

Mary Letey

[email](#) + [website](#) + [gscholar](#)

Education

Now	Harvard University	PhD Student — Applied Mathematics	Supervised by Prof. Cengiz Pehlevan
2023	Perimeter Institute	MSc — Theoretical Physics	Supervised by Prof. Latham Boyle
2022	University of Cambridge	BA Honours — Mathematics	
2018	University of Colorado	Non-degree student — Mathematics, Computer Science	

Publications & Preprints

- 2025 **Mary Letey**, Jacob Zavatone Veth, Yue M. Lu, Cengiz Pehlevan
Pretrain–Test Task Alignment Governs Generalization in In-Context Learning, [arxiv](#)
Yue M. Lu, **Mary Letey**, Jacob Zavatone-Veth, Anindita Maiti, Cengiz Pehlevan
Asymptotic theory of in–context learning by linear attention, [PNAS](#)
- 2022 **Mary Letey**, Zak Shumaylov, Fruzsina Agocs, Will Handley, Mike Hobson, Anthony Lasenby
Quantum initial conditions for curved inflating universes, [Physical Review D](#)

Talks & Posters

- 2024 **Workshop paper** at [Neurips Mathematics of Modern Machine Learning](#)
Opening talk about [in context learning](#) at [Kempner Institute](#)

Research & Work Experience

- 2025 **Harvard Applied Mathematics Department**
Teaching Fellow for AM50
- 2023 **Montreal Institute for Learning Algorithms (MILA)** — Supervised by [Prof. Siamak Ravanbakhsh](#)
Studied extensions of equivariance to neural operators to implement Lie point symmetries.
Perimeter Institute for Theoretical Physics — Supervised by [Prof. Latham Boyle](#)
Master's thesis — Studied reflection groups acting on Lorentzian geometries to classify spacetime discretisations.
- 2022 **Perimeter Institute Quantum Intelligence Lab** — Supervised by [Prof. Roger Melko](#)
Investigated noise sensitivity for physics-informed neural network simulations of neutral atom arrays.
Kavli Institute for Cosmology, Cambridge — Supervised by [Dr. Will Handley](#)
Extended inflation calculations to universes with spatial curvature; defined novel variable for quantisation.

Awards & Funding

2025	Graduate Fellowship	Kempner Institute
2024	Clare Marie Doris Innovation Fund	Harvard University
2023	Graduate Prize Fellowship	Harvard University
	Summer Research Bursary	McGill University, \$4,000
2022	International Scholar Award	Perimeter Institute, \$45,000
	Summer Research Bursary	Royal Society, £3,000

Community & Sport

- 21 — 24 **Tutor** with [Blue Education](#) and [U2Tuition](#) for maths, physics, and admissions
- 21 — 22 **Senior Coxswain** for Cambridge City Rowing Club and Lady Margaret Boat Club
- 19 — 21 **Founder & President** of the St Johns College Entrepreneurs' Club