

# Curriculum Vitae

Xian-Jin Li

Department of Mathematics  
Brigham Young University  
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## Education

Ph.D., May 1993, Purdue University, August 1986–May 1993.  
M.S., August 1985, Chinese Academy of Sciences, Beijing, Sept 1982–July 1986.  
B.S., July 1982, Hunan Normal University, China, October 1978–July 1982.

## Professional experience

Professor, Brigham Young University, September 2010–  
Associate Professor, Brigham Young University, September 2005–Aug 2010.  
Assistant Professor, Brigham Young University, Sept 2001–Aug 2005.  
Visiting Assistant Professor, Brigham Young University, Sept 1999–Aug 2001.  
Lecturer, University of Texas at Austin, September 1996–July 1998.  
Visiting Assistant Professor, Purdue University, August 1995–May 1996.  
Postdoctoral Fellow, McMaster University, September 1993–August 1995.

## Fellowships

AIM Postdoctoral Fellowship, American Institute of Mathematics,  
Palo Alto, California, September 1998–August 1999.  
David Ross Fellowship, Purdue University, June 1988–May 1990.

## Refereed publications

37. *A Hilbert-Schmidt integral operator and the Weil distribution*,  
Sci. China Math. 66 (2023), no. 1, 91–114.
36. *Eigenvalues of a differential operator and zeros of the zeta function*,  
Anal. Theory and Appl. 36 (2020), no. 3, 283–294 (with L.Ge, D.Wu, and B.Xue).
35. *On spectral theory of the Riemann zeta function*,  
Sci. China Math. 62 (2019), no. 11, 2317–2330.
34. *An orthogonal projection related to the Riemann zeta-function*,  
J. Math. Anal. Appl. 446 (2017), no. 2, 1310–1327.
33. *On the explicit formula related to Riemann's zeta-function*,  
Int. J. Number Theory 11 (2015), no. 8, 2451–2486.
32. *On Weil's explicit formula*,  
Sci. China Math. 58 (2015), no. 5, 915–982.
31. *On Connes' trace formula for the Hankel transformation of order  $-1/2$* ,  
Sci. China Math. 55 (2012), no. 10, 2125–2146.

30. *Prolate spheroidal wave functions, Sonine spaces, and the Riemann zeta function*,  
J. Math. Anal. Appl. 389 (2012), 379–393.
29. *On the explicit formula in the theory of prime numbers*,  
International Journal of Number Theory 8 (2012), 589–597.
28. *A spectral interpretation for the explicit formula in the theory of prime numbers*,  
Sci. China Math. 53 (2010), 791–812.
27. *A generalization of A. Connes’ trace formula*,  
J. Number Theory 130 (2010), 386–430.
26. *An adelic Hankel summation formula*,  
J. Number Theory 130 (2010), 738–766.
25. *On the Euler product of some zeta functions*,  
Combinatorial Number Theory, de Gruyter, 2009, 77–99.
24. *On Euler’s product of Dedekind zeta function*,  
Intern. J. Number Theory 5 (2009), 293–301.
23. *A transformation of Hankel type on the field of  $p$ -adic numbers*,  
JP J. Algebra, Number Theory and Appl. 12 (2008), 205–229.
22. *On exceptional eigenvalues of the Laplacian for  $\Gamma_0(N)$* ,  
Proc. Amer. Math. Soc. 136 (2008), 1945–1953.
21. *An explicit formula for Hecke  $L$ -functions*,  
Integers: Electronic J. Comb. Number Theory 8(2) (2008), #A8.
20. *On the Hankel transformation of order zero*,  
J. Math. Anal. Appl. 335 (2007), 935–940.
19. *An arithmetic formula for certain coefficients of the Euler product of Hecke polynomials*,  
J. Number Theory 113 (2005), 175–200.
18. *A note on weighted Hilbert’s inequality*,  
Proc. Amer. Math. Soc. 133 (2005), 1165–1173.
17. *On the trace of Hecke operators for Maass forms for congruence subgroups II*,  
Forum Math. 17 (2005), 1–30.
16. *Explicit formulas for Dirichlet and Hecke  $L$ -functions*,  
Illinois J. Math. 48 (2004), 491–503.
15. *An explicit formula for finite Hilbert transforms associated with a polynomial*,  
Indiana Univ. Math. J. 53 (2004), 185–203.
14. (with D. Cardon) *A Dirichlet series related to eigenvalues of the Laplacian for congruence subgroups*,  
Number Theory for the Millennium I, A K Peters, 2002, 153–181.
13. *A formula for the Dedekind  $\xi$ -Function of an imaginary quadratic field*,  
J. Math. Anal. Appl. 260 (2001), 404–420.
12. (with B. Conrey) *On the trace of Hecke operators for Maass forms for congruence subgroups*,  
Forum Math. 13 (2001), 447–484.
11. (with B. Conrey) *A note on some positivity conditions related to zeta and  $L$ -functions*,  
Intern. Math. Research Notices No. 18 (2000), 929–940.
10. *On zeros of defining functions for some Hilbert spaces of polynomials*,

