Junxian Li

CONTACT INFORMATION

Universität Bonn
Mathematisches Institut
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RESEARCH INTERESTS

L-functions, Primes, Exponential sums, Additive Combinatorics
Automorphic Forms

EMPLOYMENT

Universität Bonn — Sept 2021–
Mentor: Valentin Blomer

Max Planck Institute for Mathematics — Sept 2019–Aug 2021

Georg-August Universität Göttingen — Sept 2018–Aug 2019

EDUCATION

University of Illinois at Urbana-Champaign — Sept 2013–Aug 2018
Ph.D. in Mathematics
Advisor: Alexandru Zaharescu

Nanjing University — Sept 2009–Aug 2013
B. A. in Mathematics

PUBLICATIONS

1. Zeros of a family of approximations of Hecke L-functions associated with cusp forms (with A. Roy and A. Zaharescu), *Ramanujan J.* 41(1-3): 391–419, 2016.

2. Smooth L^2 distances and zeros of approximations of Dedekind zeta functions (with M. Nastasescu, A. Roy, and A. Zaharescu), *Manuscripta Math.* 154(1-2): 195–223, 2017.

3. A lower bound for the least prime in an arithmetic progression (with K. Pratt and G. Shakan), *Q. J. Math.*, 68(3): 729–758, 2017.

4. Exact evaluation of second moments associated with some families of curves over a finite field (with R. Donepudi and A. Zaharescu), *Finite Fields Appl.* 48: 331–355, 2017.

5. On distinct consecutive r-differences (with G. Shakan), *J. Number Theory* 199: 363–376, 2019.

6. A local Benford Law for a class of arithmetic sequences (with Z. Cai and A. J. Hildebrand), *Int. J. Number Theory* 15(3): 613–638, 2019.

7. Value distribution of $L'(\rho)$ (with A. Zaharescu), *J. Math. Anal. Appl.* 480(1): 123400, 24 pp, 2019.

8. Leading Digits of Mersenne Numbers (with Z. Cai, M Faust, A. J. Hildebrand, and Y. Zhang), *Exp. Math.* 1-17, 2019.

9. Almost Beatty Partitions (with A. J. Hildebrand, X. Li, and Y. Xie), *J. Integer Seq.* 22(4): Art. 19.4.6, 34 pp, 2019.

10. The final problem: an identity from Ramanujan's lost notebook (with B. Berndt and A. Zaharescu), *J. Lond. Math. Soc.* 100(2): 568–591, 2019.

11. A binary quadratic Titchmarsh divisor problem *Acta Arithmetica* 192(4): 341–361, 2020.

12. Ducci iterates and similar ordering on sets of visible points (with A. Tamazyan and A. Zaharescu), *Int. J. Number Theory* 16(1): 1–28, 2020.

13. The surprising accuracy of Benford's law in mathematics (with Z. Cai, M. Faust, A. J. Hildebrand and Y. Zhang), *Amer. Math. Monthly* 127(3): 217–237, 2020.

14. Large values of Dirichlet L-functions at zeros of a class of L-functions *Canad. J. Math. to appear.*

15. Lower bounds for discrete negative moments of the Riemann zeta function (with W. Heap and J. Zhao), *Algebra Number Theory to appear.*

16. Uniform Titchmarsh divisor problems (with E. Assing and V. Blomer), *Adv. Math. to appear.*

17. Joint value distribution of L-functions on the critical line (with S. Inoue), arXiv:2102.12724.

Conference Proceedings

1. On primes in arithmetic progressions Automorphic forms and related topics, 165–167, *Contemp. Math.* 732, Amer. Math. Soc., Providence, RI, 2019

2. The Final Problem: A Series Identity from the Lost Notebook (with B. C. Bruce and A. Zaharescu), *George E. Andrews 80 Years of Combinatory Analysis*, K. Alladi, B. C. Berndt, P. Paule, J. Sellers, and A. J. Yee, eds., Birkhäuser, 783–790, 2021.

Honors and Awards

The Paul R. Halmos-Lester R. Ford Award — 2021
for outstanding expository papers in The American Mathematical Monthly

Bateman Fellowship — Spring 2018
for excellence in Number Theory

On the List of Teachers Ranked as Excellent by their Students — Fall 2017

Teaching Experience

Math 415 Linear Algebra, Instructor	UIUC, Fall 2017
Math 415 Linear Algebra, Instructor	UIUC, Spring 2017
Math 231 Calculus II, Instructor	UIUC, Spring 2016
Math 241 Calculus III, Instructor	UIUC, Fall 2016
Math 241 Calculus III, Instructor	UIUC, Spring 2015

Undergraduate Mentoring

❑ Illinois Geometry Lab Graduate Student Mentor

• Almost Beatty Partitions	Fall 2018
• Beatty sequences, and Partitions of the Integers	Spring 2018
• Chaotic maps and exotic number systems	Fall 2017
• Finding integers in group orbits	Spring 2017
• Local Benford's Law	Fall 2016
• Leading digit distribution	Spring 2016
• Random Walk in number theory	Fall 2015
• Fractals, Patterns and Randomness in Number Theory	Spring 2015
• Fourier Series with Number theoretic coefficients	Fall 2014

- Symmetry in Nature — Spring 2014

Professional Services

- ❑ Organizer of AMS Special Session at the Joint Mathematics Metting — 2019
  - Number Theoretic Methods in Hyperbolic Geometry
- ❑ Organizer of Graduate Student Number Theory Seminar in UIUC — 2016–2018
- ❑ Referee:
  - Ramanujan J.
  - J. Number Theory
  - Math. Reports
  - Rev. Roumaine Math. Pures Appl.
  - J. Math. Sci. Adv. Appl.

