Eliott N. Rosenberg

enr27@cornell.edu • (585) 309-1458
PhD Candidate, Cornell University

Current Research Interests

I am a PhD candidate at Cornell University, advised by Paul Ginsparg. Together with Peter McMahon, we published work on implementing the variational quantum eigensolver with error mitigation, applied to the mixed-field Ising model on 20 of IBM's qubits. Additionally, I have collaborated with Raphael Pooser and Titus Morris at Oak Ridge National Lab on correlated readout error mitigation, successfully characterizing correlations in readout errors on up to 65 of IBM's qubits. I spent a year as a student researcher at Google Quantum AI, where I worked on NISQ experiments under Pedram Roushan, resulting in multiple publications.

Education

Cornell University, Ph.D. Candidate in Physics. **Ithaca, NY • anticipated August 2023**
Cornell University, M.A. in Physics. GPA: 4.1/4.3 **Ithaca, NY • 2020**
Brown University, Sc.B. *Magna cum Laude* with Honors in Physics. GPA: 4.0/4.0 **Providence, RI • 2017**

Programming skills

Highly experienced in Python, MATLAB, and LaTeX, Qiskit, and Cirq. Scored 5th place on Google Quantum AI's challenge question in the 2021 QCHack hackathon. Tied for 1st place in the 2021 IBM Quantum Challenge.

Publications

E. Rosenberg, et al (2023), Dynamics of magnetization at infinite temperature in a Heisenberg spin chain, arXiv:2306.09333.

Mi, X., A. A. Michailidis, S. Shabani, K. C. Miao, P. V. Klimov, J. Lloyd, **E. Rosenberg**, et al (2023), Stable quantum-correlated many body states via engineered dissipation, arXiv:2304.13878.

Rosenberg, E., P. Ginsparg, and P. L. McMahon (2022), Experimental error mitigation using linear rescaling for variational quantum eigensolving with up to 20 qubits, *Quantum Science and Technology*, 7, 015024, doi: 10.1088/2058-9565/ac3b37.

Rosenberg, E. N., et. al (2019), The volume of water required to carve the martian valley networks: Improved constraints using updated methods, *Icarus*, 317, 379-387, doi: 10.1016/j.icarus.2018.07.017.

Rosenberg, E. and J. Fan (2017), Cooling in a dissipative dark sector, *Physical Review D*, 96, 123001, doi: 10.1103/PhysRevD.96.123001.

Rosenberg, E. N. and J. W. Head III (2015), Late Noachian fluvial erosion on Mars: Cumulative water volumes required to carve the valley networks and grain size of bed-sediment, *Planetary and Space Science*, 117, 429-435, doi: 10.1016/j.pss.2015.08.015.

Research Experience and Advisors

At **Google Quantum AI** under **Pedram Roushan**, Quantum Electronics Engineer **2022 –**
Collaboration with **Raphael Pooser**, Senior Research Scientist, **Oak Ridge National Lab** **2021 –**
At **Cornell University** under **Paul Ginsparg**, Professor of Physics **2018 –**
At **Brown University** under **JiJi Fan**, Assistant Professor of Physics **2016–2017**
Supported by an Undergraduate Teaching and Research Award from Brown and by the NASA RI Space Grant.
At the **Weizmann Institute** under **Ehud Duchovni**, Professorial Chair of Nuclear Physics **Summer 2015**
Supported through the Weizmann Institute's Kupcinet-Getz program.
At **Brown University** under **James Head**, Distinguished Professor of Geological Sciences **2014-2015**
Supported by an Undergraduate Teaching and Research Award from Brown and later by Professor Head.

Selected Awards and Honor Society Memberships

Sigma Xi (Associate Member) **2017–**
Phi Beta Kappa (Inducted in Junior Year) **2016–**
Astronaut Scholarship **2015**
National Merit Finalist **2013**

Teaching Experience and Outreach

TA for Physics 4481-7681 / CS 4812 (Quantum Information Processing), Cornell University **Fall 2021 TA for**
ENGRG 1060 (Explorations in Engineering), Cornell University **Summer 2019**
TA for PHYS 1204 (Physics of Musical Sound), Cornell University **Spring 2019, Spring 2021**
TA for PHYS 2207 (Fundamentals of Physics I), Cornell University **Fall 2018**
TA for PHYS 1102 (General Physics II), Cornell University **Spring 2018**
TA for PHYS 2213 (Physics II: Electromagnetism), Cornell University **Fall 2017**
Physics tutor for high school students **2013–2015, 2020–**