- Operator Theory and Interpolation, Edited by C. Foias and H. Bercovici,  
Birkhäuser-Verlag, 2000, 235–243.
9. *On the trace of Hecke operators for Maass forms*, Number Theory,  
Edited by R. Gupta and K. Williams, Amer. Math. Soc., 1999, 215–230.
  8. (with J. Vaaler) *Some trigonometric extremal functions and the  
Erdős-Turán type inequalities*, Indiana Univ. Math. J. 48 (1999), 183–236.
  7. *The positivity of a sequence of numbers and the Riemann hypothesis*,  
J. Number Theory, 65 (1997), 325–333.
  6. *On reproducing kernel Hilbert spaces of polynomials*,  
Math. Nachr. 185 (1997), 115–148.
  5. *On the poles of Rankin-Selberg convolutions of modular forms*,  
Trans. Amer. Math. Soc. 348 (1996), 1213–1234.
  4. *A note on the Riemann-Roch theorem for function fields*,  
Analytic Number Theory, Edited by Berndt, Diamond and Hildebrand,  
Vol. 2, Birkhäuser-Verlag 1996, 567–570.
  3. *The Riemann hypothesis for polynomials orthogonal on the unit circle*,  
Math. Nachr., 166 (1994), 229–258.
  2. *Hilbert spaces of entire functions and orthogonal polynomials*,  
Methods and Appl. Analysis, 1 (1994), 25–43.
  1. *A proof of Hayman's conjecture on normal families of meromorphic functions*,  
Sci. Sinica, 28 (1985), 596–603.

## Teaching experience

Brigham Young University, 1999 - present

Fall 2022 Math 314-1&3 - Calculus of Several Variables

Spring 2022 Math 570-1 - Matrix Analysis

Math 314-1 - Calculus of Several Variables

Fall 2021 Math 314-4&5 - Calculus of Several Variables

Spring 2021 Math 532-1 - Complex Analysis (New book)

Math 314-1 - Calculus of Several Variables

Fall 2020 Math 314-4 - Calculus of Several Variables

Math 586-1 Intro Algebraic Number Theory (New Course)

Math 799R-1 - Doctoral Dissertation

Spring 2020 Math 314-1 - Calculus of Several Variables

Math 570-1 - Matrix Analysis (New Course)

