

Curriculum Vitae

Wei Zhang

(As of 09/2026)

CONTACT INFORMATION	Department of Mathematics Massachusetts Institute of Technology 77 Massachusetts Avenue Cambridge, MA 02139-4307	Phone: +1-617-258 7180 Fax: +1-(617) 253-4358 E-mail: weizhang@mit.edu
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BIRTH YEAR/PLACE	1981 Sichuan, China.
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RESEARCH INTERESTS	Number theory, automorphic forms and related area in algebraic geometry.
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EDUCATION	09/2000-06/2004 B.S., Mathematics, Peking University, China. 08/2004-06/2009 Ph.D, Mathematics, Columbia University. Advisor: Shouwu Zhang
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EMPLOYMENT	07/2017-Now, Professor, Massachusetts Institute of Technology 07/2015-06/2017, Professor, Columbia University. 01/2014-06/2015 Associate professor, Columbia University. 07/2011-12/2013 Assistant professor, Columbia University. 07/2010-06/2011 Benjamin Peirce Fellow, Harvard University. 07/2009-06/2010 Postdoctoral fellow, Harvard University.
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AWARD/HONOR	2010 SASTRA Ramanujan Prize. 2013 Alfred P. Sloan Research Fellowship. 2016 Morningside Gold Medal of Mathematics, ICCM. 2017 Simons Fellowship in Mathematics. 2018 New Horizon prize in mathematics. 2018 Invited speaker, ICM, Rio de Janeiro. 2019 Fellow of the AMS 2019 Clay Research Award 2022 Simons Investigator in Mathematics. 2023 Elected member, American Academy of Arts and Sciences 2025 Alexanderson Award, American Institute of Mathematics.
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SYNERGISTIC ACTIVITIES

Member of Ruth Lyttle Satter Prize Selection Committee of AMS (2024-2028)

Member of the Centennial Fellowship Committee of AMS (2023-2025)

Member of the Fan Fund Committee of AMS, 2019–2022.

Editor, *Mathematische Annalen*, 12/2018-03/2025.

Associate editor for *Journal of Number theory*, *Peking Mathematical Journal*, and *Communications of the AMS* (2020-2025)

Member of the Editorial Board, *Compositio Mathematica* (2022–)

Panel member (Section 3) of ICM 2022 invited speakers.

Co-chair of Graduate Committee, Department of Mathematics, MIT (2018-2023)

Co-organizer (Chris Skinner, Wei Zhang), The Birch and Swinnerton-Dyer Conjecture and Related Problems: Recent Results, Sep 2026, Clay Math. Inst., Oxford, UK.

Co-organizer (Ben Howard, Yiannis Sakellaridis, Zhiwei Yun, Wei Zhang), Gross–Zagier formula 40+ years later, Aug 3-7, 2026, MIT.

Co-organizer (Jennifer Balakrishnan, Philipp Habegger, Bjorn Poonen, Andrew Sutherland, Wei Zhang), The Mordell conjecture 100 years later, July 8th-12th 2024

Co-organizer, MSRI “Algebraic Cycles, L-Values, and Euler Systems”, Jan–May 2023

Co-organizer, American Institute of Mathematics workshop “Arithmetic intersection theory on Shimura varieties”, January 11 to January 15, 2021

Co-organizer, Clay research workshop, “Periods, Representations, and Arithmetic: Recent Advances on the Gan-Gross-Prasad Conjectures and their Applications”, 29 September - October 3, 2019.

Co-organizer of Special Session on Number Theory, Joint International Meeting of the Chinese Mathematical Society and the American Mathematical Society, Shanghai, June 11-14, 2018.

Co-organizer, Arbeitsgemeinschaft: Higher Gross–Zagier Formulas, 2 Apr - 8 Apr 2017, Oberwolfach, Germany

Co-organizer of Joint COLUMBIA-CUNY-NYU number theory seminar (prior to 06/2017), and BC-MIT number theory seminar.

PUBLICATION

1. *Vanishing results in Chow groups for the modified diagonal cycles II: Shimura curves*
(with Congling Qiu), *Acta Mathematica Sinica*, English Series, to appear
2. *Modularity of higher theta series I: cohomology of the generic fiber*
(with Tony Feng, Zhiwei Yun), *Pub. Math. IHES*, to appear.

