DAVID BECKWITT, Ph.D.

Ph.D. Candidate – Computational Materials Science & Diffraction Modeling
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EDUCATION

University of Missouri, Columbia Ph.D. Physics, May 2026 (exp.)
Dissertation: *Investigating Disorder in van der Waals Thin Films* Advisor: Paul Miceli
University of Missouri, Columbia M.S. Physics, 2022
Missouri State University, Springfield B.S. Physics, 2020

TECHNICAL STRENGTHS

Programming: Python (7 yr), Fortran, C++, R, MPI, Bash, SQL, Git, LaTeX
Analysis: Monte Carlo, CNNs (PyTorch), NumPy/pandas, SciPy, GIWAXS simulation
Instrumentation: X-ray/Neutron scattering, CVD, PLD, SEM, Raman
Visualization/Comm.: Matplotlib, Plotly, Jupyter, Technical writing

RESEARCH EXPERIENCE (SELECTED)

Graduate Researcher, Univ. of Missouri 2021–present

— Built Python GIWAXS reverse-Monte-Carlo toolkit; extracted mosaicity, Debye–Waller, experimental geometry.

— Modeled stacking-fault diffuse scattering; quantified defect densities in CVD PbI_2.

— Trained CNNs on simulated patterns (PyTorch) for automated thin-film structure labeling.

Research Intern, NASA Space Consortium 2019–2020

— Synthesized graphene heterostructures via PLD/PVD; characterized with Raman and SEM.

Research Assistant, Missouri State University 2017–2020

— Designed PLD system; deposited LiPON & TiO_2 films; analyzed via XRD and profilometry.

SELECTED PUBLICATIONS & PRESENTATIONS

Arendse *et al.*, "Growth Orientation and Phase Stability of CVD 2D Hybrid Halide Perovskite Films," *ACS AMI* 15, 56692 (2023).
Beckwitt, "X-Ray Diffraction Investigation of Disorder in van der Waals Thin Films," APS March Meeting (2024).

AWARDS & LEADERSHIP

Outstanding Student Research Presentation, Neutron Scattering Society (2023)
Green Chalk Teaching Award, Univ. of Missouri (2023)
President → Vice-President, Physics & Astronomy Graduate Student Association (2022–24)

TEACHING (BRIEF)

Instructor/TA: Calculus-based Mechanics; E&M; Intro C++ Programming (2018–23)