Math 799R-1 - Doctoral Dissertation

Fall 2019 Math 314-4 & 8 - Calculus of Several Variables

Math 799R-1 - Doctoral Dissertation

Spring 2019 Math 314-2 - Calculus of Several Variables

Math 532-1 - Complex Analysis

Math 799R-1 - Doctoral Dissertation

Fall 2018 Math 695R-1 & 2 - Readings in Math

Spring 2018 Math 314-1 - Calculus of Several Variables  
                     Math 532-1 - Complex Analysis  
 Winter 2018 Math 695R-1 & 2 - Readings in Math  
 Fall 2017 Math 313-9 - Elementary Linear Algebra  
                     Math 641-1 - Functions of a Real Variable  
 Spring 2017 Math 314-2 - Calculus of Several Variables  
                     Math 352-1 - Into to Complex Analysis  
 Fall 2016 Math 314-3 - Calculus of Several Variables  
                     Math 587-1 - Intro to Analytic Number Theory  
 Spring 2016 Math 314-1 & 2 - Calculus of Several Variables  
 Fall 2015 Math 112-26 - Calculus 1  
                     Math 487-1 - Number Theory  
 Spring 2015 Math Math 371-1 - Abstract Algebra 1  
                     Math 532-1 - Complex Analysis  
 Fall 2014 Math 641-1 - Functions of a Real Variable  
                     Math 352-1 - Into to Complex Analysis  
 Spring 2014 Math 313-1 - Elementary Linear Algebra  
                     Math 532-1 - Complex Analysis  
 Spring 2013 Math 313-1 - Elementary Linear Algebra  
                     Math 532-1 - Complex Analysis  
 Winter 2013 Math 313-2 - Elementary Linear Algebra  
                     Math 313-6 - Elementary Linear Algebra  
 Winter 2012 Math 540 - Linear Analysis  
                     Math 313 - Elementary Linear Algebra  
 Fall 2011 Math 313-2 - Elementary Linear Algebra  
                     Math 313-11 - Elementary Linear Algebra  
 Spring 2011 Math 532 - Complex Analysis  
                     Math 371 - Abstract Algebra  
 Summer 2010: Math 532 - Complex Analysis.  
 Winter 2010: Math 532 - Complex Analysis,  
                     Math 290 - Fundamentals of Mathematics.  
 Winter 2009: Math 315 - Theory of Analysis,  
                     Math 542 - Real Analysis.  
 Summer 2008: Math 371 - Abstract Algebra.  
 Winter 2008: Math 315 - Theory of Analysis,  
                     Math 542 - Real Analysis.  
 Spring 2007: Math 532 - Complex Analysis,  
                     Math 343 - Elementary Linear Algebra.  
 Winter 2006: Math 214 - Calculus of Several Variables,  
                     Math 343 - Elementary Linear Algebra.  
 Fall 2005: Math 343 - Elementary Linear Algebra,  
                     Math 687R - Topics in Analytic Number Theory.

Winter 2005: Math 343 - Elementary Linear Algebra (two sections).

Fall 2004: Math 343 - Elementary Linear Algebra (two sections).

Winter 2004: Math 334 - Ordinary Differential Equations,  
Math 687R - Topics in Analytic Number Theory.

Fall 2003: Math 334 - Ordinary Differential Equations,  
Math 587 - Introduction to Analytic Number Theory.

Winter 2003: Math 343 - Elementary Linear Algebra,  
Math 532 - Complex Analysis.

Fall 2002: Math 332 - Introduction to Complex Analysis,  
Math 334 - Ordinary Differential Equations.

Winter 2002: Math 343 - Elementary Linear Algebra (two sections).

Fall 2001: Math 112 - Calculus 1 (two sections).

Winter 2001: Math 343 - Elementary Linear Algebra,  
Math 632 - Complex Analysis.

Fall 2000: Math 343 - Elementary Linear Algebra,  
Math 631 - Complex Analysis.

Winter 2000: Math 119 - Introduction to Calculus (179 students),  
Math 112 - Calculus 1.

Fall 1999: Math 112 - Calculus 1 (two sections).

The University of Texas at Austin, 1996-1998

Summer 1998: Introduction to Mathematics (82 students).

Spring 1998: Calculus I for Business and Economics (126 students),  
Introduction to Number Theory.

Fall 1997: Calculus II for Business and Economics (134 students),  
Discrete and Combinatorial Mathematics.

Summer 1997: Precalculus.

Spring 1997: Calculus I for Business and Economics (120 students),  
Introduction to Real Analysis.

Fall 1996: Calculus I for Business and Economics (119 students), Integral Calculus.

Purdue University, 1995-1996

Fall 1995-Spring 1996: Intro. Differential Equations and Linear Algebra (4 sections).

McMaster University, 1993-1995

Fall 1994: Engineering Mathematics, and Integration and Measure Theory.

Fall 1993-Spring 1994: Real Analysis (an one-year course).

## Conferences

48. Invited to attend the Conference of Celebrating the Establishment of  
Institute of Mathematics, Academia Sinica, Beijing, China on the occasion  
of its 70th birthday, December 31, 2022.

47. Colloquia at Academy of Mathematics and Systems Science,  
Chinese Academy of Science, Beijing, China, June 25, 2018.

