

David Merrick Long

Curriculum Vitae

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📄 [Google Scholar profile](#)

Academic Employment

- 2024 Q-FARM Bloch Postdoctoral Fellow at Stanford University
2023—2024 CMTC JLDS Postdoctoral Research Fellow at the University of Maryland

Education

- 2023 PhD in Physics at Boston University.
Advisor: Anushya Chandran
Thesis title: Topology in Quasiperiodically Driven Systems
Diploma verification code: 23KH-GG6V-DUGR
- 2023 Masters in Physics at The University of Sydney.
Advisor: Andrew C. Doherty
Thesis title: Boundaries of topological phases going through condensation phase transitions
- 2017 Bachelor of Science (Advanced) (Honours) in Physics at the University of Sydney, graduating Honours Class I and with the University Medal.
Advisor: Andrew C. Doherty
Thesis title: Towards a Qubit-Lattice Model of the E_8 State

Papers

- [1] Yi-Ting Tu, David M. Long, Sankar Das Sarma. *Interacting quasiperiodic spin chains in the prethermal regime.* *Phys. Rev. B* **109**, 214309 (2024), [arXiv:2405.01622](#).
- [2] Dominik Vuina, David M. Long, Philip J. D. Crowley and Anushya Chandran. *Absence of disordered Thouless pumps at finite frequency.* [arXiv:2401.17395](#).
- [3] David M. Long and Andrew C. Doherty. *Edge theories for anyon condensation phase transitions.* *Phys. Rev. B* **109**, 075140 (2024), [arXiv:2307.12509](#).
- [4] David M. Long, Dominik Hahn, Marin Bukov and Anushya Chandran. *Beyond Fermi's golden rule with the statistical Jacobi approximation.* *SciPost Phys.* **15**, 251 (2023), [arXiv:2306.16457](#).
- [5] Dominik Vuina, David M. Long, Philip J. D. Crowley and Anushya Chandran. *Giant energy oscillations mediated by a quasiperiodically driven qubit.* *Phys. Rev. B* **108**, 134303 (2023), [arXiv:2304.01254](#).
- [6] Long Hin Tang, David M. Long, Anatoli Polkovnikov, Anushya Chandran and Pieter W. Claeys. *Integrability and quench dynamics in the spin-1 central spin XX model.* *SciPost Phys.* **15**, 030 (2023), [arXiv:2212.04477](#).
- [7] David M. Long, Philip J. D. Crowley and Anushya Chandran. *Coupled Layer Construction for Synthetic Hall Effects in Driven Systems.* *Phys. Rev. B* **106**, 144203 (2022), [arXiv:2208.06419](#).
- [8] David M. Long, Philip J. D. Crowley, Vedika Khemani and Anushya Chandran. *Phenomenology of the Prethermal Many-Body Localized Regime.* *Phys. Rev. Lett.* **131**, 106301 (2023), [arXiv:2207.05761](#).

- [9] [David M. Long](#), Philip J. D. Crowley, Alicia J. Kollár and Anushya Chandran. *Boosting the Quantum State of a Cavity with Floquet Driving*. *Phys. Rev. Lett.* **128**, 183602 (2022), [arXiv:2109.11553](#).
- [10] [David M. Long](#), Philip J. D. Crowley and Anushya Chandran. *Many-Body Localization with Quasiperiodic Driving*. *Phys. Rev. B* **105**, 144204 (2022), [arXiv:2108.04834](#).
- [11] [David M. Long](#), Philip J. D. Crowley and Anushya Chandran. *Nonadiabatic Topological Energy Pumps with Quasiperiodic Driving*. *Phys. Rev. Lett.* **126**, 106805 (2021), [arxiv:2010.02228](#).
- [12] Nicole F. Bell, Giorgio Busoni, Archil Kobakhidze, [David M. Long](#) and Micahel A. Schmidt. *Unitarisation of EFT Amplitudes for Dark Matter Searches at the LHC*. *J. High Energ. Phys.* **2016**, 125 (2016), [arxiv:1606.02722](#).
- [13] Richard Kueng, [David M. Long](#), Andrew C. Doherty and Steven T. Flammia. *Comparing Experiments to the Fault-Tolerance Threshold*. *Phys. Rev. Lett.* **117**, 170502 (2016), [arxiv:1510.05653](#).

Invited Talks

June 2024	MPI PKS Dresden	Anomalous Localized Topological Phases
September 2023	Boston University	Anomalous Localized Topological Phases
July 2023	The University of Sydney	Topology in Quasiperiodically Driven Systems
June 2023	TU Munich	Boosting the Quantum State of a Cavity
September 2022	KITP	Recent Progress in our Understanding of Many Body Localization
September 2022	Caltech	Nonadiabatically Boosting the Quantum State of a Cavity
August 2022	IBS PCS	Phenomenology of the Prethermal Many-Body Localized Regime
November 2021	Harvard Kids	Boosting the Quantum State of a Cavity with Floquet Driving

Other Employment

2020—2023	Research Fellow at Boston University (PI: Anushya Chandran).
2018—2020	Teaching Fellow at Boston University (PY405 and PY406 Electromagnetic Fields and Waves I and II, PY408 Intermediate Mechanics, PY106 Physics 2).
2019	Mentor in the Teaching Fellow Peer Mentor Program (TFPM) at Boston University, Department of Physics.
2015—2016	Tutor for NSW Higher School Certificate physics and chemistry.
July 2014	Casual employment at the University of Sydney's School of Physics working with Prof. Martijn de Sterke on simulating extremely thin solar cells.

Awards

- 2022 “Alvaro Rocco Memorial Prize” for academic excellence and outstanding contributions to the Department of Physics at Boston University.
- 2020 “Goldhaber Award” award in recognition of outstanding academic achievement at Boston University.
- 2019 “Teaching Fellow of the Year” award at Boston University.
- 2018 “Science Centenary Fund” for exceptional academic excellence, “Australian Institute of Physics (NSW Branch) Prize in Physics” for most proficient student in Physics Honours at University of Sydney.
- 2017 “University Medal” and “Honours Class I” for Physics Honours at University of Sydney.

Volunteering and University Service

- January 2023 Volunteer in APS Conference for Undergraduate Women in Physics (CUWIP) at Boston University,
- 2019—2023 Member of Boston University’s Physics Graduate Student Council.
- 2020—2022 Mentor in Boston University Department of Physics’ Graduate-Undergraduate Mentor Program.
- 2020—2022 Student member of Boston University Department of Physics’ Diversity and Inclusion Committee.
- 2019—2022 Representative in Boston University’s Graduate Student Organization.
- 2016 Mentor for University of Sydney Faculty of Science’s Transition Program.

Citizenship

Australian

References

- Prof Anushya Chandran:
 - anushyac@bu.edu
- Prof Vedika Khemani:
 - vkhemani@stanford.edu
- Prof Sankar Das Sarma:
 - dassarma@umd.edu
- Prof Andrew Doherty:
 - andrew.doherty@sydney.edu.au