



Matthew R. Walker

PHYSICIST

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Research interests: Condensed Matter Theory, Non-equilibrium Dynamics, Statistical Physics, and Probability Theory

Education

University of Virginia

PHD IN PHYSICS

- Statistical Physics and Probability Theory

Charlottesville, Virginia

Aug. 2019 – May 2024

University of Virginia

B.S. IN PHYSICS

Charlottesville, Virginia

Aug. 2016 – May 2018

Thomas Nelson Community College

A.S. IN SCIENCE

Hampton, Virginia

Aug. 2014 – May 2016

Experience

Undergraduate and Graduate Researcher

UNIVERSITY OF VIRGINIA

- Condensed Matter Theory and Statistical Physics with prof. Marija Vucelja
Two first author publications
- Condensed Matter Theory and Bilayer graphene with prof. Jeffery Teo
Undergraduate research project

Charlottesville, Virginia

Aug. 2016 –

Publications

PUBLISHED

- [1] **M. R. Walker** and M. Vucelja. Anomalous Thermal Relaxation of Langevin Particles in a Piecewise Constant Potential. *J. Stat. Mech.* 2021 (11), 113105 arXiv:2105.10656.
- [2] **M. R. Walker**, and M. Vucelja. Mpemba effect in terms of mean first passage times of overdamped Langevin dynamics on a double-well potential. *arXiv preprint arXiv:2212.07496*, 2022 arXiv:2212.07496

Honors & Awards

2017 **Outstanding Undergraduate Research project**
Sigma Pi Sigma research symposium

Charlottesville, VA

Skills

Programming Python, C++, Matlab, Mathematica

Selected Classes Two semesters of probability Theory, two semesters of computational physics, and one semester of machine learning

Projects and Applications Final project on statistical learning and studying airplane data completed 2 projects on detecting bank fraud and housing price predictions