



# 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