Wanlin Li

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Education and Employment

Assistant Professor, Vanderbilt University, Nashville, TN, USA, 2025/08-

Assistant Professor, Washington University in St. Louis, St. Louis, MO, USA, 2022/08-2025/08.

Semester Program Postdoc, Mathematical Sciences Research Institute, Berkeley, CA, USA, 2023/1-2023/5.

CRM-ISM Postdoc fellow, Centre de recherches mathématiques, Montreal, QC, Canada, 2021/01-2022/08, Mentors:Chantal David, Andrew Granville, Matilde Lalín.

Course Lecturer, McGill University, Montreal, QC, Canada, 2021/07-2021/12.

Research Scientist, Simons Collaboration on Arithmetic Geometry, Number Theory, and Computation, Massachusetts Institute of Technology, Cambridge, MA, USA, 2019/09-2021/01, Supervisors: Bjorn Poonen, Andrew V. Sutherland

PhD Mathematics, University of Wisconsin–Madison, Madison, WI, USA, August 2019, Advisor: Jordan Ellenberg.

BA Mathematics, Nanjing University, Nanjing, Jiangsu, China, June 2013.

Publications (authors are listed in alphabetical order)

1. "Positive density of primes of ordinary reduction for abelian varieties of simple signature", with V. Cantoral Farfán, E. Mantovan, R. Pries, Y. Tang, preprint. arXiv

2. "On ℓ-torsion in degree ℓ superelliptic Jacobians over $\mathbf{F}_q$", with J. Love, E. Stubley, preprint. arXiv

3. "Non-vanishing of Ceresa and Gross–Kudla–Schoen cycles associated to modular curves", with M. Kerr, C. Qiu, T. Yang, preprint. arXiv

4. "Exceptional biases in counting primes over functions fields ", with A. Bailleul, L. Devin, D. Keliher, J. Lond. Math. Soc. (2) 109 (2024), no. 3, Paper No. e12876, 32 pp. arXiv

5. "On the vanishing of twisted L-functions of elliptic curves over rational function fields ", with A. Comeau-Lapointe, C. David, M. Lalín, Res. Number Theory 8 (2022), no. 4, Paper No. 76, 28 pp. arXiv

6. "The Ceresa class and tropical curves of hyperelliptic type", with D. Corey, Forum Math. Sigma 12 (2024), Paper No. e54. arXiv

7. "On the Northcott property of zeta functions over function fields", with X. Généreux, M. Lalín, Finite Fields Appl. 83 (2022), Paper No. 102080, 27 pp. arXiv

8. "Abelian varieties of prescribed order over finite fields", with R. van Bommel, E. Costa, B. Poonen, and A. Smith, Math. Ann. 392, 1167–1202 (2025), arXiv

9. "Data for Shimura varieties intersecting the Torelli locus", with E. Mantovan, and R. Pries, submitted, arXiv

10. "Doubly isogenous genus-2 curves with $D4$-action", with V. Arul, J. Booher, S. R. Groen, E. W. Howe, V. Matei, R. Pries, and C. Springer, Math. Comp.93(2023), no.345, 347–381. arXiv

11. "Vanishing of Dirichlet L-functions at the central point over function fields", with R. Donepudi, Rocky Mountain J. Math. 51 (2021), no. 5, 1615–1628. arXiv

12. "Surface bundles and the section conjecture", With D. Litt, N. Salter and P. Srinivasan, Math. Ann. 386 (2023), no. 1-2, 877–942. arXiv

13. "The Ceresa class: tropical, topological, and algebraic", with D. Corey and J. Ellenberg, Journal of the Institute of Mathematics of Jussieu (2020): 1-41. arXiv.

14. "Group-theoretic Johnson classes and a non-hyperelliptic curve with torsion Ceresa class", with D. Bisogno, D. Litt, and P. Srinivasan, Épijournal de Géométrie Algébrique Volume 7. arXiv.

15. "Nonvanishing of hyperelliptic zeta functions over finite fields", with J. Ellenberg and M. Shusterman, Algebra & Number Theory 14 (2020), no. 7, 1895–1909, arXiv.

