

# Steven Flynn

Department of Mathematics  
University College London

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<https://stevenpatrickflynn.github.io/>

## Research Interests

Hypoelliptic PDEs. Microlocal Analysis. Geometric Inverse Problems. Sub-Riemannian geometry.

## Employment

2024–present	<b>Postdoctoral Fellow</b> , University College London
2023–2024	<b>Postdoctoral Fellow</b> , University of Padova
2021–2023	<b>Postdoctoral Fellow</b> , University of Bath
2014–2020	<b>Graduate Student Instructor &amp; Graduate Teaching Assistant</b> , University of California, Santa Cruz

## Education

2014–2020	<b>Ph.D. Mathematics</b> , University of California, Santa Cruz (UCSC) <i>Dissertation title:</i> “Unraveling Geodesic X-ray Transforms on the Heisenberg Group.” <i>Co-advisors:</i> François Monard, Richard Montgomery
2014–2015	<b>M.A. Mathematics</b> , UCSC
2012–2014	<b>B.A. Mathematics</b> , UCSC

## Research Papers

- [1] Davide Barilari and Steven Flynn. Refined Strichartz estimates for sub-Laplacians in Heisenberg and H-type groups. arXiv:2501.04415, 2025.
- [2] Clotilde Fermanian-Kammerer, Véronique Fischer, and Steven Flynn. A microlocal calculus on filtered manifolds. arXiv:2305.04126, 2024. Recommended for acceptance in *Memoirs of the European Mathematical Society*
- [3] Steven Flynn. The sub-Riemannian X-ray Transform on H-type Groups; Fourier Slice Theorems and Injectivity Sets. arXiv:2312.00594, 2023.
- [4] Clotilde Fermanian-Kammerer, Véronique Fischer, and Steven Flynn. Geometric invariance of the semi-classical calculus on nilpotent graded Lie groups. *Journal of Geometric Analysis*, 2023.
- [5] Steven Flynn. Singular Value Decomposition of the X-ray Transform on the Reduced Heisenberg group, and a Two-Radius Theorem. Springer Volume, Trends in Mathematics: Ghent Analysis and PDE Center, 2023.
- [6] Clotilde Fermanian-Kammerer, Véronique Fischer, and Steven Flynn. Some Remarks on Semi-Classical Analysis on Two-Step Nilmanifolds. Springer INdAM Series, 2022.
- [7] Steven Flynn. Injectivity of the Heisenberg X-ray transform. *Journal of Functional Analysis*, 280.5 (2021): 108886.

## Talks

### Upcoming Talks

Dec 2025	Geometric Structures Seminar, SSISA
Dec 2025	HADES Seminar, UC Berkeley

*Strichartz Estimates on H-type groups*

Jan 2025	Lund University
May 2025	UC Santa Cruz
Dec 2024	University College London
<i>A Microlocal Calculus on Filtered Manifolds</i>	
Jan 2025	University College London
May 2024	Dispersion and Geometry in Padova
<i>The sub-Riemannian X-ray Transform on H-type groups</i>	
Nov 2023	Junior Methusalem Seminar, Ghent University
Oct 2023	University College London
Nov 2022	Geometry and Analysis Seminar, University of Bristol
<i>Remarks on the Semi-classical analysis of Step 2 Nilpotent groups</i>	
May 2023	Operator Algebras in the South of the UK, University of Southampton
Mar 2023	CAGE mini-seminar, Sorbonne Université
<i>Geometric Invariance of the Semi-Classical Calculus on Graded Lie groups</i>	
Nov 2022	Conference on Noncommutative Analysis and PDEs, Queen Mary University
<i>The Heisenberg X-ray transform</i>	
May 2022	Analysis and Differential Geometry International Seminar, University of Aveiro
Mar 2022	AGeNT Seminar, University of Bath
Nov 2021	Problèmes Spectraux en Physique Mathématique, Institut Henri Poincaré
Sep 2021	Bath Analysis Seminar, University of Bath
Apr 2021	Sub-Riemannian Seminars (online)
May 2020	UCSC Geometry and Analysis Seminar
<i>Integral Geometry on Contact Manifolds</i>	
Jan 2020	Joint Math Meeting, Denver, Colorado
Nov 2019	Mathematical Sciences Research Institute, Berkeley, CA
Sep 2019	MSRI, Berkeley, CA
<b>Service</b>	
Organizer, Bath Analysis Seminar	2022
Organizer, University of Bath Postdoc Away Day	2022
Organizer, Graduate Student Seminar, MSRI	2019
Organizer, Microlocal Analysis Seminar, UCSC	2018
Organizer, Graduate Differential Geometry Seminar, UCSC	2018
<b>Professional Activities</b>	
Participant, MPS Workshop on LEAN	2025
Program Associate, MSRI Microlocal Analysis Program	2019
Mentor, UCSC Directed Reading Program	2018
<b>Teaching</b>	
<i>University College London</i>	
Fall 2025	Math 0071: Spectral Theory
<i>University of California, Santa Cruz</i>	
Summer 2019	Math 105A: Real Analysis
Spring 2019	Math 105B: Real Analysis
Summer 2018	Math 105A: Real Analysis
Summer 2017	Math 3: Precalculus
<b>Graduate Teaching Assistant</b>	

2014–2020

Calculus sequence (Math 11A, 19A/B, 23A/B),  
Linear Algebra (Math 21), Real Analysis (Math 105A/B),  
Introduction to Proofs (Math 100), Programming for Mathematics  
(Python, Math 152), Precalculus (Math 3), College Algebra (Math 2),  
and Introduction to Physics (Physics 5/5L)