Soham Karwa Email : s.karwa19@imperial.ac.uk

Education

- **PhD, Imperial College London (LSGNT)** Oct 2019 - Present
  - **Project**: Non-Archimedean Mirror Symmetry
  - **Advisors** : Johannes Nicaise and Ana Caraiani
  - **Mini projects**: The Cohomology and Integral Models of Kottwitz-Harris-Taylor Shimura Varieties, Non-Archimedean Mirror Symmetry for Abelian Varieties
  - **Expected Graduation Date**: December 2023
- **MMath, University of Cambridge** 2018-2019
  - **Part III Essay**: Arithmetic Statistics of Elliptic Curves, supervised by Professor J A Thorne
- **BA in Mathematics, University of Cambridge** 2015-2018

Work experience

- **Parliamentary Office for Science and Technology (POST) Fellow** May - Aug 2023
  - Worked with the House of Lords Digital and Communications Select Committee
  - Led the planning and scoping of the inquiry on Large Language Models (LLMs), including preparing multiple briefings and delivering a presentation to the committee on AI and LLMs
  - Supported briefing work in other areas of the committee's remit including BBC regulation and Digital Market competition

Preprints

- Non-archimedean periods of log Calabi-Yau Surfaces, with Jonathan Lai (in preparation)
- Non-archimedean analytic skeletons and mirror symmetry (in preparation)
- Analytification of logarithmic schemes, with Robert Crumplin (in preparation)

Awards

- Turing Grant Global Fellows placement, £1600 Jan 2023
- Doris Chen Mobility Award, £1000 November 2022
- EPSRC Studentship for London School of Geometry and Number Theory 2019-2023

Research Visits

- Institut des Hautes Études Scientifiques, visiting Professor Maxim Kontsevich November 2023
- Technische Universität München, visiting Professor Cristian Liedtke Oct - Dec 2022

Talks

- Non-archimedean periods of log Calabi-Yau surfaces, Kings College London Nov 2023
- Non-archimedean periods of log Calabi-Yau surfaces, Imperial College London Nov 2023
- Non-archimedean periods of log Calabi-Yau surfaces, Institut des Hautes Études Scientifiques Nov 2023
- Large Language Models, House of Lords Aug 2023
- Non-Archimedean SYZ and Periods, Universität Regensburg Aug 2022
- Temkin's Metrization of pluricanonical forms, KU Leuven Reading Seminar Mar 2022
- An Introduction to Logarithmic Geometry, London Junior Number Theory Seminar Mar 2022
- HMS of $\mathbb{P}^1$ and $\mathbb{P}^1\backslash\{3 \text{ pts}\}$, Homological Mirror Symmetry Learning Seminar Feb 2022
- Non-Archimedean K-stability, Birational Geometry Learning Seminar Dec 2022
- Comparison of Adic and Berkovich Spaces, Non-Archimedean Geometry Study group (co-organiser) Dec 2021

- Kulikov Models, K3 Degenerations Study Group — Nov 2021
- An Introduction to Logarithmic Geometry, Imperial Junior Geometry — Nov 2021
- Classification and Minimal Model Program for Surfaces, K3 Degenerations Study Group — Jul 2021
- Mirror symmetry and p-adic integration, London Junior Number Theory (co-organiser) — June 2021
- Ampleness and Serre Duality, K3 Degeneration Study Group — March 2021
- The Kuga-Satake Construction, K3 Study Group — Feb 2021
- A Brief Introduction to Mirror Symmetry, KCL+UCL Junior Geometry — Dec 2020
- The Divisor-Line Bundle Correspondence, Imperial Junior Geometry — Nov 2020
- Coherent Cohomology with Compact Support, London Number Theory Study Group — Oct 2020
- Obstruction to rational points,Étale Homotopy Study Group (co-organiser) — Sept 2020
- Grothendieck-Teichmüller Lie Algebra, ATOM Summer School — Jul 2020
- Non-Archimedean Mirror Symmetry Lightning Talk, ATOM Summer School — Jul 2020
- The role of Shimura varieties in the Local Langlands Correspondence — May 2020

Teaching

- TA for Lebesgue Measure and Integration, Imperial College — Jan - Mar 2022
- TA for Linear Algebra and Groups, Imperial College — Jan - Mar 2022
- Demonstrator for JMC Analysis, Linear Algebra and Groups, Imperial College — Nov - Mar 2022
- TA for Introduction to University Maths, Imperial College — Oct-Nov 2021
- TA for Linear Algebra and Groups, Imperial College — Oct 2020 - Mar 2021

Undergraduate Research

- **The Shape of Elliptic Curves**: supervised by Professor J A Thorne (Department of Pure Mathematics and Mathematical Statistics, University of Cambridge), funded by London Mathematical Society Undergraduate Research Grant £2000, Summer 2018
- **Depletion Interaction**: supervised by Dr Thierry Savin (Dynamics of Living Matter Research group, University of Cambridge), funded by Centre for Mathematical Sciences (Cambridge) £2000, Summer 2018
- **Noncommutative Riemannian geometry of graphs and finite groups**: supervised by Professor Shahn Majid (Queen Mary, University of London), funded by Trinity College, Cambridge £600, Summer 2017