### CURRICULUM VITAE Yousheng Shi

Last Update: April 1, 2025 Email:0023140@zju.edu.cn

# **Research Interests**

Number theory, arithmetic algebraic geometry, and automorphic forms.

## Education

Fudan University, Shanghai, China	B.S. Mathematics	June 2011
University of California, Irvine	M.S. Mathematics	January 2013
University of Maryland, College Park	Ph.D. Mathematics	July 2019
Ph.D. Advisor: John Millson. Co-advised by Michael Rapoport.		

# Employment

August 2019-August 2020, August 2021-May 2023Van Vleck Visiting Assistant ProfessorUniversity of Wisconsin, MadisonJuly 2023-Now(tenure-tracked) ResearcherZhejiang UniversityKesearcherKesearcher

# Publications

- A proof of the Kudla-Rapoport conjecture for Krämer models (with Qiao He, Chao Li and Tonghai Yang), Inventiones Mathematicae, 234(2), 721-817. https://link.springer.com/article/10.1007/s00222-023-01209-1.
- Kudla-Rapoport Conjecture for Krämer models (with Qiao He and Tonghai Yang), Compositio Mathematica, 159(8), 1673-1740. https://www.cambridge.org/core/journals/compositio-mathematica/article/kudlarapoportconjecture-for-kramer-models/B06DD5B0481E2E6181A651E04BF91400.
- 3. A genus 2 arithmetic Siegel-Weil formula on X<sub>0</sub>(N) (with Siddarth Sankaran and Tonghai Yang), Transactions of the Ameican Mathematical Society, 376(06), 3995-4041. https://www.ams.org/journals/tran/2023-376-06/S0002-9947-2023-08843-2/home.html.
- Kudla program for unitary Shimura varieties (with Qiao He and Tonghai Yang), Scientia Sinica Mathematica, 2021(10), 1595-1626.
  DOI: 10.1360/SSM-2021-0002, 1595-1626.
- The Kudla-Rapoport conjecture at a ramified prime for U(1,1) (with Qiao He and Tonghai Yang), Transactions of the Ameican Mathematical Society, 376, 2257-2291. https://www.ams.org/journals/tran/2023-376-04/S0002-9947-2023-08845-6/.
- Special cycles on unitary Shimura curves at ramified primes, Manuscripta Mathematica, 172(1-2), 221-290. https://link.springer.com/article/10.1007/s00229-022-01412-z.

- Special cycles on the basic locus of unitary Shimura varieties at ramified primes, Algebra & Number Theory, 17(10), 1681-1741. https://msp.org/ant/2023/17-10/p01.xhtml.
- Theta series and generalized special cycles on Hermitian locally symmetric spaces, Mathematische Annalen, 386(3-4), 1463-1553. https://link.springer.com/article/10.1007/s00208-022-02428-2.

## Preprints

- 1. The basic locus of ramified unitary Rapoport-Zink space at maximal vertex level (with Qiao He and Yu Luo), arxiv preprint. https://arxiv.org/abs/2502.06218.
- 2. Regular models of ramified unitary Shimura varieties at maximal parahoric level (with Qiao He and Yu Luo), arxiv preprint. https://arxiv.org/abs/2410.04500.
- 3. Pullback of arithmetic theta series and its modularity for unitary Shimura curves (with Qiao He and Tonghai Yang), submitted. https://arxiv.org/abs/2403.04566.

#### Papers in preparation

1. Cycles with local coefficients for unitary groups and vector-valued Siegel modular forms (with Jens Funke and John Millson).

#### Awards and Honors

- 1. Mark E Lachtman Graduate Fellowship, University of Maryland, 2018-2019.
- 2. People's fellowship, Fudan University, 2008-2011.

#### Invited talks

- 1. Zhongguancun Number Theory Seminar, Nov 2024, Beijing, China.
- 2. Annual Meeting of Chinese Mathematical Society 2024, Algebra and Number Theory Section, October 2024, Jiaxing China.
- 3. Annual Meeting of Chinese Mathematical Society 2024, Algebra and Number Theory Section, October 2024, Jiaxing China.
- 4. Conference on "Arithmetic Theta Series and p-adic Modular Forms", June 2024, Cetraro, Italy.
- 5. Math Colloquium of Pohang University of Science of Technology, March 2024, Pohang, South Korea.
- 6. Special Session "Theta correspondence", AMS Joint Mathematics Meeting 2024, San Francisco.
- Number Theory conference on occasion of Tonghai Yang's 60 birthday at Shandong University, Nov 2023, Jinan.

