Christian Bunker

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Education

Ph.D. in Physics, University of Florida 08/2020−Present

Honors: Graduate Student Fellowship. Relevant courses: Solid State & 2, Machine Learning.

B.S. in Physics, University of Notre Dame 08/2016−01/2020

Honors: magna cum laude, Outstanding Undergraduate Research Award. Relevant courses: Intro to Solid State Physics, Intro to Circuitry and Electronics

Skills

Scientific communication: Experienced in reviewing scientific literature and communicating research in written and oral form.

Programming: Excellent grasp of Python, especially using Numpy. Basic knowledge of C++.

Experience

Research Assistant, University of Florida, Gainesville, FL 05/2021−Present

Studied how a scattered electron can carry quantum information between magnetic molecules. Constructed computational tools to investigate electron transport processes.

Teaching Assistant, University of Florida, Gainesville, FL 08/2020−04/2021

Instructed Physics 2 students in key concepts, reinforcing scientific communication abilities. Reviewed and provided feedback on lab reports for Physics 2 students.

Research Assistant, University of Notre Dame, Notre Dame, IN 01/2020−05/2020

Developed Python code to calculate the bound state energies of quantum well heterostructures, contributing to a paper on the design of topological insulators. Conducted low temperature magnetotransport experiments on α-Sn thin films to investigate potential superconductivity.

Physics Tutor, University of Notre Dame, Notre Dame, IN 08/2019−12/2019

Individually tutored Engineering Physics students, refining scientific communication abilities.

Research Assistant, CERN, Geneva, Switzerland 01/2019−06/2019

Developed Python code to efficiently analyze Monte Carlo simulated W boson decay events.

Research Assistant, University of North Florida, Jacksonville, FL 05/2018−08/2018

Utilized circuit design software to investigate the electrical properties of exotic circuit elements in order to improve superconducting nanowire single photon detectors.

Physicist Assistant, Ackerman Cancer Center, Jacksonville, FL 05/2018−08/2018

Performed quality assurance checks on proton therapy equipment using specialized software.

Publications & Presentations

C. Bunker, S. Hoffman, J.-X. Yu et al. "Tight-binding scattering solution for electron mediated entanglement." Oral presentation, NAGC Conference on Paramagnetic Materials (2022).

L. Riney, **C. Bunker**, S.-K. Bac et al. "Introduction of Sr into Bi_2Se_3 thin films by molecular beam epitaxy." J. Appl. Phys. 129, 085107 (2021).

J. Wang, X. Liu, **C. Bunker** et al. "Weak antilocalization beyond the fully diffusive regime in $Pb_{1-x}Sn_xSe$ topological quantum wells." Phys. Rev. B 102, 155307 (2020).