3. *Arithmetic Transfer conjectures and the quasi-canonical Arithmetic Fundamental Lemma*
(with Chao Li, Michael Rapoport), to appear the Crelle's journal
4. *Twisted linear periods and a new relative trace formula*
(with Hang Xue) Peking Math J., Vol. 8 (2025), pages 533–600.
5. *Higher theta series for unitary groups over function fields*
(with Tony Feng, Zhiwei Yun), Ann. Sci. Éc. Norm. Supér. 58 (2025), no. 2, 275–388.
6. *Arithmetic Fundamental Lemma for the spherical Hecke algebra*
(with Chao Li, Michael Rapoport), Manuscripta Mathematica. 175 (2024), no. 1-2, 1–51.
7. *On the Arithmetic Fundamental Lemma conjecture over a general p -adic field*
(with A. Mihatsch), J. Eur. Math. Soc. 26 (2024), no. 12, pp. 4831–4901.
8. *Vanishing results in Chow groups for the modified diagonal cycles*
(with Congling Qiu), Tunisian Journal of Mathematics, Vol. 6, No. 2, (2024), 225–247.
9. *Deformation of rigid conjugate self-dual Galois representations*
(with Yifeng Liu, Yichao Tian, Liang Xiao, Xinwen Zhu), Acta Mathematica Sinica, English Series, 40(7), 1599–1644 (2024).
10. *Higher Siegel–Weil formula for unitary groups: the non-singular terms*
(with Tony Feng, Zhiwei Yun), Invent. Math. 235 (2024), no. 2, 569–668.
11. *A note on Tate's conjectures for abelian varieties*
(with Chao Li), Essential Number Theory. Vol. 1, No. 1, 2022, 41–50.
<https://doi.org/10.2140/ent.2022.1.41>
12. *On the arithmetic Siegel–Weil formula for $GSpin$ Shimura varieties*
(with Chao Li) Invent. Math., Vol. 228 (2022), No. 3, 1353–1460.
13. *More Arithmetic Fundamental Lemma conjectures: the case of Bessel subgroups*
Pure and Applied Mathematics Quarterly, Vol. 18, No. 5 (2022), pp. 2279–2336.
(Special Issue in honor of Professor Benedict Gross's 70th birthday)
14. *On the Beilinson–Bloch–Kato conjecture for Rankin–Selberg motives*
(with Yifeng Liu, Yichao Tian, Liang Xiao, Xinwen Zhu), Invent. Math., Vol. 228 (2022), No. 1, 107–375.
15. *Kudla–Rapoport cycles and derivatives of local densities*
(with Chao Li), J. Amer. Math. Soc., Vol. 35 (2022), No. 3, 705–797.
16. *Isolation of cuspidal spectrum, with application to the Gan–Gross–Prasad conjecture*
(with Raphaël Beuzart-Plessis, Yifeng Liu, Xinwen Zhu), Ann. of Math. (2) Vol. 194 (2021), no.2, 519–584.
17. *Weil representation and Arithmetic Fundamental Lemma*
Ann. of Math. (2) Vol. 193 (2021), no. 3, 863–978.
18. *On Shimura varieties for unitary groups*
(with M. Rapoport, B. Smithling), Pure and Applied Mathematics Quarterly, Special Issue: In Honor of David Mumford, Vol. 17, No. 2 (2021), pp. 773–837.

