Junxian Li

CONTACT INFORMATION

Mathematisches Institut
Max Planck Institute
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RESEARCH INTERESTS

L-functions, Primes, Exponential Sums,
Additive Combinatorics, Algebraic Curves,

EMPLOYMENT

Max Planck Institute for Mathematics
Postdoc, Sep 2019–

Georg-August Universität Göttingen
Postdoc, Sep 2018–Aug 2019

EDUCATION

University of Illinois at Urbana-Champaign

Ph.D. in Mathematics, August 2018

Advisor: Alexandru Zaharescu

Nanjing University

B.A. in Mathematics, May 2013

PUBLICATIONS

Uniform Titchmarsh divisor problems(with E. Assing and V. Blomer), arXiv:2005.13915.

Lower bounds for discrete negative moments of the Riemann zeta function(with W. Heap and J. Zhao), arXiv:2003.09368.

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

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

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

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.

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

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

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.

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

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.

Leading Digits of Mersenne Numbers (with Z. Cai, M Faust, A.J. Hildebrand, and Y. Zhang), Exp. Math. to appear, arXiv:1712.04425.

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

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.

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.

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.

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.

Honors and Awards

Bateman Fellowship in Number Theory — *Spring 2018*

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 and Membership

❑ *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:

- Math. Reports
- Rev. Roumaine Math. Pures Appl.

- J. Math. Sci. Adv. Appl.

❑ Membership: American Mathematical Society

Conferences and Seminar Talks

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. *April 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. *Sep 2016*

A lower bound on the least prime in an arithemetic progression,
Workshop on Automorphic Forms and Related Topics, Sarajevo . *July 2016*

Approximations of L-functions
2015 Midwest Number Theory Conference for Graduate Students and Recent PhD's. *Oct 2015*

Approximations of L-functions
Graduate Student Number Theory Seminar, UIUC. *Nov 2015*

Bailey Pairs and Bailey chains
q series Seminar, UIUC. *April 2015*

Basic Hypergoemetric functions
q series Seminar, UIUC. *March 2015*

Research Experience

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	March 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	*August 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	*August 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	*January 28 2017*
❑ Science at the Market	*August 2013*

Skills

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