Connor Mooney

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Publications

* denotes equal contribution, † denotes alphabetical order

6. J Bringewatt*, M Jarrett*, *T C Mooney**†. "On the stability of solutions to Schrödinger's equation short of the adiabatic limit." Proc. R. Soc. A. **481:** 20240193 (2025) [arXiv:2303.13478]
5. D Devulapalli*, *T C Mooney**, J D Watson†. "The Complexity of Determining Thermalization in Finite Sized Systems." Preprint (2025). [arXiv:2507.00405]
4. *T C Mooney*, D Yuan, A Ehrenberg, C L Baldwin, A V Gorshkov, A M Childs "Time independence does not limit information flow. II. The case with ancillas." Preprint (2025). [arXiv:2505.18254]
3. D Yuan, C Yin, *T C Mooney*, C L Baldwin, A M Childs, A V Gorshkov. "Time Independence Does Not Limit Information Flow. I. The Free-Particle Case." Preprint (2025). [arXiv:2505.18249]
2. J T Iosue*, *T C Mooney**, A Ehrenberg, A V Gorshkov. "Projective toric designs, quantum state designs, and mutually unbiased bases." Quantum 8, 1546 (2024) [arXiv:2311.13479]
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 - May 2027 (Exp.)	Doctor of Philosophy in Physics **University of Maryland, College Park**, College Park, Maryland Advisors: Profs. Alexey Gorshkov and Andrew Childs GPA: 4.0/4.0
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
Summer 2021	**Fellow,** NIST Summer Undergraduate Research Fellowship
2019	**Member,** Japanese National Honor Society
2017 & 2018	**Gold Medalist,** Japanese National Exam

Posters and Talks

Aug. 7, 2025	QSIM 2025 Time Independence does not limit information flow (Poster)
Apr. 24, 2025	Childs Group Meeting Time Independence does not limit information flow
Apr. 4, 2025	Gorshkov Group Meeting Time Independence does not limit information flow
Feb. 27, 2025	Quantum Information Processing 2025 On the stability of solutions to Schrödinger's equation short of the adiabatic limit (Poster)
Dec. 6, 2024	Maryland Friday Quantum Seminar Projective toric designs, quantum state designs, and mutually unbiased bases
Dec. 4, 2024	GMU Quantum and Classical CS Theory Seminar (invited) Projective toric designs, quantum state designs, and mutually unbiased bases
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. 15 & 31, 2023	Gorshkov Group Meeting Disordered Lieb-Robinson Bounds on Trees
May 6, 2022	MEGL Symposium With Swan Klein Combinatorics of Cohomology Rings of the Peterson Variety: Transpositions
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
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, PRX Quantum, ICALP 2025-Track A

2023 IOP Outstanding Reviewer

Languages

English: Native
Japanese: Intermediate

Other Japanese Experience: Kakehashi Project Summer 2018, Chiben Gakuen Wakayama Homestay Host Spring 2018, 2019, Homestay Participant Summer 2019

Computer Skills

Programming Languages: Python, Other software: LaTeX, Git, and GitHub