



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

- 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 Chen-long 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

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| 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 |  Observerseminar 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 generalized 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)

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| 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. Noncommutative 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 K_3 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

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| 2018 | ■ | General Topology, Teaching Assistant. Tsinghua University. |
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Teaching (continued)


- 2019
 - Mathematical Analysis, Teaching Assistant. Tsinghua University.
 - 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


- 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, Shanghai.
- 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.
- University of Science and Technology in China, Hefei.

Languages

Native

 Cantonese, Madarin Chinese

Advanced

 English