Conferences and Seminar Talks

- ❑ Joint Value distribution of L-functions
  Qilu Youth Forum, SDU (online). — Sept 2021
- ❑ Joint Value distribution of L-functions
  Number theory lunch seminar, MPIM (online). — Sept 2021
- ❑ Uniform Titchmarsh Divisor Problems
  Number theory Seminar, SDU (online). — May 2021
- ❑ Uniform Titchmarsh Divisor Problems
  PIMS-Lethbridge Number Theory Seminar, Lethbridge (online). — Mar 2021
- ❑ Uniform Titchmarsh Divisor Problems
  Japan Europe Number Theory Exchange Seminar. — Jan 2021
- ❑ Joint Value Distribution of L-functions.
  Oberseminar Analytic Number Theory, Bonn (online). — Nov 2020
- ❑ Derivative of the Riemann zeta function at its zeros.
  Analytic Number Theory Meeting, IHP (online). — Jun 2020
- ❑ Extreme values of L-functions
  Number theory lunch seminar, MPIM. — Oct 2019
- ❑ Extreme values of L-functions
  Oberseminar analytic number theory, Georg-August Universität Göttingen. — Nov 2018
- ❑ The Unreasonable Effectiveness of Benford's Law in Mathematics
  Joint with A. J. Hildebrand, Number Theory Seminar, UIUC. — Apr 2018
- ❑ Primes in arithmetic progressions
  Junior Mathematics Colloquium, Georg-August Universität Göttingen. — Dec 2017
- ❑ Randomness in Number Theory
  Graduate Student Colloquium, UIUC. — Nov 2017
- ❑ Primes in arithmetic progressions
  Where Geometry meets Number Theory, a conference in honor of
  the 60th birthday of Per Salberger, Gothenburg. — July 2017
- ❑ The least prime in an arithmetic progression
  Joint Mathematics Meeting, Atlanta. — Jan 2017
- ❑ On the least prime in an arithmetic progression
  Number Theory Seminar, UIUC. — Sept 2016
- ❑ A lower bound on the least prime in an arithemetic progression,
  Workshop on Automorphic Forms and Related Topics, Sarajevo . — Jul 2016
- ❑ Approximations of L-functions
  2015 Midwest Number Theory Conference for Graduate Students
  and Recent Ph. D's. — Oct 2015
- ❑ Approximations of L-functions
  Graduate Student Number Theory Seminar, UIUC. — Nov 2015
- ❑ Bailey Pairs and Bailey chains
  q-series Seminar, UIUC. — Apr 2015
- ❑ Basic Hypergoemetric functions

q-series Seminar, UIUC. Mar 2015

Research Experience

- ❑ Zeta functions, CIRM Dec 2019
- ❑ Second Symposium on Analytic Number Theory, Cetraro July 2019
- ❑ Rational points on irrational varieties, IHP June 2019
- ❑ L-functions and Multiplicative Number Theory, U of Mississippi May 2019
- ❑ Distribution of values of zeta functions and L-functions, RIKEN Mar 2019
- ❑ Workshop and Winter School on Local Statistics of Point Sequences, Linz Feb 2019
- ❑ Building Bridges: 4th EU/US Summer School and Workshop on Automorphic Forms and Related Topics July 2018
- ❑ Hausdorff School: L-functions: Open Problems and Current Methods June 2018
- ❑ MRC: Number Theoretic Methods in Hyperbolic Geometry June 2018
- ❑ Probability in Number Theory May 2018
- ❑ Arbeitsgemeinschaft in Oberwolfach Oct 2017
- ❑ MSRI Summer Graduate School on Automorphic Forms and the Langlands Program Aug 2017
- ❑ PCMI Graduate Summer School on random matrices June 2017
- ❑ University of Houston Summer School on Dynamical Systems May 2017
- ❑ MSRI: Analytic Number Theory Jan, May 2017
- ❑ West Coast Algebraic Topology Summer School Aug 2016
- ❑ Building Bridges: 3rd EU/US Summer School and workshop on Automorphic Forms July 2016
- ❑ UNCG Summer School in Computational Number Theory June 2016
- ❑ Houston Summer School on Dynamical Systems May 2016
- ❑ UNCG Summer School in Computational Number Theory May 2015
- ❑ Exchange in University of Wisconsin-Madison Fall 2012

Outreach Activities

- ❑ Four Color Fest Nov 1-4 2017
- ❑ A Math Carnival at Illinois-Gathering for Gardener Jan 28 2017
- ❑ Science at the Market Aug 2013

Skills

Programming: C++, Mathematica, Matlab, Python
Languages: Chinese, English