Curriculum Vitae

Xun Lin

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Affil   Max Planck Institute for Mathematics, Bonn

Education

2014 – 2018   🔖 **Bachelor in Mathematics, Southern University of Science and Technology, Shenzhen.** Thesis content: a note of GTM 52(algebraic geometry) and Hodge theory. Supervisor: Qin Li.

2018 – 2023   🔖 **Ph.D. in Mathematics, Yau Mathematical Sciences Center, Tsinghua university, Beijing.** Thesis title: Non-commutative aspects of Hodge conjecture, minimality, and Torelli problems. Supervisor: *William Donovan*

Research Experience

Sept 01, 2023 – Sept 01, 2025   🔖 **Postdoc in Mathematics, Max Planck Institute for Mathematics, Bonn.** Mentor: Daniel Huybrechts.

Sept 01, 2025 - Sept 01, 2026   🔖 **Postdoc in Mathematics, Hong Kong University of Science and Technology, Hong Kong.** Mentor: Qingyuan Jiang.

Sept 01, 2026 –   🔖 **Assistant professor in mathematics, The Chinese University of Hong Kong(Shenzhen), Shen Zhen.**

Research

Preprints

15   🔖 Infinitesimal Torelli problems for special Gushel-Mukai and related Fano threefolds: Hodge theoretical and categorical perspectives. (Xun Lin, Shizhuo Zhang and Zheng Zhang). arXiv:2507.06995 [math.AG], 2025. Submitted.

14   🔖 Higgs objects over noncommutative varieties. (Xun Lin and Shizhuo Zhang) In progress.

13   🔖 Fully faithful functors, skyscraper sheaves, and birational equivalence (Chunyi Li, Xun Lin, and Xiaolei Zhao). arXiv:2402.12573 [math.AG], 2024.

12   🔖 IVHS via Kuznetsov components and categorical Torelli theorems for Veronese double cones (Xun Lin, Jørgen Vold Rennemo and Shizhuo Zhang). arXiv:2408.08266 [math.AG]. Submitted.

11   🔖 Categorical Torelli theorem for Verra threefolds and fourfolds (Xun Lin, Zhiyu Liu, and Shizhuo Zhang). In preparation.

10   🔖 Categorical Torelli Theorem for nodal Fano threefold and the fiber of categorical period map via Bridgeland moduli space(Daniele Faenzi, Xun Lin, and Shizhuo Zhang). In preparation.

9   🔖 Three approaches to categorical Torelli theorem for cubic threefold of non-Eckardt type via equivariant Kuznetsov components (Sebastian Casalaina-Martin, Xianyu Hu, Xun Lin, Shizhuo Zhang, and Zheng Zhang). arXiv:2405.20554 [math.AG]. Submitted.

8   🔖 On nonexistence of semi-orthogonal decompositions in algebraic geometry (Xun Lin). arXiv:2107.09564 [math.AG], 2021. Submitted.

7   🔖 Some remarks of Hochschild homology and semi-orthogonal decompositions (Xun Lin). arXiv:2112.10312 [math.AG], 2021.

Research (continued)

Papers

6   Serre algebra, matrix factorization and categorical Torelli theorem for hypersurfaces (Xun Lin and Shizhuo Zhang). Math. Ann. 391, 163–177 (2025).

5   Kuznetsov's Fano threefold conjecture via Hochschild–Serre algebra (Xun Lin and Shizhuo Zhang). Math. Z. 308, 26 (2024).

4   Indecomposability of the bounded derived categories of Brill-Noether varieties (Xun Lin and Chenglong Yu). Proc. Amer. Math. Soc. 152 (2024), 1457-1465.

3   Categorical Torelli theorems for Gushel–Mukai threefolds(Augustinas Jacovskis, Xun Lin, Zhiyu Liu, and Shizhuo Zhang). J. Lond. Math. Soc. (2) 109 (2024), no.3, Paper No. e12878.

2   Infinitesimal categorical Torelli theorems for Fano threefolds (Augustinas Jacovskis, Xun Lin, Zhiyu Liu, and Shizhuo Zhang).J. Pure Appl. Algebra 227 (2023), no.12, Paper No. 107418.

1   Noncommutative Hodge conjecture(Xun Lin). J. Noncommut. Geom. 17 (2023), 1367–1389.

Honors

Awards

2021   **Ruolin prize for graduate students, Yau Mathematical Sciences Center, 2021**. For excellent research. Roughly 6/200 in YMSC each year.

Scholarships

Basic scholarship of Tsinghua University for graduate students, 2018 - 2023.

YMSC scholarship, 2018-2022.