19. *Arithmetic diagonal cycles on unitary Shimura varieties*
(with M. Rapoport, B. Smithling), *Compositio Mathematica*, Vol. 156, no. 9, 2020, pp. 1745–1824.
20. *Shtukas and the Taylor expansion of L -functions (II)*
(with Zhiwei Yun), *Ann. of Math.*, Vol. 189 (2019), no. 2, 393–526.
21. *On p -adic Waldspurger formula.*
(with Y. Liu, S. Zhang). *Duke Math. J.*, Vol. 167 (2018), 743–833.
22. *Regular formula moduli spaces and arithmetic transfer conjectures.*
(with M. Rapoport, B. Smithling). *Math. Annalen*, 2018, Vol. 370, 1079–1175.
23. *Shtukas and the Taylor expansion of L -functions*
(with Zhiwei Yun), *Ann. of Math.*, Vol. 186 (2017), no. 3, 767–911.
24. *On the arithmetic transfer conjecture for exotic smooth formal moduli spaces.*
(with M. Rapoport, B. Smithling). *Duke Math. J.*, Vol. 166, Number 12 (2017), 2183–2336.
25. *Selmer groups and the indivisibility of Heegner points.*
Cambridge Journal of Math., Vol. 2 (2014) Number 2, 191–253
26. *Fourier transform and the global Gan-Gross-Prasad conjecture for unitary groups.*
Ann. of Math., Vol. 180 (2014), Issue 3, 971–1049.
27. *Spherical characters for a strongly tempered pair.*
(Atsushi Ichino and Wei Zhang), appendix to *Fourier transform and the global Gan-Gross-Prasad conjecture for unitary groups*.
28. *Automorphic period and the central value of Rankin–Selberg L -function.*
J. Amer. Math. Soc. 27 (2014), 541–612.
29. *On the arithmetic fundamental lemma in the minuscule case.*
(with M. Rapoport, U. Terstiege), *Compositio Math.*, 2013, volume 149, issue 10, pp. 1631–1666.
30. *On the smooth transfer conjecture of Jacquet–Rallis for $n = 3$.*
The Ramanujan Journal, (*Ramanujan’s 125th anniversary special volume*), Volume 29, Issue 1 (2012), 225–256.
31. *The Gross–Zagier formula on Shimura curves.*
(with Xinyi Yuan, Shou-Wu Zhang), 266 pp., *Annals of Mathematics Studies* #184, Princeton University Press, 2012, ISBN: 9781400845644.
32. *On arithmetic fundamental lemmas.*
Inventiones Mathematicae, Vol. 188 (2012), Number 1, 197–252.
33. *The Gross–Kohnen–Zagier theorem over totally real fields.*
(with Xinyi Yuan, Shou-Wu Zhang), *Compositio Math.* 145 (2009), no. 5, 1147–1162.

PUBLICATION:
SURVEY ARTICLES

1. *Arithmetic geometry of products of elliptic curves (in Chinese)*
to appear, *Acta Mathematica Sinica*, Chinese Series.

2. *Survey on bounding Selmer groups for Rankin-Selberg motives*
(with Yifeng Liu, Yichao Tian, Liang Xiao, Xinwen Zhu), Simons Symposium. to appear.
3. *High dimensional Gross-Zagier formula: a survey*
The Langlands program. III. Periods, L-functions, and the relative trace formula, 381–412, Proc. Sympos. Pure Math., 112.3, Amer. Math. Soc., Providence, RI, 2025.
4. *The arithmetic fundamental lemma: An update.*
Science China Mathematics, November 2019, Volume 62, Issue 11, 2409–2422.
5. *Periods, cycles, and L-functions: a relative trace formula approach*
Proceedings Int. Cong. of Math. 2018, Rio de Janeiro, Vol. 2 (505–540).
6. *The Birch-Swinnerton-Dyer conjecture and Heegner points: a survey.*
Current Developments in Mathematics, Volume 2013, 169–203.
7. *Harmonic analysis for relative trace formula.*
in “Automorphic Representations and L-Functions”, edited by: D. Prasad, C. S. Rajan, A. Sankaranarayanan, and J. Sengupta, Tata Institute of Fundamental Research, 2013, Mumbai, India. ISBN-10: 93-80250-49-5, ISBN-13: 978-93-80250-49-6
8. *Gross-Zagier formula and arithmetic fundamental lemma.*
in Fifth International Congress of Chinese Mathematicians Part 1, AMS/IP Studies in Advanced Mathematics, vol. 51, Amer. Math. Soc., Providence, RI, 2012, pp. 447–459.

