

Matthew R. Walker

PHYSICS PHD CANDIDATE

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Education

University of Virginia

PHD IN PHYSICS

Charlottesville, Virginia

Aug. 2019 – May. 2025

- Computational physics and stochastic systems under the supervision of Prof. Marija Vucelja
- 3 first author publications, 1 equal author publication

University of Virginia

B.S. IN PHYSICS

Charlottesville, Virginia

Aug. 2016 - May. 2018

3.2 GPA.

Experience

Department of Defense(DoD) High Performance Computing intern

NAVY RESEARCH LAB(NRL)

Washington DC

Jun. 2024 –Aug. 2024

- Developed a ML model for studying fluid dynamics

Undergraduate and Graduate Researcher

UNIVERSITY OF VIRGINIA

Charlottesville, Virginia

Aug. 2016 –

- Computational physics and stochastic modeling
4 publications
- 5 years experience in programming in Python and C++ with an emphasis on simulating stochastic systems and hydrodynamics

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.

SUBMITTED

- [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**

Charlottesville, VA

Sigma Pi Sigma research symposium

2024 **2nd place for most outstanding research project**

Charlottesville, VA

UVA physics poster competition

Skills

Programming Python, C++, Matlab, Mathematica, Pandas, data mining, data analysis