- “Defects of Poisson’s formula and zeros of Riemann’s zeta function.”
- 46. Workshop on Number Theory,  
Math Institute, Chinese Academy of Science, Beijing, China, June 27-July 5, 2018  
“On spectral theory of the Riemann zeta function.”
- 45. Workshop on Number Theory,  
Math Institute, Chinese Academy of Science, Beijing, China, July 2015  
“Fourier analysis over local fields.”
- 44. The tenth annual Workshop on Combinatorial and Additive Number Theory,  
CUNY Graduate Center, Manhattan, New York, May 22-25, 2012,  
“On the Hilbert inequality.”
- 43. Math Dept Colloquium, Queens University, Kingston,  
Ontario, Canada, April 19, 2012,  
“On the explicit formula in the theory of prime numbers.”
- 42. Math Dept Colloquium, Utah Valley University, April 13, 2012,  
“Riemann zeta-function and the explicit formula.”
- 41. Institute Colloquium, Institute of Mathematics, Academy of Math and System  
Science, Beijing, China, July 6, 2011,  
“On the explicit formula in the theory of prime numbers.”
- 40. 24th Automorphic Forms Workshop,  
University of Hawaii at Manoa, Honolulu, March 22-26, 2010,  
“An adelic Hankel summation formula.”
- 39. International Conference on Complex Analysis and Related Topics,  
Chinese Academy of Sciences, Beijing, August 20-23, 2009,  
“A generalization of A. Connes’ trace formula.”
- 38. Hunan Normal University, Changsha,  
Mathematics Department Colloquium, August 10, 2009,  
“An adelic Hankel summation formula.”
- 37. University of New Hampshire, Durham,  
Mathematics Department Colloquium, June 20, 2008,  
“On Artin’s  $L$ -functions.”
- 36. 22nd Annual Workshop on Automorphic Forms and Related Topics,  
Texas A&M University, College Station, TX, March 8-11, 2008,  
“A transformation of Hankel type on the field of  $p$ -adic numbers.”
- 35. West Coast Number Theory Conference,  
Pacific Grove, California, December 16-20, 2007,  
“On the convergence of Euler’s product for some zeta functions.”
- 34. Integers Conference, University of West Georgia,  
Carrollton, Georgia, October 24-27, 2007,  
“On the convergence of Euler’s product for Hecke zeta functions.”
- 33. The 21st Annual Workshop on Automorphic Forms and Related Topics,  
University of California, Santa Barbara, March 24-27, 2007,  
“On exceptional eigenvalues of the Laplacian for  $\Gamma_0(N)$ .”

32. Special Session on Number Theory of AMS Meetings,  
University of Utah, Salt Lake City, Utah, October 7-8, 2006,  
“A problem on zeros of L-series of elliptic curves.”
31. Chinese Academy of Sciences, Beijing,  
The Morningside Center of Mathematics, May 31, 2006,  
“On zeros of the Riemann zeta function.”
30. Combinatorial and Additive Number Theory,  
City University of New York, Graduate Center, New York, May 18-21, 2005,  
“On weighted Hilbert’s inequality.”
29. The 18th Annual Workshop on Automorphic Forms and Related Topics,  
University of California at Santa Barbara, March 21-24, 2004,  
“An explicit formula for the Euler product of Hecke polynomials.”
28. West Coast Number Theory Conference,  
Pacific Grove, California, December 17-21, 2003,  
“An explicit formula for Euler product of Hecke polynomials.”
27. The 17th Annual Workshop on Automorphic Forms and Related Topics,  
University of Colorado, Boulder, March 26-29, 2003,  
“Explicit formulas for Dirichlet L-functions and Hecke L-functions.”
26. AMS Conference in Salt Lake City, Utah, October 26-27, 2002,  
Special Session on Analytic Number Theory,  
“On the weighted Hilbert inequality.”
25. The 16th Annual Workshop on Automorphic Forms and Related Topics,  
University of California Los Angeles, March 23-28, 2002,  
“On the trace of Hecke operators for Maass forms for congruence subgroups II.”
24. West Coast Number Theory Conference,  
Pacific Grove, California, December 16-20, 2001,  
“On the Dedekind  $\xi$ -function for imaginary quadratic fields.”
23. Louisiana State University, Baton Rouge, Louisiana,  
Mathematics Department Colloquium, February 1, 2001,  
“On zeros of the Riemann zeta function.”
22. University of Georgia, Athens, Georgia,  
Mathematics Department Colloquium, January 23, 2001,  
“On zeros of the Riemann zeta function.”
21. AMS Conference in Birmingham, Alabama, November 10-12, 2000,  
Special Session on Relations between Spectral Theory and Number Theory,  
“Spectral theory of the Laplacian for the modular group.”
20. Millennial Conference on Number Theory,  
University of Illinois at Urbana-Champaign, May 21-26, 2000,  
“On exceptional eigenvalues of the Laplacian for congruence subgroups.”
19. The 14th Annual Workshop on Automorphic Forms and Related Topics,  
University of Colorado, Boulder, March 25-29, 2000,  
“On the trace of Hecke operators for Maass forms for congruence subgroups.”