PREPRINTS

1. *Faltings heights and subleading terms of the adjoint L-functions: I, II, III*
(with Ryan Chen, Weixiao Lu), in preparation.
2. *Jacquet-Rallis transfer for parahoric functions over ramified quadratic extensions*
(with Thomas Rüd), in preparation.
3. *Modularity of Higher Theta Series III: Proof of the Modularity Conjecture*
(with Tony Feng, Zhiwei Yun), 2608.07173.
4. *Arithmetic volumes of moduli stacks of Shtukas*
(with Tony Feng, Zhiwei Yun), arXiv:2601.18557, 2026.
5. *More regular formal moduli spaces and arithmetic transfer conjectures: the ramified quadratic case*
(with Yu Luo, Michael Rapoport), arXiv: 2507.01395
6. *Unitary Friedberg-Jacquet periods and their twists: Relative trace formulas*
(with Spencer Leslie and Jingwei Xiao), 64 pp., arXiv:2503.09664
7. *Unitary Friedberg-Jacquet periods and their twists: Fundamental lemmas*
(with Spencer Leslie and Jingwei Xiao), 100 pp., arXiv:2503.09500
8. *Gan-Gross-Prasad cycles and derivatives of p-adic L-functions*
(with Daniel Disegni), arXiv:2410.08401.
9. *A majority of elliptic curves over $\mathbb{Q}$ satisfy the Birch and Swinnerton-Dyer conjecture.*
(with M. Bhargava, C. Skinner) preprint. arxiv.1407.1826.

10. *Indivisibility of Heegner points in the multiplicative case.*
(with C. Skinner) preprint. arxiv.1407.1099.
11. *Triple product L-series and Gross–Kudla–Schoen cycles.*
(with X. Yuan, S. Zhang). in preparation.

GRANTS

07/2010 - 06/2013: PI, NSF Grant DMS 1001631, 1204365.
 07/2013 - 06/2016: PI, NSF Grant DMS 1301848.
 07/2016 - 06/2019: PI, NSF Grant DMS 1601144.
 07/2019 - 06/2025: PI, NSF Grant DMS 1901642.
 07/2024 - 06/2029: PI, NSF Grant DMS 2401548.

PHD STUDENTS

Rahul Krishna (2016)	Vivek Pal (2016)
Chongli Wang (2016)	Qirui Li (2018)
Jingwei Xiao (2019)	Yongyi Chen (2021)
Zhiyu Zhang (2022)	Gefei Dang (2024)
Murilo Corato Zanarella (2024)	Danielle Wang (2024)
Ryan Chen (2025)	Evan Chen (2025)
Weixiao Lu (2025)	Hao Peng (2026)
Vijay Srinivasan (2026)	Nir Elber (Exp. 2030)

POSTDOC MENTEES

Chao Li	
Tony Feng	Yujie Xu
Andreas Mihatsch	Congling Qiu
Thomas Rued	Robin Zhang
Yu Luo	

CONFERENCES/INVITED LECTURES

“Automorphic Forms, L-Functions, Arithmetic, and Applications: A Conference in Honor of Wen-Ching Winnie Li”, Penn State University, May 20–23, 2027

TORA (Texas-Oklahoma Representations and Automorphic forms) XVI, Apr 9–11, 2027

Arithmetic Geometry, Zhengjiang U., Hangzhou, Nov 2026

Clay Research conference 2026, CMI, Oxford, Sep 21–25, 2026, Plenary speaker.

ICBS, Beijing, Plenary speaker, Aug 2026

NUS, Singapore, Dec 2025–Jan 2026, Program on the relative Langlands.

NT seminar, Boston College, 2025

Wisconsin special lecture series, Oct 2025

Quebec-Maine NT, Oct 2025, Plenary speaker.

IHES, Ullmo 60th, Sep 2025,

Nisyros, Trace formula, July 2025

June 2025, Distinguished lecture at Morningside center of Math, Beijing.

June 2025, Gu lecture at Shanghai Center of Math, Fudan university, Shanghai.

June 2025, Wenjun lecture, Shanghai Jiaotong university, Shanghai.

Zoom talk, Automorphic Forms and the Bloch–Kato Conjecture, ICTS, TIFR, India, May 2025.

U. Chicago, Theory seminar, May 2025

IAS/Princeton Number Theory seminar, April 2025

Columbia, March 2025

Paderborn Germany, Sep 2024

Faltings 70th, Bonn, July 2024

Higher regulator V, Pisa Italy, June 2024.

