Shijie Feng

shije.feng@etu.sorbonne-universite.fr

Research Interests

Arithmetic Geometry, Homotopical Algebra
Particular interest in p-adic Hodge theory, p-adic cohomologies and recent developments.

Education

M.Sc. in Mathematics (Master 2)   *Sept 2025 – Present*
Sorbonne Université, France
- Track: Mathématiques Fondamentales
- Key Courses: Homology,Cohomology and Sheaves; Riemann Surfaces: Scheme Theory, Homotopy

Visiting Student   *Nov 2024 – Aug 2025*
Westlake University, Hangzhou, China
- Courses Attended: Algebraic Number Theory, Category Theory, Six Functor Formalism, Diophantine Approximation.

B.Sc. in Mathematics and Applied Mathematics   *Sept 2019 – June 2024*
Southwest University, Chongqing, China
- **Online**, **Math in Moscow**   *Sept – Dec 2023*
  Course: Algebraic Geometry: start-up course
- **Visiting Student**, **Beijing Int. Center for Math. Research (BICMR)**   *Feb – June 2023*
  Courses: Homology Theory, Differential Topology.
- **Transferred** from Mechanical Engineering to Mathematics.   *Sept 2020*
- Core Courses: Functional Analysis, Equation of Mathematical Physics, Dynamical Systems, Abstract Algebra, Module and Ring Theory, Elementary Number Theory, Differential Geometry, Function of Real Variable, Ordinary Differential Equations, Function of Complex Variable

Research Experience

Research Internship   *Summer 2025*
Advisor: Prof. Lifan Guan, Westlake University
- Studied *Fourier Mukai Transform in Algebraic Geometry*.
- Read Alice Rizzardo's paper *Adjoints to a Fourier Mukai functor* and Ben-zvi, Francis and Nadler's paper *Integral Transform and Drinfeld Centers in Derived Algebraic Geometry*.

Bachelor Thesis : Topology of Algebraic Manifolds   *Feb–May 2024*
Advisor: Prof. Yanbo Zhou, Southwest University
- Followed Lefschetz's approach to apply the idea of Morse theory to study topology of algebraic manifolds.
- The core is to prove some theorems like Lefschetz hypersurface section theorem, weak Lefschtez theorem, hard Lefschetez theorem and Lefschtez decomposition theorem. And we also get some interesting corollaries and applications based on the former results.

Workshops & Seminars

2025 International Mathematics Summer School   *July 2025*
Westlake University, Hangzhou, China

- Studied short course on *Modular Forms*.

Topics on Algebraic Surfaces and Threefolds *June 23-27 2025*
Conference, Tianyuan Mathematical Center in Southeast China

- Some familiarity with some results of algebraic surfaces and algebraic threefolds in birational geometry.

Abelian Varieties *Mar–June 2024*
Graduate Seminar, Southwest University

- Followed David Mumford's *Abelian Varieties* Chapter 1,2,3.

Algebras and Representation Theory *Sept–Dec 2023*
Graduate Seminar/Course, Southwest University

- Followed Karin Erdmann and Thorsten Holm's *Algebras and Representation theory*.

Galois Theory *Sept–Oct 2023*
Undergraduate Seminar, Southwest University

- Organized whole seminar and present all talks by myself.
- Followed P.Stevenhagen's *Algebra III* course notes about Galois theory

Summer Semester *July 2023*
International Course, Southwest University

- Studied *Mathematical Logic*.

Summer Semester *July 2022*
International Course, Southwest University

- Studied *Computational Conformal Geometry*.

Homological Algebra *Sept–Oct 2021*
Graduate Seminar/Course, Southwest University

- Followed Hilton & Stammbach's Book *A Course in Homological Algebra*

Teaching

Teaching Assistant, Southwest University *Spring 2024*
Course: *Linear Algebra B*

- Graded weekly homework assignments
- Led exercise sessions

Mentor for Freshman, Southwest University *Fall 2022*
Course: *Calculus*, *Linear Algebra*

- Taught subjects *L'Hopsital Rule and Taylor Formula*, *Solving Simple Ordinary Equations* and *Quadratic Form in Linear Algebra*
- Responsible for answering questions in the online community.

Awards & Honors

- **China National Scholarship; Second scholarship; Third scholarship** *2019,2020,2021*
- **First Prize in Chongqing**, 13th the Chinese Mathematics Competition *2021*

Skills

- **Languages:** Chinese (Native), English (Fluent), French (Intermediate).
- **Programming:** MATLAB, LaTeX.