Talks

November 28, 2024	SAG seminar in University of Bonn, Germany. IVHS via Kuznetsov components and categorical Torelli theorems for weighted hypersurfaces.
Sept 26, 2024	Algebraic geometry day seminar in Morningside Center of Mathematics Chinese Academy of Science. IVHS via Kuznetsov components and categorical Torelli theorems for weighted hypersurfaces.
July 2024	Algebraic geometry seminar in Southern University of Science and Technology. Categorical Torelli for smooth hypersurfaces.
Feb 2024	Obserseminar in MPIM. Infinitesimal categorical Torelli: an application to Kuznetsov' Fano 3-folds conjecture.
Sept 2023	5 minutes talk in JTP program of Hausdorff center, Bonn. A genralized theorem of Bondal-Orlov reconstruction for fully faithful embedding.
April 2023	Seminar of Advance Topics in Algebra and Geometry, Tsinghua university. A new proof of Torelli for cubic 4-folds.
March 2023	Geometric representation theory seminar, Tsinghua university. Infinitesimal categorical Torelli.
Nov 2022	Tsinghua preprint seminar. Hodge theory of combinatorics: an introduction.

Talks (continued)

Oct 2022   ■   Tsinghua preprint seminar. Categorical Torelli.

July 2022   ■   University of Warwick, online poster session of VBAC seminar. Indecomposibility of the bounded derived categories of Brill-Noether varieties.

April 2022   ■   Stony Brook university, algebraic geometry seminar. Nonexistence of semi-orthogonal decompositions and sections of para-canonical systems.

March 2022   ■   Cornell university, algebraic geometry seminar. Nonexistence of semi-orthogonal decompositions and sections of para-canonical systems.

Jan 2022   ■   Southern University of Science and Technology, Shenzhen, Geometry and Topology seminar. Nonexistence of semi-orthogonal decompositions and sections of para-canonical systems.

Fall 2021   ■   Tsinghua University, student seminar, VGIT and derived categories.

Sept 2021   ■   Tata Institute of Fundamental Research, India. Nonexistence of semi-orthogonal decompositions and the base locus of para-canonical systems.

June 2021   ■   Edinburgh University, Internal seminar. Derived categories of symmetric product of curves.

May 2021   ■   Tsinghua University, Geometry representation seminar. Noncommutative Hodge conjecture.

March 2021   ■   Southern University of Science and Technology, Shenzhen. Noncommutative Hodge conjecture.

  ■   Shanghaitech University, Shanghai. Noncommetative Hodge conjecture.

Fall 2019   ■   Tsinghua University, student algebraic geometry seminar. Examples of Shimura varieties.

Spring 2019   ■   Tsinghua University, student algebraic geometry seminar. Derived Torelli of K3 surfaces.

  ■   Tsinghua University, student algebraic geometry seminar. Nonexistence of semi-orthogonal decompositions and sections of canonical bundle.

Fall 2018   ■   Tsinghua University, student algebraic geometry seminar. Geometry of moduli space of sheaves on surfaces.

Teaching

2018   ■   General Topology, Teaching Assistant. Tsinghua University.

Teaching (continued)

	◾	Mathematical Analysis, Teaching Assistant. Tsinghua University.
2019	◾	Functional Analysis, Teaching Assistant.
	◾	Calculus A, Teaching Assistant. Tsinghua University.
2020	◾	Algebraic geometry I, Teaching Assistant. Tsinghua University.
2022	◾	Algebra I in Qiuzhen college, Teaching Assistant. Tsinghua University.

Visiting and conferences/workshops

July 07 - July 11, 2025	◾	Derived categories, noncommutative geometry and deformation theory in Cetraro, Italy.
March 24 - March 28, 2025	◾	Technical University of Munich, Munich.
Oct 13 - Oct 18, 2024	◾	Sapienza Università di Roma, Roma.
July 15 - July 22, 2024	◾	Southern University of Science and Technology, Shenzhen.
June 27 - Sept 30, 2024	◾	Morningside Center of Mathematics, Chinese Academy of Sciences, Beijing.
June 26 - July 24, 2024	◾	Yau Mathematical Sciences Center, Tsinghua university, Beijing.
June 4 - June 22, 2024	◾	Shanghai center for mathematical sciences, Fudan University, Shanghhai.
May 26 - May 31, 2024	◾	Stockholm University, Stockholm.
Jan 22, 2024 - Jan 26, 2024	◾	University of Genova, Genova.
Dec 15, 2023 -Dec 20, 2023	◾	University of Oslo, Oslo.
Sept 2023 - Dec 2023	◾	Hausdorff Center for Mathematics, JTP program, Bonn.
July 26, 2023 - August 10, 2023	◾	Sichuan University, Chengdu.
July 10, 2023 - July 21, 2023	◾	Tsinghua University, Beijing.
March 2022 - June 2022	◾	Cornell University, Ithaca.
March, 2021	◾	Shanghaitech University, Shanghai.
Sept 2019	◾	Liverpool University, Liverpool.
May 2019	◾	Sun Yat-Sen University, GuangZhou.

Visiting and conferences/workshops (continued)

■ University of Science and Technology in China, Hefei.

Languages

Native

■ **Cantonese, Madarin Chinese**

Advanced

■ **English**