

David Beckwitt, Ph.D.

david.beckwitt@gmail.com | github.com/DVBeckwitt | [linkedin.com/in/DVBeckwitt](https://www.linkedin.com/in/DVBeckwitt) | [Full CV](#)

Professional Summary

Physicist with expertise in quantitative modeling, experimental materials growth and characterization, and machine learning applications. Skilled in **X-ray/neutron scattering**, thin-film synthesis, and structural analysis of van der Waals (vdW) materials.

Education

Ph.D., Physics, University of Missouri May 2026 (expected)
Dissertation: *Disorder in van der Waals Thin Films*
Advisor: Paul Miceli

M.S., Physics, University of Missouri May 2022

B.S., Physics, Missouri State University May 2020

Technical Skills

Programming: Python, C++, Fortran, Git, Structured Query Language (SQL), Message Passing Interface (MPI), Bash scripting, LaTeX

Analysis: Monte Carlo methods, Convolutional Neural Networks (CNNs; PyTorch), NumPy, pandas, SciPy

Instrumentation: X-ray/neutron scattering, Chemical Vapor Deposition (CVD), Pulsed Laser Deposition (PLD), Scanning Electron Microscopy (SEM), Raman spectroscopy

Visualization: Matplotlib, Plotly, OriginLab, Jupyter Notebooks, Blender

Research Experience

Graduate Researcher, University of Missouri 2021–Present

- Developed **Python**-based Grazing Incidence Wide-Angle X-ray Scattering (GIWAXS) analysis toolkit.
- Synthesized phase-controlled thin films via **CVD**.
- Developed **CNNs** with **PyTorch** to classify structural disorders.

Research Intern, NASA Space Consortium 2019–2020

- Fabricated graphene-based heterostructures using **PLD** and Physical Vapor Deposition (PVD); verified properties via Raman spectroscopy and **SEM**, enhancing device reliability.

Research Assistant, Missouri State University 2017–2020

- Built a **PLD** system improving thin-film deposition consistency; characterized via X-ray diffraction (XRD), **SEM**, Raman spectroscopy.

Research and Development (R&D) Intern, Dynatek Labs 2019

- Developed automation software for biomedical testing equipment, increasing efficiency by 40%.

Selected Publications

- Arendse et al., *ACS Applied Materials & Interfaces*, 15, 56692 (2023). [\[DOI\]](#) (Co-author)
- Beckwitt, *X-ray Diffraction Analysis of Disorder in vdW Films*, American Physical Society (APS) March Meeting (2024). (First author)

Awards & Leadership

- Outstanding Student Research Presentation, Neutron Scattering Society 2023
- Green Chalk Teaching Award, University of Missouri 2023
- President/Vice-President, Physics & Astronomy Graduate Student Association 2022–2024