

Mac Lee

Department of Physics
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EDUCATION

University of California, San Diego, CA
Doctor of Philosophy in Physics, October 2025
Advisor: Stefan G. Llewellyn Smith

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California State University, Northridge, CA
Master of Science in Physics with Distinction, May 2018
Advisor: Donna D. N. Sheng

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University of Kansas, Lawrence, KS
Completed 24 units toward a Master of Music in Piano Performance
from Aug. 2011 to Dec. 2012

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Azusa Pacific University, Azusa, CA
Bachelor of Music in Piano Performance, July 2011

SCHOLARSHIPS/GRANTS/AWARDS/HONORS

- 2024 Office of Naval Research Grant (UCSD)
- 2018 Election to Sigma Pi Sigma
- 2018 Mack I. Johnson Research Award for Outstanding Graduate Student in the College of Science and Mathematics (CSUN)
- 2018 C. Y. Liang Outstanding Graduate Student Award (CSUN)
- 2017 Leslie and Terry Cutler Scholarship (CSUN)
- 2016 Summer Research Grant (CSUN)

TEACHING

- June 2022 – September 2024 Senior TA/Associate at UCSD
Lab Teaching Assistant Coordinator (LTAC/Head TA) of the PHYS 1-series labs
- Aug. 2018 – June 2022 Teaching Assistant at UCSD
Taught PHYS 1BL, 2BL, 2D, 10, and 140A. Lab Teaching Assistant Coordinator (LTAC/Head TA) of PHYS 2BL in Spring 2020, Spring 2021, Summer I 2021, and Spring 2022.

Aug. 2013 – Sept. 2016	Hathaway-Sycamores Child and Family Services Learning Center Instructor In my role as an instructor at Hathaway-Sycamores, I tutored K-12 students in language arts, math, and the sciences within the Los Angeles Unified School District (LAUSD). In addition to weekday tutoring sessions, I served as the math instructor for the Hathaway-Sycamores Summer SAT Workshop, which was organized in partnership with three local high schools from 2014 to 2016. I reprised this role as an SAT instructor in 2017 and 2018 as a volunteer.
Aug. 2011 – Aug. 2012	Graduate Teaching Assistant at KU Taught PIAN 121, 221, 284, and 321

TECHNICAL SKILLS

Programming Languages with proficiency: Python, Rust, OCaml, Haskell
 Programming Languages with working knowledge: JavaScript, TypeScript, Julia, Lua, Vim-Script
 Others: LLVM IR, MIPS Assembly, WebAssembly, HTML/CSS

PEER-REVIEWED PUBLICATIONS

- [3] M. Lee and S. G. Llewellyn Smith, “SQG point vortex dynamics with order Rossby corrections”, *Eur. J. Mech. B Fluids* **118**, 204467 (2026).
- [2] S.-S. Gong, W. Zheng, M. Lee, Y.-M. Lu, and D. N. Sheng, “Chiral spin liquid with spinon Fermi surfaces in the spin- $\frac{1}{2}$ triangular Heisenberg model”, *Phys. Rev. B* **100**, 241111 (2019).
- [1] M. Lee, T. R. Look, S. P. Lim, and D. N. Sheng, “Many-body localization in spin chain systems with quasiperiodic fields”, *Phys. Rev. B* **96**, 075146 (2017).

PUBLICATIONS UNDER REVIEW

- [1] M. Lee and S. G. Llewellyn Smith, “Stability of SQG Kolmogorov Flow”, <https://arxiv.org/abs/2511.10904>, Nov. 2025, submitted.

TALKS AND PRESENTATIONS

- [6] “SQG point vortex dynamics with order Rossby corrections”, Workshop on Numerical and Theoretical Advances in Geophysical Fluid Dynamics and Nonlinear PDE Systems (Texas A&M University, College Station, TX, Feb. 7, 2026), Talk.
- [5] “Stability of SQG Kolmogorov flow with order Rossby corrections”, SoCal Fluids XVII (University of California, Irvine, CA, Apr. 13, 2024), Talk.

- [4] “Spin Liquid and Quantum Phase Diagram on a Spin-Orbit Coupled Triangular Lattice”, International Conference on Magnetism (San Francisco, CA, July 16, 2018), Poster Presentation.
- [3] “Spin Liquid and Quantum Phase Diagram on a Spin-Orbit Coupled Triangular Lattice”, APS March Meeting (Los Angeles, CA, Mar. 7, 2018), Talk.
- [2] “Topological Insulators”, Physics Symposium (California State University, Northridge, CA, July 2017), Poster Presentation.
- [1] “Many-Body Localization in Spin Chain Systems with Quasiperiodic Fields”, CSUNposium (California State University, Northridge, CA, Apr. 7, 2017), Talk.