

# Noah Stevenson

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## Employment

**ETH Zürich**, *Forschungsinstitut für Mathematik* (2026–)

- Hermann-Weyl-Instructor.
- U.S. National Science Foundation Postdoctoral Research Fellow.

## Education

**Princeton University**, *Doctor of Philosophy in Mathematics* (2021–2026)

- *Adviser*: Alexandru Ionescu.
- *Thesis*: Viscous Traveling Surface Waves.
- U.S. National Science Foundation Graduate Research Fellow.

**Carnegie Mellon University**, *Master of Science in Mathematics* (2019–2021)

- *GPA*: 4.00/4.00.
- *Honors Degree Program*: undergraduate and master's degree programs are completed simultaneously.
- *Adviser*: Ian Tice.
- *Thesis*: Analysis of Micropolar Fluids, Screened Sobolev Spaces, and Multilayer Free Boundary Incompressible Navier-Stokes Equations.

**Carnegie Mellon University**, *Bachelor of Science in Mathematics* (2017–2021)

- *GPA*: 4.00/4.00.
- *Mathematical Studies Program*: honors undergraduate course sequence in analysis and algebra.
- *Minor in Physics*.

## Awards, Grants, & Scholarships

- U.S. National Science Foundation Mathematical Sciences Postdoctoral Research Fellowship (2027-2029), DMS #2602112.
- Princeton University Department of Mathematics Merit Award 2021
- U.S. National Science Foundation Graduate Research Fellowship (2021–2026)
- Barry M. Goldwater Scholar (2020–2021)
- Summer Research in Partial Differential Equations Grant (2019–2020)
- Roger N. Pedersen Memorial Award (2019–2020)
- Richard A. Moore Scholar (2018–2019)

## Interests

Nonlinear partial differential equations, free boundary problems, fluid mechanics, viscous and inviscid traveling surface waves, Navier-Stokes equations, Euler equations, Darcy flow, desingularization, vortex patches, harmonic analysis, functional analysis, function spaces, interpolation theory, bifurcation theory.

## Papers

12. R. O. Radu & N. Stevenson. *Smooth and swirling steady vortex rings near the Hill–Norbury family* (2026). In preparation.
11. H. Q. Nguyen & N. Stevenson. *On large periodic traveling surface waves in porous media* (2026). 25 pp. arXiv: <https://arxiv.org/abs/2601.11800>.
10. R. O. Radu & N. Stevenson. *Desingularization of nondegenerate rotating vortex patches* (2025). 45 pp. arXiv: <https://arxiv.org/abs/2511.18592>.

9. N. Stevenson & I. Tice. *Gravity driven traveling bore wave solutions to the free boundary incompressible Navier-Stokes equations* (2025). 66 pp. arXiv: <https://arxiv.org/abs/2505.24562>.
8. N. Stevenson & I. Tice. *Stationary wave solutions to two dimensional viscous shallow water equations: theory of small and large solutions* (2025). 64 pp. Ann. Inst. H. Poincaré C Anal. Non Linéaire: <https://doi.org/10.4171/aihpc/191>. arXiv: <https://arxiv.org/abs/2502.11899>.
7. N. Stevenson. *Periodic gravity-capillary roll wave solutions to the inclined viscous shallow water equations in two dimensions* (2024). 21 pp. SIAM J. Math. Anal.: <https://doi.org/10.1137/24M1674406>. arXiv: <https://arxiv.org/abs/2407.03478v2>.
6. N. Stevenson & I. Tice. *The traveling wave problem for the shallow water equations: well-posedness and the limits of vanishing viscosity and surface tension* (2023). 55 pp. Commun. Math. Phys.: <https://doi.org/10.1007/s00220-026-05579-4>. arXiv: <https://arxiv.org/abs/2311.00160>.
5. N. Stevenson & I. Tice. *Well-posedness of the stationary and slowly traveling wave problem for the free boundary incompressible Navier-Stokes equations* (2023). 54 pp. J. Funct. Anal.: <https://doi.org/10.1016/j.jfa.2024.110617>. arXiv: <https://arxiv.org/abs/2306.15571>.
4. N. Stevenson & I. Tice. *Well-posedness of the traveling wave problem for the free boundary compressible Navier-Stokes equations* (2023). 158 pp. arXiv: <https://arxiv.org/abs/2301.00773>.
3. N. Stevenson & I. Tice. *Traveling wave solutions to the multilayer free boundary incompressible Navier-Stokes equations* (2020). 40 pp. SIAM J. Math. Anal.: <https://doi.org/10.1137/20M1360670>. arXiv: <https://arxiv.org/abs/2008.07435>.
2. N. Stevenson & I. Tice. *A truncated real interpolation method and characterizations of screened Sobolev spaces* (2020). 45 pp. Commun. Pure Appl. Anal.: <https://doi.org/10.3934/cpaa.2020250>. arXiv: <https://arxiv.org/abs/2003.12518v2>.
1. N. Stevenson & I. Tice. *Analysis of micropolar fluids: existence of potential microflow solutions, nearby global-well-posedness, stability and attractiveness* (2020). 32 pp. Acta Appl. Math.: <https://doi.org/10.1007/s10440-020-00363-5>. arXiv: <https://arxiv.org/abs/2001.07166>.

## Talks

- Dynamics Across Scales Workshop at ESI. Vienna, Austria. January 2027.
- Mathematical Fluid Seminar at Ochanomizu University. Tokyo, Japan. December 2026.
- Analysis of Viscous Incompressible Fluids Workshop at RIMS. Kyoto, Japan. December 2026.
- Differential Equations Seminar at TU Delft. Delft, Netherlands. November 2026.
- Current Trends in Fluid Dynamics Workshop at Brin Center. College Park, MD. April 2026.
- DE Seminar, University of Michigan. Ann Arbor, MI. March 2026.
- MOSAIC, virtual, February 2026.
- CNA Seminar, Carnegie Mellon University, Pittsburgh, PA. February 2026.
- Analysis of Fluids Seminar, Princeton University, Princeton, NJ. February 2026.
- DE Seminar, University of Missouri, Columbia, MO. January 2026.
- Department of Mathematics Seminar, Duke University, Durham, NC. January 2026.
- Analysis-Probability Seminar, Max Planck Institute, Leipzig, Germany. January 2026.
- Minisymposium on Nonlinear Waves and Interfacial Dynamics, SIAM PDE Conference. Pittsburgh, PA. November 2025.
- PDE-Applied Math Seminar, University of Maryland. College Park, MD. September 2025.
- DE Seminar, University of Michigan. Ann Arbor, MI. January 2025.
- Nonlinear PDE Seminar, Texas A&M University. College Station, TX. November 2024.
- Special Session on Fluids, Equadiff 2024. Karlstad, Sweden. June 2024.
- Recent developments in the study of free boundary problems in fluid mechanics, AMS Sectional Meeting. Washington D.C. April 2024.
- Summer School in Fluid Mechanics at Brin Center. College Park, MD. July 2023.

## Teaching Assistant Roles

- Honors Linear Algebra, Spring 2024. Princeton University.
- Multivariable Calculus, Fall 2023. Princeton University.
- Mathematical Studies Analysis II, Spring 2021. Carnegie Mellon University.
- Mathematical Studies Analysis I, Fall 2020. Carnegie Mellon University.
- Mathematical Studies Analysis II, Spring 2020. Carnegie Mellon University.
- Mathematical Studies Analysis I, Fall 2019. Carnegie Mellon University.