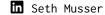
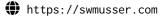
Seth W. Musser







Education

2018 – current	Ph.D. cand., Massachusetts Institute of Technology Condensed Matter Theory Advisor: Senthil Todadri.
2017 – 2018	MASt, University of Cambridge with distinction in Applied Mathematics. Essay title: Particle Vortex Duality: a review and numerical investigation.
2013 – 2017	B.A., University of Chicago with honors in Physics. B.S., University of Chicago with honors in Mathematics.

Honors and Awards

2018 – 2019	Thomas Frank Scholar, Massachusetts Institute of Technology
2017 – 2022	NSF Graduate Fellow, Massachusetts Institute of Technology
2017 – 2018	Churchill Scholar, University of Cambridge
2017	John Haeseler Lewis Prize, best graduating physics student, University of Chicago
	Enrico Fermi Institute Undergraduate Research Award, University of Chicago
	James Franck Institute Undergraduate Research Award, University of Chicago
2016	Goldwater Scholar, University of Chicago
	Selove Prize, University of Chicago
	Phi Beta Kappa, University of Chicago

Publications

Journal Articles

- **S. Musser**, Y.-H. Zhang, D. Sheng, and T. Senthil, "Exact diagonalization of the fermionic dimer model", *in preparation*, 2023.
- **S. Musser**, H. Goldman, and T. Senthil, "Observable signatures of Hall viscosity in lowest Landau level superfluids", Oct. 2023, arXiv:2310.04495. **6** URL: http://arxiv.org/abs/2310.04495.
- **S. Musser** and T. Senthil, "Metal to wigner-mott insulator transition in two-leg ladders", *Physical Review B*, vol. 106, p. 235 148, Dec. 2022. **9** DOI: 10.1103/PhysRevB.106.235148.
- **S. Musser**, T. Senthil, and D. Chowdhury, "Theory of a continuous bandwidth-tuned wigner-mott transition", *Physical Review B*, vol. 106, p. 155145, Oct. 2022. ODI: 10.1103/PhysRevB.106.155145.
- **S. Musser**, D. Chowdhury, P. A. Lee, and T. Senthil, "Interpreting angle-dependent magnetoresistance in layered materials: Application to cuprates", *Physical Review B*, vol. 105, p. 125 105, Mar. 2022. ODI: 10.1103/PhysRevB.105.125105.
- **S. Musser**, D. Proment, M. Onorato, and W. T. Irvine, "Starting flow past an airfoil and its acquired lift in a superfluid", *Physical Review Letters*, vol. 123, p. 154 502, Oct. 2019. **9** DOI: 10.1103/PhysRevLett.123.154502.

Writing

- S. Musser, Particle vortex duality: A review and numerical investigation, May 2018.
- 2 **S. Musser**, Weyl's law on riemannian manifolds, Aug. 2016.
- **S. Musser**, From hamiltonian systems to poisson geometry, Aug. 2015.
- **S. Musser**, Weakly nonlinear oscillations with analytic forcing, Aug. 2014.

Talks

- 1 Condensed matter theory: An introduction through stories, Center for Security and Emerging Technology, DC, May 2023.
- 2 Novel probes of emergent phenomena, EPiQS symposium for postdoctoral scholars, Austin, TX, Apr. 2023.
- Odd viscosity in rotating bose einstein condensates, APS March Meeting, Mar. 2023. URL: https://meetings.aps.org/Meeting/MAR23/Session/Y25.7.
- Theory of a continuous bandwidth-tuned wigner-mott transition, APS March Meeting, Mar. 2022. URL: https://meetings.aps.org/Meeting/MAR22/Session/G63.7.
- *Theory of a continuous bandwidth-tuned wigner-mott transition*, Cornell Quantum Theory Seminar, Dec. 2021. **O** URL: https://www.youtube.com/watch?v=5RRMUWDiIhY.
- 6 The semiclassical and quantum kitaev model, Chowdhury group meeting, Cornell, Oct. 2021.
- Interpreting angle-dependent magnetoresistance (admr) measurements in pseudogapped cuprates, APS March Meeting, Mar. 2021. **6** URL: https://meetings.aps.org/Meeting/MAR21/Session/V57.10.
- 8 *Quantum spin liquids: Kitaev model*, MIT Journal Club 101, Oct. 2020. **Ø** URL: https://www.youtube.com/watch?v=5YT7cA-LPjc&t=1s.
- 9 Quantum spin liquids: Disorder and frustration, MIT Journal Club 101, Sep. 2020. **9** URL: https://www.youtube.com/watch?v=MCLa9pp9AYE.
- Flying in a superfluid, APS Division of Fluid Dynamics, Nov. 2019. URL: https://meetings.aps.org/Meeting/DFD19/Session/B08.1.
- 11 Particle-vortex duality, Non-equilibrium statistical mechanics (NESM) journal club, Jan. 2018.
- 12 *Vortex nucleation in superfluids*, Churchill scholars journal club, Nov. 2017.
- Poisson geometry with applications to the hamiltonian formulation of inviscid fluid mechanics, Chicago mathematics REU, Aug. 2015.

Teaching Experience

2022	8.231, undergraduate solid state course, MIT, TA under instructor: Prof. Xiao-Gang Wen
2021	8.06 , undergraduate quantum III course, MIT, TA under instructor: Prof. Maxim Metlitski
2018 – 2022	8.223, Lagrangian mechanics course, MIT, TA under instructor: Prof. Michael Williams
2014 - 2017	MATH 13000s, intro calculus sequence, University of Chicago, TA under graduate students.

Service Activities

2023 – current	Project SHORT , mentor for this 501(c)(3) nonprofit that offers <i>pro bono</i> mentoring for graduate school admissions to diversify the admissions pool
2023	Lunch with physicists, worked with MIT's society of physics students to expose incoming first years to life in physics
	Spoke to policymakers, discussed condensed matter theory and related technology with policymakers at the Center for Security and Emerging Technology
2020, 2023	Directed reading program, mentored two undergraduates on projects in high-Tc and Hall viscosity, MIT
2020 - 2021	Physics mentor, mentored undergraduates through COVID disruption, MIT
2020	Journal club 101, founded a remote journal club for beginning graduate students in CMT during COVID disruption, MIT

Programming

Languages Langua