

Matthew R. Walker

PHYSICIST

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Education

University of Virginia

PHD IN PHYSICS

- Non-equilibrium dynamics and stochastic processes under the supervision of Prof. Marija Vucelja

Charlottesville, Virginia

Aug. 2019 –

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
Three first author publications, and one equal authorship publication
- 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.

IN PREPARATION

- [2] **M. R. Walker**, and M. Vucelja. Mpemba effect in terms of mean first passage time *arXiv preprint arXiv:2212.07496*, 2022 arXiv:2212.07496
- [3] **M. R. Walker**, S. Bera and M. Vucelja. Optimal transport and anomalous thermal relaxations *arXiv preprint arXiv:2307.16103*, 2023 arXiv:2307.16103
- [4] S. Bera, **M. R. Walker**, and M. Vucelja. Effect of dynamics on anomalous thermal relaxations and information exchange *arXiv preprint arXiv:2308.04557*, 2023 arXiv:2308.04557

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