Ceresa cycle, ICERM, May 2024.

Zoom Talk at Number theory seminar, Postech Korea, April 2024.

Colloquium, UT Austin, April 2024.

Zoom Talk at Number theory Web, 2023.

Bertolini 60th, Milano, Sep. 2022.

Mini-course in 2022 IHES summer school on Langlands program

Simons Symposium on Periods and L-Values of Motives, Scotland, May 2022.

Distinguished Ordway Lecturer, University of Minnesota, Spring 2022.

Minerva Distinguished Lectures, Princeton University, Spring 2022.

Distinguished Lectures in Algebra and Number Theory, Maryland of Maryland, Dec 2021.

Joint Columbia-CUNY-NYU number theory seminar, 2021

“Theta Series: Representation Theory, Geometry, and Arithmetic”, July 5–9, 2021, the Fields Institute.

May 24–28, 2021, Luminy.

“p-adic L-functions and Euler systems, in honor of Bernadette Perrin-Riou”, CRM, Montreal, September 21–25, 2020, (postponed)

Oberwolfach Workshop–Arithmetic Geometry (July, 2020)

Simons symposia, 2020 (postponed)

Conference on Arithmetic Algebraic Geometry, March 16–20, 2020, Darmstadt (Germany). (postponed)

First JNT Biennial Conference (July 22 - 26, 2019), Cetraro, Italy.

Boston University–Keio University workshop in number theory at BU, June 24 - 28, 2019.

Co-organizer, Special Session on Special Values of L-functions and Arithmetic Invariants in Families, AMS Spring Eastern Sectional Meeting, April 13, 2019.

Luo-Keng Hua distinguished lecture, Tsinghua university, March 25-29, 2019.

Co-organizer, 2019 International Conference on Arithmetic Geometry, Mar. 18 - 22, 2019. In honor of Prof. Michael Rapoport's 71th birthday, Beijing, Morning-side center of Mathematics.

JMM, Baltimore, Jan, 2019

Bonn, Arithmetic algebraic geometry on the occasion of the 70th birthday of Rapoport, Oct 2018

Invited speaker, International Congress of Mathematicians (ICM), Rio de Janeiro, Aug 2018.

Shandong, Conference in honor of Goldfeld 70th, June 18-22, 2018

Shanghai, June 11-14, 2018, co-organizer of Special Session on Number Theory, Joint International Meeting of the Chinese Mathematical Society and the American Mathematical Society.

Mazur 80th birthday conference, June 4-8, 2018, Cambridge

Riemann Hypothesis, June 4-8, 2018, Bristol.

Simons Symposium on Relative trace formula, April 22-28, 2018.

AIM, SQUARE, April 2018

IAS workshop March 2018

ICCM Guangzhou, Dec 2017

AIM workshop Dec, 2017

Monroe H. Martin Lectures, Johns Hopkins University, Fall 2017

Alpbach, July, 2017

The 30th Journées Arithmétiques, July 3-7, 2017, Caen, France.

Arithmetic geometry, June 5-9, 2017, BICMR, Beijing

Co-organizer (with Z. Yun) Arbeitsgemeinschaft: Higher Gross Zagier Formulas, 2 Apr - 8 Apr 2017, Oberwolfach

AIM Dec. 2016,

AIM, SQUARE, March 2017

Plenary speaker, ICCM Beijing Aug. 2016

Luminy May 23-27 2016

AMS Sectional Meeting Invited Addresses, Fall Eastern Sectional Meeting, Nov. 2015.

Oberwolfach, Aug 2012, Aug 2015, April 2017.

SOUTHERN CALIFORNIA NUMBER THEORY DAY, U.C. SAN DIEGO, May 23, 2015

Harvard-MIT “Current Developments in Mathematics”, Nov 2013.

Plenary speaker, International Congress of Chinese Mathematicians (ICCM), Taipei, July 2013

International Colloquium on “Automorphic Representations and L -Functions”, TIFR, Mumbai, India, Jan 2012.

Invited speaker, International Congress of Chinese Mathematicians (ICCM), Beijing, Dec 2010.

Pan Aisa Number Theory Conference, Kyoto, Japan, Sep , 2010.