16. "Newton polygon stratification of the Torelli locus in PEL-type Shimura varieties", with E. Mantovan, R. Pries and Y. Tang, Int. Math. Res. Not. IMRN(2022), no. 9, 6464–6511.arXiv.

17. "Ranks, 2-Selmer groups, and Tamagawa numbers of elliptic curves with $\mathbb{Z}/2\mathbb{Z} \times \mathbb{Z}/8\mathbb{Z}$-torsion", with S. Chan and J. Hanselman, Proceedings of the Thirteenth Algorithmic Number Theory Symposium, 173–189, Open Book Ser., 2, Math. Sci. Publ., Berkeley, CA arXiv.

18. "Newton Polygons Arising for Special Families of Cyclic Covers of the Projective Line", with E. Mantovan, R. Pries and Y. Tang, Res. Number Theory 5 (2019), no. 1, arXiv.

19. "Newton polygons of cyclic covers of the projective line branched at three points", with E. Mantovan, R. Pries and Y. Tang, Research Directions in Number Theory: Women in Numbers IV, arXiv.

20. "Effective Bounds on the Dimensions of Jacobians Covering Abelian Varieties", with J. Bruce, Proc. Amer. Math. Soc. 148 (2020), no. 2, 535-551, arXiv.

21. "Vanishing of Hyperelliptic L-functions at the Central Point", J. Number Theory 191 (2018), 85-103, arXiv.

Grant and Award

- CRM-Simons Scholar, 2026

- Principal Investigator, NSF Grant DMS-2411537, Conference: Comparative Prime Number Theory Symposium, 2024

- Principal Investigator, NSF Grant DMS-2302511, The Frobenius action on curves and abelian varieties, 2023 – 2026.

- AWM-NSF Mentoring Travel Grant, 2023

- CRM-ISM postdoctoral fellowship, 2021-2022

- Elizabeth Hirschfelder Prize, UW-Madison, 2018-2019

- Postdoctoral Ambassadorship from the Women and Mathematics Program at the Institute for Advanced Study, 2017-2018

Mentorship

- Mohao Yi, PhD candidate at Vanderbilt University

- Sydney Mayer, Freiwald Scholars Program (WashU undergraduate research)

