Claire Valva

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Education

Courant Institute of Mathematical Sciences, New York University — **New York, NY**
PhD student in Atmosphere Ocean Science and Mathematics (AOSM) — 2020–2025 (expected)

University of Chicago — **Chicago, IL**
BS in Geophysical Sciences, Mathematics — 2016–2020

Publications

- **C. Valva**, Giannakis, D. (2024). Consistent Spectral Approximation of Koopman Operators Using Resolvent Compactification. arXiv:2309.00732 , *Submitted.*
- Parker, J. P., **C. Valva** (2023) Koopman analysis of the periodic Korteweg–de Vries equation. *Chaos: An Interdisciplinary Journal of Nonlinear Science*, 10.1063/5.0137088, *Editor's Choice*
- Lloret, J., **C. Valva**, I. Valiela, J. Rheuban, R. Jakuba, D. Hanacek, K. Chenoweth, E. Elmstrom (2022). Decadal trajectories of land-sea couplings: Nitrogen loads, sources, and interception in SE New England watersheds, discharges to estuaries and effects on water quality. *Estuarine, Coastal and Shelf Science*, 10.1016/j.ecss.2022.108057
- **Valva, C.**, N. Nakamura (2021). What controls the probability distribution of local wave activity in the midlatitudes? *Journal of Geophysical Research: Atmospheres*, 126, 10.1029/2020JD034501.

In Prep

- **C. Valva**, Gerber, E.P. (2024). The QBO, the annual cycle, and their interactions: Isolating periodic modes with data-driven Koopman analysis

Awards

SIAM Student Travel Grant	2022, 2024
Dean's conference fund, NYU GSAS	2022, 2023
Geophysical Fluid Dynamics Fellow (Woods Hole Oceanographic Institute)	2022
National Science Foundation Graduate Research Fellowship	2020
University of Chicago departmental honors in mathematics, geophysical sciences	2020
University of Chicago Dean's Fund Recipient for research-related travel	2018

Skills

Fluent in Julia, Python, MATLAB, R, and LaTeX with experience in HTML, Jekyll, Javascript, Markdown, C++, and Fortran.

Research and Workshops

Doctoral Researcher, Center for Atmosphere Ocean Science, Courant Institute — 2020 – present
- Advised by Prof. Dimitrios Giannakis and Prof. Ed Gerber.

Geophysical Fluid Dynamics Fellow, Woods Hole Oceanographic Institution — 2022
- Advised by Dr. Jeremy Parker (EPFL) and Prof. Peter Schmid (KAUST).

College Research Fellow, University of Chicago — 2018 – 2020
- Advised by Prof. Noboru Nakamura.

Invited Presentations

- **Valva, C.,** D. Giannakis (2023). Consistent Spectral Approximation of Koopman Operators Using Resolvent Compactification. *Dartmouth College functional analysis seminar*
- **Valva, C.,** E. P. Gerber (2023). A data-driven analysis of the Quasi-Biennial Oscillation with Koopman modes. *NOAA Physical Sciences Laboratory: Atmosphere-Ocean Processes and Predictability Seminar*

Service and Outreach

Reviewer for *Journal of Emerging Investigators*, a journal serving high and middle school students	2024 – present
Reviewer for *Quarterly Journal of the Royal Meteorological Society*	2023
Speculating the Environment Pratt Institute STEAMplant workshop speaker, link.	Fall 2022
Courant Diversity Equity and Inclusion (DEI) journal club discussion leader	2021 – 2024
Expert in Science Buddies Ask an Expert forums	2018 – 2020
Pen Pal in Letters to a Pre-Scientist Program	2019 – 2020
Resident assistant at the Marine Biological Laboratory	2018

Teaching

Recitation leader for New York University undergraduates: Ordinary Differential equations	Spring 2024
Recitation leader for New York University undergraduates: Real Analysis	Fall 2023
Recitation leader for New York University undergraduates: Intro to Mathematical Simulation	Spring 2023
Teaching Assistant for Columbia University's Summer Immersion Program	Summer 2021
Course assistant (VCA) for undergraduate calculus sequence at the University of Chicago	Fall 2017