAB
- Experimental Skills: machining, laser spectroscopy, cryogenics, experimental design, photolithography, scanning electron microscopy, wire bonding, UHV systems, analog and digital electronics

CAMPUS INVOLVEMENT AND VOLUNTEERING

Physics Graduate Student Council, UM January 2025 – Present

Secretary, Social Events Chair

- Organizes workshops and events for physics graduate students and the broader department community
- Plans and runs recruitment visits for prospective PhD students
- Runs a monthly "language lunch" for members of the Michigan to practice speaking a foreign language

Physics Committee for Outreach and Wellness, UM December 2024 – Present

- Plans and participates in outreach opportunities in the Ann Arbor area
- Tackles initiatives such as conducting a department-wide mental health survey to better understand the needs of all students

Community of Physicists for Inclusion and Equity, UM January 2025 – Present

- Participates in outreach such as performing physics demonstrations for smaller events like middle school science days or larger events like the Metro Detroit Youth Day

Physics Directed Reading Program, UM September 2025 - Present

- Mentors an undergraduate physics student on an independent study of a topic in physics research. The program gives student's experience with literature reviews and scientific presentations.

Letters to a Pre-Scientist August 2025 - Present

- Volunteers as a pen pal with a middle school student interested in STEM from a background with limited resources for learning about science and technology

Physics Graduate Student Symposium Organizing Committee, UM Summer 2025

- Organized a summer seminar series to give physics graduate students speaking experience and to showcase exciting research in the physics department

Society of Physics Students, UNT November 2021 – May 2024

President (May 2023-May 2024)

- Coordinated and led all events and meetings, including outreach for high school and college students, seminars, and a campus-wide solar eclipse viewing event open to the public

AFFILIATIONS

- American Physical Society: Division of Atomic, Molecular, and Optical Physics

AWARDS AND FELLOWSHIPS

TSAPS Outstanding Undergraduate Student Poster Presentation Award	October 2023
UNT Undergraduate Research Fellow	2023 – 2024
UNT President's Scholarship	2020 – 2024
UNT Emerald Eagle Scholar	2020 – 2024
UNT College of Music Undergraduate String Quartet Scholarship	2020 – 2021