- Xavier Genereux, CRM-ISM Undergraduate Summer Scholarship program

Upcoming and Recent Presentations

1. AMS Special Session on Algebraic and Arithmetic Dynamics, St. Louis, Oct 2025

2. Arithmetic Dynamics and Diophantine Geometry, NUS Singapore, Aug 2025

3. 2025 Summer Research Institute in Algebraic Geometry, Fort Collins, Jul 2025

4. CMND Thematic Program International conference, Notre Dame, Jun 2025

5. International Research conference, Nanjing University, Jun 2025

6. Number theory seminar, Georgia Tech, Apr 2025

7. Number theory seminar, Cornell University, Mar 2025

8. Pittsburgh Number Theory Day, Nov 2024

9. Number theory seminar, Fields institute, Nov 2024

10. Number theory seminar, University of Washington, Oct 2024

11. Number theory seminar, LSU, Oct 2024

12. VaNTAGe math seminar, Sep 2024

13. Geometry seminar, Texas A&M University, Sep 2024

14. Analytic Number Theory and Arithmetic Statistics, Montreal, Aug 2024

15. Comparative Prime Number Theory Symposium, UBC, Jun 2024

16. Number theory seminar, UGA, Apr 2024

17. Number theory seminar, CUNY, Apr 2024

18. Number theory seminar, UW-Madison, Mar 2024

19. Colloquium, UW-Madison, Mar 2024

20. Algebraic and Arithmetic Geometry seminar, WashU, Feb 2024

21. Number theory seminar, Boston University, Dec 2023

22. Monodromy and Its Applications, Conference on the Occasion of Nicholas Katz' 80th Birthday, Princeton, Dec 2023

23. Number Theory and Combinatorics Seminar, University of Lethbridge, Oct 2023

24. Algebraic and Arithmetic Geometry seminar, WashU, Sep 2023

25. Conference on Modular Forms and Arithmetic Geometry, Darmstadt, Sep 2023

26. Number theory seminar, Caltech, May 2023

27. AMS Special Session on Arithmetic Statistics, Apr 2023

28. OSU Number Theory Seminar series, Apr 2023

29. Auburn Algebra Seminar, Apr 2023

30. UVA Number Theory Seminar, Feb 2023

31. Number Theory Web Seminar, Feb 2023

32. CRG: L-functions in Analytic Number Theory Weekly Seminar Series, Feb 2023

33. Connections Workshop: Diophantine Geometry, MSRI, Feb 2023

34. Simons Collaboration on Arithmetic Geometry, Number Theory & Computation Annual Meeting, Jan 2023

35. AMS Special Session on Arithmetic Geometry Informed by Computation, JMM, Jan 2023

36. AMS Special Session on Arithmetic Statistics, JMM, Jan 2023

37. AIM Special Session on Automorphic Forms and Special Cycles, JMM, Jan 2023

38. Session on Diophantine Arithmetic Geometry and Number Theory, CMS Winter meeting, Nov 2022

39. UBC Number Theory Seminar, Oct 2022

40. Around Frobenius distributions and related topics III, Oct 2022

41. A celebration of analytic number theory, a conference in honor of Andrew Granville, CRM Montreal, Sep 2022

42. Algebraic and Arithmetic Geometry seminar, WashU, Aug 2022

43. Analytic Number Theory @ UCI '22, UC Irvine, Aug 2022

44. AWM Research Symposium, University of Minnesota, Jun 2022

45. Session on Arithmetic statistics, CMS Summer meeting, Jun 2022

46. Anabelian Days Down In Georgia (ADDING), Apr 2022

47. Number theory seminar, Pennsylvania State University, Apr 2022

48. AMS Special Session on Analytic Methods in Arithmetic Statistics, Mar 2022

49. Number theory seminar, Arizona State University, Mar 2022

50. Number theory seminar, University of Utah, Mar 2022

51. Algebra and algebraic geometry seminar, MacMaster University, Mar 2022

52. "Growing up in science" seminar, Bowdoin College, Mar 2022

53. XXIII International Symposium on Mathematical Methods Applied to Science, Number Theory and Cryptography session, Universidad de Costa Rica, Feb 2022

54. Colloquium, Georgia Institute of Technology, Feb 2022

55. Colloquium, Texas A&M University, Feb 2022

56. Colloquium, University of Notre Dame, Jan 2022

57. Colloquium, Concordia University, Jan 2022

58. 3rd Kyoto-Hefei workshop on arithmetic geometry, Dec 2021

59. Colloquium, Johns Hopkins University, Nov 2021

60. Colloquium, Washington University in St. Louis, Nov 2021

61. Number theory seminar, Shandong University, Nov 2021

62. VaNTAGe math seminar, Nov 2021

63. Ottawa/Carleton Number Theory Seminar, Oct 2021

64. Maine-Québec Number Theory Conference, Oct 2021

65. PAlmetto Joint Arithmetic, Modularity, and Analysis Series, Sep 2021

66. Number theory seminar, University of Wisconsin-Madison, Sep 2021

67. Quebec-Vermont Number Theory Seminar, Montreal, Sep 2021

68. Workshop on Arithmetic Statistics Problems, Jul 2021

69. Curves over finite fields: past, present, future, May 2021

70. MOBIUS analytic number theory seminar, Montreal, Mar 2021

71. Session on Arithmetic statistics, CMS Winter meeting, Dec 2020

72. Number theory seminar, University of Arizona, Sep 2020

73. Madison Moduli Weekend, Sep 2020

74. Connecticut Summer School in Number Theory, CTNT online, Jun 2020

75. Arithmetic Geometry is Online in Zoom, Everyone, Mar 2020

76. AMS Special Session on Arithmetic Galois Actions, Denver, Jan 2020

77. AMS Special Session on Rational Points on Algebraic Varieties: Theory and Computation, Denver, Jan 2020

78. Johns Hopkins Junior Number Theory Days, Dec 2019

79. joint NYU-CUNY-Columbia Number Theory Seminar, NYU, Dec 2019

80. Number theory seminar, Boston University, Nov 2019

81. Number theory seminar, University of Georgia, Oct 2019

82. Number theory seminar, Tufts University, Oct 2019

83. Number theory seminar, University of Connecticut, Oct 2019

84. Number theory seminar, MIT, Sept 2019

85. AMS Special Session on Arithmetic of Shimura Varieties, Madison, Sept 2019

86. Arithmetic of Low-Dimensional Abelian Varieties, ICERM, Jun 2019

87. 49th John H. Barrett Memorial Lectures conference, University of Tennessee, May 2019