18. University of California Santa Barbara, California, March 3, 2000,  
Arithmetic and Number Theory Seminar,  
“A Dirichlet series related to eigenvalues of the Laplacian for  $\Gamma_0(N)$ .”
17. University of New Hampshire, Durham, New Hampshire,  
Mathematics Department Colloquium, February 22, 2000,  
“The positivity of a sequence of numbers and the Riemann hypothesis.”
16. Stanford University, California, May 17, 1999,  
Stanford Number Theory Seminar,  
“On the trace of Hecke operators for Maass forms for congruence subgroups.”
15. University of California Berkeley, Berkeley, April 13, 1999,  
Analysis Seminar,  
“Reproducing kernel Hilbert spaces and trigonometric extremal functions.”
14. Joint Mathematics Meetings, San Antonio, Texas, January, 1999,  
Special Session on Dynamical, Spectral and Arithmetic Zeta-Functions,  
“A residue scalar product for algebraic function fields over number fields.”
13. Arizona State University, Tempe, Arizona,  
Mathematics Department Colloquium, January 27, 1999,  
“On the trace of Hecke operators for Maass forms.”
12. University of California Riverside, California,  
Mathematics Department Colloquium, December 2, 1998,  
“A positivity condition and zeros of the Riemann zeta function.”
11. Northwestern University, Evanston, Illinois, October, 1997,  
Analysis Seminar,  
“Some extremal functions in Fourier analysis.”
10. Wabash Extramural Modern Analysis Miniconference,  
Indiana University-Purdue University, Indianapolis, September, 1997,  
“Reproducing kernel Hilbert spaces and trigonometric extremal functions.”
9. The Fifth Canadian Number Theory Association Conference,  
Ottawa, Canada, August 1996,  
“On the trace of Hecke operators for Maass forms.”
8. International Workshop in Operator Theory and Applications,  
Bloomington, Indiana, June 1996,  
“Hilbert spaces of orthogonal polynomials and positivity conditions.”
7. Northwestern University, Evanston, April, 1996,  
Analysis Seminar,  
“The positivity of a sequence of numbers and the Riemann hypothesis.”
6. AMS Conference in Greensboro, North Carolina, November, 1995,  
Special Session on Number Theory and Related Topics,  
“On the trace of Hecke operators for Maass forms.”
5. International Conference on Analytic Number Theory,  
Allerton Park, University of Illinois, May, 1995,  
“A Fourier analysis proof of the Riemann-Roch theorem for function fields.”



4. Michigan State University, East Lansing, April 10, 1995,  
Harmonic Analysis Seminar,  
“A Fourier analysis proof of the Riemann-Roch theorem for function fields.”
3. International Workshop in Operator Theory and Applications,  
Winnipeg, Manitoba, October, 1994,  
“Reproducing kernel Hilbert spaces of orthogonal polynomials.”
2. University of South Florida, Tampa, Florida,  
Mathematics Department Colloquium, March, 1993,  
“Hilbert spaces of entire functions and orthogonal polynomials.”
1. Joint Mathematics Meetings, San Antonio, Texas, January, 1993,  
Special Session on Modular Forms and Related Topics,  
“On poles of Rankin-Selberg convolutions of modular forms and  
zeros of the Riemann zeta function.”

### Professional service

Refereed papers for:

Acta Arithmetica, Acta Scientiarum Mathematicarum,  
American Journal of Mathematics, American Mathematical Monthly,  
Annals of Mathematics, Canadian Mathematical Bulletin,  
Constructive Approximation, Experimental Mathematics,  
International Journal of Number Theory,  
Journal of Approximation Theory, Journal of Number Theory,  
Journal of Mathematical Analysis and Applications,  
Journal für die Reine und Angewandte Mathematik,  
Letters in Mathematical Physics, Proceedings of the American  
Mathematical Society, and Ramanujan Journal,  
SIAM Journal of Mathematical Analysis,  
Science China Mathematics, Acta Math. Sinica,  
European Journal of Mathematics, Advances in Pure Mathematics,  
Journal de Theorie des Nombres de Bordeaux, Manuscripta Mathematica,  
Mathematische Nachrichten, Selecta Mathematica,  
Finite Fields and Their Applications, Proceedings of the Japan Academy,  
Philosophical Transactions of the Royal Society, Research in Number Theory.

### Miscellaneous

Citizenship: United States of America.