Connor Mooney

Personal Data

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Publications

* denotes equal contribution, † denotes alphabetical order

3. J T Iosue*, *T C Mooney**, A Eherenberg, A V Gorshkov. "Projective toric designs, difference sets, and quantum state designs." Preprint. (2023) [arXiv:2311.13479] (*Submitted*)
2. J Bringewatt*, M Jarrett*, *T C Mooney**†. "On the stability of solutions to Schrödinger's equation short of the adiabatic limit." Preprint. (2023) [arXiv:2303.13478] (*Submitted*)
1. *T C Mooney*, J Bringewatt, N C Warrington, L T Brady. "Lefschetz thimble quantum Monte Carlo for spin systems." Phys. Rev. B **106**, 214416 (2022) [arXiv:2110.10699]

Education

Aug 2022 - T.B.D.	Doctor of Philosophy in Physics **University of Maryland, College Park**, College Park, Maryland Advisors: Profs. Alexey Gorshkov and Andrew Childs
Aug 2020 - May 2022	Bachelor of Science in Mathematics, **George Mason University**, Fairfax, Virginia With honors Applied Mathematics Concentration, Physics Minor Honors Thesis: "Equivariant de Rham Cohomology, Integration, and Localization" Advisor: Prof. Rebecca Goldin GPA: 4.0/4.0
May - Aug 2021	Undergraduate School in Experimental Quantum Information Processing, **Institute of Quantum Computing, University of Waterloo**, Waterloo, Ontario

Awards

Spring 2024	**Honorable Mention,** National Science Fund Graduate Research Fellowship
Spring 2023	**Award Recipient,** Thomas Mason Interdisciplinary Physics Fund Award

Posters and Talks

May 10, 2024	Gorshkov Group Meeting Time-independent Lieb-Robinson Bounds and the Spacetime Feynman-Kitaev Construction
Feb. 28, 2024	Childs Group Meeting Projective Toric designs, difference sets, and quantum state designs
Jun. 20, 2023	Adiabatic Quantum Computing On the stability of solutions to Schrödinger's equation short of the adiabatic limit
Mar. 31, 2023	Gorshkov Group Meeting Disordered Lieb-Robinson Bounds on Trees
Mar. 15, 2023	Childs Group Meeting Disordered Lieb-Robinson Bouinds on Trees
May 6, 2022	MEGL Symposium With Swan Klein Combinatorics of Cohomology Rings of the Peterson Variety: Transpositions
May 6, 2022	MEGL Poster Session With Swan Klein Combinatorial Formulas for the Equivariant Cohomology of Peterson Varieties (Poster)
Apr. 26, 2022	MEGL Seminar Topological Quantum Computing: An Introduction
Apr. 18, 2022	Mason QSEC Seminar Series Quantum (A)diabatic Theorems
Apr. 14, 2022	Mason Quantum Week Student Thesis Talks An Intermediate Timescale (A)diabatic Theorem
Dec. 3, 2021	MEGL Symposium With Swan Klein Combinatorics of Cohomology Rings of the Peterson Variety: Transpositions
Dec. 3, 2021	MEGL Poster Session With Swan Klein Combinatorial Formulas for the Equivariant Cohomology of Peterson Varieties (Poster)
Oct. 14, 2021	Southwest Quantum Information and Technology Workshop *Lefschetz Thimble Quantum Monte Carlo for Spin Systems* (Poster)
Aug. 20 & 27, 2021	Gorshkov Group Meeting *Lefschetz Thimble Quantum Monte Carlo for Spin Systems*
Aug. 4, 2021	NIST SURF Colloquium *Lefschetz Thimble Quantum Monte Carlo for Spin Systems*
Apr. 22, 2021	QSEC Quantum Week With Jacob Weston *Optimal Two-Qubit Quantum Circuit Synthesis*

Service to the Profession

Reviewer for:

- Quantum
- Quantum Science and Technology
- Journal of Physics A

2023 IOP Outstanding Reviewer

Languages

English:	Native
Japanese:	Intermediate

Computer Skills

Programming Languages:	Python, Java, C++ (basic), Mathematica (basic), R (basic)
Other software:	LaTeX, Git and GitHub

Interests

Physics: Quantum Information, Quantum Computing, Adiabatic Quantum Computing, Quantum Annealing, Many Body Physics, Mathematical Physics
Math: Functional Analysis, Operator Algebras, Graph Theory, Differential Geometry, Algebraic Geometry, Spectral Theory, Operator Theory
Other: History, Philosophy, Theology, Sci-fi/Fantasy, Linguistics, Trading Card & Board Games