88. Automorphic Forms and Arithmetic seminar, Columbia University, Apr 2019

89. AMS Special Session on Arithmetic Geometry and its connections, Hawaii, Mar 2019

90. Hawaii Number Theory conference, Hawaii, Mar 2019

91. AMS Special Session on Arithmetic Statistics, Baltimore, Maryland, Jan 2019

92. Quebec-Vermont Number Theory Seminar (QVNTS), Montreal, Quebec, Dec 2018

93. Algebraic Geometry and Number Theory seminar, Rice University, Nov 2018

94. Front Range Algebraic Geometry and Number Theory Seminar, Jul 2018

95. Canadian Number Theory Association Conference (CNTA XIV), Quebec, Aug 2018

96. Connecticut Summer School in Number Theory (CTNT), Jun, 2018

97. Maine-Quebec Number Theory Conference, Oct 2017

Teaching

Teaching at Vanderbilt University

Methods of linear algebra, Fall 2025

Teaching at Washington University in St. Louis

Independent study: Rational points on Elliptic Curves, Spring 2024

Topic course: Primes of the form $x^2 + ny^2$, Spring 2024

Matrix Algebra, Fall 2022, Fall 2023.

Abstract Algebra I, Fall 2022

Calculus II, Fall 2024

Topics in Arithmetic Geometry, Spring 2025

Course Lecturer at McGill university

Linear Algebra and Geometry, Fall 2021.

Teaching assistant at UW-Madison

Algebra and Trigonometry, Fall 2018.

Calculus and Analytic Geometry I, Fall 2017.

Introduction to Discrete Mathematics, Spring 2016.

Techniques in Ordinary Differential Equations, Fall 2015.

Calculus–Functions of Several Variables, Spring 2015, 2019.

Calculus and Analytic Geometry II, Fall 2014, 2016, Spring 2017, 2018.

Service

- Co-organizer for AMS special session on Hodge theory, algebraic cycles, and arithmetic, Oct 2025

- Faculty advisor for AWM student chapter at WashU, 2024-2025

- Program committee for Sixteenth Algorithmic Number Theory Symposium, Jul 2024

- Scientific committee for Comparative Prime Number Theory Symposium, Jun 2024

- Co-organizer for ICERM Ceresa Cycle in Arithmetic and Geometry, May 2024

- Co-organizer for conference "Western Algebraic Geometry Symposium", Nov 2023

- Mini-course on "Elliptic curves with complex multiplication" at Preliminary Arizona Winter School 2023: Elliptic Curves and Abelian Varieties

- Panelist for "Career Development Series", MSRI, Mar 2023

- Co-organizer for algebraic and arithmetic geometry seminar at WashU, 2022-2025

- Co-organizer for étale cohomology learning seminar at WashU, 2022-2023

- Co-organizer for Workshop Arithmetic and topology over Global fields, Oct 2022

- Co-organizer for the MOBIUS analytic number theory seminar, Montreal, 2021-2022

- Co-organizer for CMS Winter Meeting: Arithmetic Statistics Session, Dec 2021

- Co-advisor for CRM-ISM Undergraduate Summer Scholarship program, 2021

- Panelist for MathPath(math camp in the US), July 2021

- Panelist for Women in Mathematics during the time of COVID, CRM, Mar 2021

- Co-organizer for conference: Geometry and Arithmetic of Surfaces, Feb 2019

- Co-organizer for conference: Arithmetic of Algebraic Curves, Apr 2018

- Graduate Program Committee, UW-Madison, 2015-2018

- Math Girls Night Out, UW-Madison, Fall 2015

- Directed Reading Program, UW-Madison, Fall 2016, Spring 2017