- 8. Workshop on BSD conjecture and Special value of *L*-functions, July 2023, Tianyuan Mathematics Research Center, Yunnan.
- 9. Hong Kong University Number Theory Day, June 2023, Hong Kong.
- Special Session "Automorphic Forms and Special Cycles", AMS Joint Mathematics Meeting 2023, Boston.
- 11. Special Session "Modular Forms, Hypergeometric Functions, Character Sums and Galois Representations", AMS Joint Mathematics Meeting 2023, Boston.
- 12. A series of lectures on Kudla-Rapoport conjectures, Hua Luogeng Mathematics Forum, Chinese Academy of Science (July 15, August 9, and 11, 2022).
- 13. Number Theory Seminar, YMSC, Tsinghua University (Nov 3, 2021).
- 14. Algebra and Number Theory Seminar, University of Arizona (Oct 26, 2021).
- 15. Number Theory Seminar, Morningside Center of Mathematics, Chinese Academy of Sciences (July 22 2021).
- 16. Conference on Theta Series: Representation Theory, Geometry and Arithmetic on the occasion of Stephen Kudla's 70th birthday, online, hosted by Fields Institute (July 5-9, 2021).
- 17. Number Theory Seminar, Peking University (May 27, 2021).
- Jinling Conference on Number Theory and Arithmetic Geometry, Nanking 2021 (Feb 22-26, 2021).
- 19. Number Theory Seminar, Morningside Center of Mathematics, Chinese Academy of Sciences (Oct 22 2020).
- 20. Number Theory Seminar, University of Wisconsin, Madison (Sep 24. 2020).
- 21. Number Theory Seminar, University of Wisconsin, Madison (Oct 17. 2019).
- 22. Central Sectional Meeting of AMS, Madison (Sep 15, 2019).

#### Teaching at University of Wisconsin, Madison

- 1. Teaching Assistant or Grader, 2013-2019.
- 2. Abstract Algebra, Fall 2019.
- 3. Elementary Matrix and Linear Algebra, Spring 2020, Spring 2023.
- 4. Differential Equations and Linear Algebra, Fall 2021.
- 5. Modern Algebra II, Spring 2022.
- 6. Elementary Number Theory, Spring 2022, Spring 2023.
- 7. Algebraic Number Theory, Fall 2022.

## Teaching at Zhejiang University

- 1. Elementary Number Theory, Spring-Summer 2024.
- 2. Abstract Algebra I, Fall-Winter 2024.

#### Other conferences attended

- 1. Jinling Conference on Number Theory and Arithmetic Geometry, Nanking 2024 (April 2024).
- 2. Workshop on Arithmetic intersection theory on Shimura varieties" organized by American Institute of Mathematics, Pasadena, USA (Jan 2024).
- 3. Conference on Arithmetic Algebraic Geometry on the occasion of Michael Rapoport's 75th birthday, University of Münster (October 2-6, 2023).
- 4. The Eighth Conference on Number Theory of China, Jintan (June 25-30, 2021)
- 5. AIM workshop on Arithmetic intersection theory on Shimura varieties, online (Jan 4-8, 2021).
- 6. Central Sectional Meeting of AMS, Madison (Sep 14-15, 2019).
- 7. AMS Joint Mathematics Meeting, Baltimore (Jan 16-19, 2019).
- 8. Conference on Arithmetic Algebraic Geometry on the occasion of Michael Rapoport's 70th birthday, University of Bonn (October 1-5, 2018).
- Shimura varieties and hyperbolicity of moduli spaces, UQAM, Montreal (May 28 June 1, 2018).
- 10. AMS Joint Mathematics Meeting, San Diego (Jan 10-13, 2018).

## Academic Services

- 1. Organizer of the Student Geometry seminar, University of Maryland (2016).
- Co-organizer of the Student Algebraic Geometry seminar, University of Maryland (2018).
- Co-organizer of the Number Theory Seminar, University of Wisconsin, Madison (2020-2021).
- 4. Reviewer for Compositio Mathematica, Mathematische Annalen, IMRN.
- 5. Instructor for the REU program at the Summer School of Algebra and Number Theory organized by the Chinese Academy of Science and Peking University, Peking University (2024).