Christian Bunker

Gainesville, FL 32608 | cpbunker@ufl.edu | 904 613 5287 | cpbunker.github.io

Education

Ph.D. in Physics, University of Florida: 3.92 GPA 08/2020−Present

- **Honors**: Graduate Student Fellowship.
- **Relevant courses**: Solid State 1, Solid State 2, Machine Learning.

B.S. in Physics, University of Notre Dame: 3.925 GPA 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, Matplotlib, and PySCF packages.

Experience

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

- Developed Python code to simulate an electron scattering from magnetic molecules.
- Constructed computational tools that interface with the PySCF quantum chemistry package to simulate electronic 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 states of quantum well heterostructures using perturbative methods, contributing to a paper on the design of topological insulators.
- Conducted low temperature magnetotransport experiments on α-Sn thin films to investigate superconductivity.

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

- Individually tutored Engineering Physics I and II 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

- Simulated exotic circuit elements using AWR Design Environment circuit design software to investigate improvements to 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).

C. Bunker, S. Hoffman, J.-X. Yu et al. "Scattering for entangled state switching in molecular dimers." Poster presentation, Sanibel Symposium (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).