

Xiang Li 李想

PhD Student in Algebra & Number Theory
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RESEARCH INTERESTS

Algebraic number theory and arithmetic geometry, in particular non-abelian Chabauty methods: the Chabauty–Kim method over number fields, S -integral points on the thrice-punctured line $\mathbb{P}^1 \setminus \{0, 1, \infty\}$, Kim’s Conjecture over quadratic fields, and the S -Selmer section conjecture.

EDUCATION

PhD in Mathematics

Sep 2023 – present

School of Mathematics (Hodge Institute), The University of Edinburgh *Supervisor: Prof. Minhyong Kim*

MASt in Mathematics (Part III)

Oct 2022 – Jun 2023

Department of Pure Mathematics and Mathematical Statistics, University of Cambridge

BSc in Mathematics

Sep 2020 – May 2022

School of Mathematics, The University of Edinburgh

BSc in Mathematics

Sep 2018 – Jun 2020

School of Mathematics, South China University of Technology

PREPRINTS

Polylogarithmic Chabauty–Kim loci over number fields, with Martin Lüdtkke. [arXiv:2608.20615](https://arxiv.org/abs/2608.20615), August 2026.

S -integral points on the thrice-punctured line over cyclotomic fields, with Minhyong Kim and Martin Lüdtkke. In preparation.

TALKS

Chabauty–Kim methods over number fields: $\mathbb{P}^1 \setminus \{0, 1, \infty\}$. Speed talk, ChaBONNty Conference, Max Planck Institute for Mathematics, Bonn, Germany. July 2026.

S -integral points on the thrice-punctured line over cyclotomic fields. Young Researchers in Algebraic Number Theory VII, University of Nottingham, UK. September 2025.

Rigid geometry and Coleman function. The GEARS seminar, University of Glasgow, UK. February 2025.

Introduction to Chabauty–Kim methods on S -unit equations. Young Researchers in Algebraic Number Theory VI, University of Oxford, UK. August 2024.

Tannakian category, unipotent completion, and de Rham fundamental group. Examples Showcase, GLaMS, ICMS, Edinburgh, UK. December 2023.

Euler’s totient theorem and the prime number theorem (with Ella Yu). London Learning Lean seminar, Imperial College London and Zoom. February 2023.

TEACHING

All tutoring at the School of Mathematics, The University of Edinburgh.

2025–26, Semester 2: Fundamentals of Pure Mathematics (MATH08064)

2025–26, Semester 1: Introduction to Mathematics at University (MATH08078)

2024–25, Semester 2: Proofs and Problem Solving (MATH08059); Fundamentals of Pure Mathematics (MATH08064)

2024–25, Semester 1: Introduction to Linear Algebra (MATH08057); tutor at the MathsBase

2023–24, Semester 2: Calculus and its Applications (MATH08058); Algebraic Topology (MATH10077)

CONFERENCES AND WORKSHOPS

Young Researchers in Algebraic Number Theory VIII, University of Bristol, UK. September 2026.

ChaBONNty Conference, Max Planck Institute for Mathematics, Bonn, Germany. June–July 2026.

Young Researchers in Algebraic Number Theory VII, University of Nottingham, UK. September 2025.

The GEARS Seminar, University of Glasgow, UK. February 2025.

Arithmetic, Geometry, Space and Time: a workshop on the occasion of Minhyong Kim’s 61st birthday, ICMS, Edinburgh, UK. November 2024.

Young Researchers in Algebraic Number Theory VI, University of Oxford, UK. July–August 2024.

The Mordell Conjecture 100 Years Later, MIT, Cambridge, MA, USA. July 2024.

Gauge Fields in Arithmetic, Topology and Physics, ICMS, Edinburgh, UK. April 2024.

Winter Workshop Chabauty–Kim 2024, Heidelberg University, Germany. February 2024.

SOFTWARE

PolylogNF — Sage code accompanying the preprint *Polylogarithmic Chabauty–Kim loci over number fields*.

prime-number-theorem — a formal proof of the prime number theorem in Lean, with Huajian Xin, Ella Yu and others.

Numerical Library of Mathematics Algorithm — a C++ library for numerical algorithms.