# Curriculum Vitae

Harry Fluck: Ph.D. Candidate

## Contact Information

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## Education

**Ph.D. in Mathematics, Cornell University:** 2021-Present
Thesis advisor: Prof. Xiaodong Cao
Research interests: Ricci flow, geometric analysis, PDE

**M.S. in Mathematics, Durham University:** 2017-2021
Classification: First Class Honors (86% degree average)
Dissertation advisor: Prof. Pankaj Vishe
Dissertation title: Oppenheim's Conjecture and the Dynamics of Homogeneous Spaces

## Research Interests

I study geometric analysis, with my primary interest being Ricci flow. I am particularly interested in singularity formation and its applications to topology.

## Publications and Preprints

**An $\epsilon$-Regularity Theorem for Non-collapsed Ricci Flow** (with M. Hallgren), *arxiv:2509.14154*

**The Curvature Operator of the Second Kind in Dimension Three** (with X. Li), *The Journal of Geometric Analysis* **34(**187) (2024)

## Awards

**Robert J Battig Graduate Student Prize:** Cornell University **(**2023**)**
-Awarded for excellence and promise in mathematics.

**Edward Collingwood Memorial Prize:** Durham University **(**2021**)**
-Awarded to a student graduating with a masters in mathematics who shows great promise in research.

**Baxter Prize**: Hatfield College, Durham University **(**2019, 2020**)**
-Awarded to the highest attaining mathematics students in a given year group.

**Title of College Scholar:** Hatfield College, Durham University **(**2018-2021**)**
-Awarded for consistent first class academic attainment.

# Invited Talks

**Epsilon-Regularity for Non-Collapsed Limits of Ricci Flows:** Stochastic Analysis Seminar at Auburn, Auburn University (Upcoming, October 2025)

**Epsilon-Regularity for Non-Collapsed Limits of Ricci Flows**: AMS Special Session, UC Riverside (October 2024)

# Conferences and Seminars

**Rutgers Geometric Analysis Conference:** Rutgers University (May 2025)

**Upper NYS Geometric Analysis Workshop:** Cornell University (April 2025)

**Flows and Variational Methods in Riemannian and Complex Geometry:** SLMath (June 2024)

**Kansas Geometric Analysis Conference:** Wichita State University (April 2024)

**Recent Advances in Geometric Analysis:** CIRM (November 2023)

**Rutgers Geometric Analysis Conference:** Rutgers University (May 2023)

**Upper NYS Geometric Analysis Workshop:** Cornell University (April 2023)

**Southern California Geometric Analysis Seminar:** UC Irvine (March 2023)

**Graduate Student Topology and Geometry Conference:** Georgia Institute of Technology (April 2022)

**Analysis and Geometric Analysis Seminar:** Cornell University (Fall 2021-present)

# Teaching  Experience

**Instructor:** Cornell University

- **Calculus 1** (Spring 2025)

**Mentor:** Cornell University

- **Harnack Bounds for Heat Equations:** Cornell Research Experience for Undergraduates (Summer 2023)

**Teaching Assistant:** Cornell University

- **Honors Introduction to Analysis** (Fall 2025)
- **Introduction to Real Analysis** (Spring 2022)
- **Linear Algebra for Engineers** (Fall 2021, Fall 2023)
- **Multivariable Calculus for Engineers** (Spring 2024, Spring 2023, Fall 2022)

# **Outreach**

**Graduate Mentor:** Cornell University (2022-present)
-Assisting early stage graduate students in making the transition from undergraduate to graduate education by discussing successful research habits.

**Directed Reading Project:** Cornell University (Spring 2024, Fall 2023, Fall 2022)
-Led several reading projects. Topics include Riemannian geometry, elliptic PDE, and smooth manifolds.