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**, Yue M. Lu, Cengiz Pehlevan
Solvable model of in–context pretrain–test task alignment, *under review*

2024 Yue M. Lu, **Mary Letey**, Jacob Zavatone-Veth, Anindita Maiti, Cengiz Pehlevan
Asymptotic theory of in–context learning by linear attention, Preprint, *submitted to* 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
20 — 22 **Publicity Officer** for the St Johns College Mathematics Society
19 — 21 **Founder & President** of the St Johns College Entrepreneurs' Club