Ashesh Bati

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Education

2024 – 2028 **Ph.D. in Mathematics** London School of Geometry and Number Theory.
Curves on K3 surfaces, the Wahl map, and derived categories. Advisors: Dr Soheyla Feyzbakhsh, Professor Richard Thomas.
Currently examining properties of curves which are hyperplane sections of K3 surfaces.

2019 – 2024 **BA, MMath in Mathematics** University of Cambridge
Graduated with Distinction.
Thesis title: *Bridgeland Stability and Donaldson-Thomas invariants*.
Top exam marks in college in several years.

Projects

2025 **Ribbons over curves and the Wahl map**
: Advisor: Dr Soheyla Feyzbakhsh
Explored the relation between the non-surjectivity of the Wahl map, and how this allows the formation of certain types of ribbons over canonically embedded curves, and studied the behaviour of ribbons over generic curves.

Conifold transitions and absorption
Advisor: Professor Richard Thomas
Examined the change in cohomology during conifold transition and relate it to change in the derived category via the language of Kuznetsov-Shinder.

2024 **Bridgeland Stability and Donaldson-Thomas Invariants**
Supervisor: Professor Mark Gross
Part III Essay, covering virtual classes, DT/GW theory and the MNOP conjecture.

2023 **Jacobians and binary quadratic forms over global function fields**
Supervisor: Dr Jason Liang
Conjectured and verified a relation between geometry of elliptic curves and binary quadratic forms over finite fields.

2022 **Clebsch-Gordan coefficients of p-adic quaternion unit groups**
Supervisor: Dr David Schwein.
Decomposition of tensor product of representations of local quaternion algebras.

Academic experiences

Talks given

2025 Imperial Junior Geometry Seminar:
· *Conifold transitions and absorption*.

2023-2024 Cambridge Part III Seminars:
· *Ramification and the Étale fundamental group*, December 2023.
· *Gromov-Witten theory*, March 2024.

Reading groups:
· Moduli reading group: talks on *WDVV equations in GW theory*, *The universal curve* and *Components of the moduli space*.
· Deformation theory reading group: talks on *Obstruction theories* and *Moduli of elliptic curves*.

Conferences attended

July 2024 **LMS Invited Lectures: Logs and stacks**. Imperial College London.

June 2024 **Moduli stacks and enumerative geometry**. University of Cambridge.

January 2024 **Equivariant methods in geometry**. University of Cambridge.

Awards and Scholarships

2024-2028 **LSGNT PhD Scholarship**.
Full funding for 4 years of PhD studies in geometry.

Academic experiences (continued)

2019-2024 **Foundress Prize**. University of Cambridge.

Foundress Scholarship.
Both or continued distinguished performance in exams.