CONTACT INFORMATION

Institute of Mathematical Sciences
ShanghaiTech University
School of Creativity and Arts
No.393 Middle Huaxia Road,
Pudong New District, Shanghai

Email: duanlian@shanghaitech.edu.cn
l.duanzwz@gmail.com
Personal page:
https://lianduan1728.github.io/
Office: 419

EMPLOYMENT

ShanghaiTech University, Shanghai, China *August 2022 - present*
Assistant professor

Colorado State University, Fort Collins, CO, USA *September 2019 - August 2022*
Rocky Mountain Postdoc fellow
Supervisor: Jeff Achter, Rachel Pries

EDUCATION

University of Massachusetts Amherst, MA, USA *September 2013 - July 2019*
Ph.D., Mathematics
Advisor: Siman Wong

MSRI, Berkeley, CA, USA *July 2017 - August 2017*
Program Associate

Sichuan University, Sichuan, China *September 2009 - May 2013*
M.S., Mathematics
Advisor: Guohua Peng

Sichuan University, Sichuan, China *September 2005 - May 2009*
B.S. in Mathematics

RESEARCH INTERESTS

Arithmetic Geometry, Number Theory, Galois Representation, Algebraic Geometry (over finite fields) and the computational aspects of the above.

PUBLICATIONS

1. *On the essential torsion finiteness of abelian varieties over torsion fields*
(with Jeff Achter and Xiyuan Wang)
Accepted, to be published in Nagoya Mathematical Journal. [arXiv]

2. *Irreducibility of geometric Galois representations and the Tate conjecture for a family of elliptic surfaces*
(with Xiyuan Wang).
Mathematical Research Letters, Volume 28, Number 5, 1353–1378, 2021 [DOI, arXiv]

3. *Generalizations of Alladi's formula for arithmetical semigroups*
(with Ning Ma and Shaoyun Yi).
The Ramanujan Journal (2022). [DOI, arXiv]

4. *Analogues of Alladi's formula over global function fields*
(with Biao Wang and Shaoyun Yi).
Finite Fields and Their Applications, 74 (2021). [DOI, arXiv]

5. *Faltings Serre method on three dimensional selfdual representations*
Mathematics of Computation, 90 (2021), no. 328, 931–951. [DOI, arXiv]

6. *Transverse lines to surfaces over finite fields*
(with Shamil Asgarli and Kuan-Wen Lai).
manuscripta mathematica, 165 (2021), no. 1-2, 135–157. [DOI, arXiv]

7. *Galois action on the Néron-Severi group of Dwork surfaces*
   Journal of Number Theory, 210 (2020), 389–415. [DOI, arXiv]

8. *Some results on non congruent numbers*
   (with Guohua Peng).
   Journal of Sichuan University (Natural Science Edition)2015,52(4),741-747.

Preprints

1. *Frobenius nonclassical hypersurfaces*
   (with Shamil Asgarli and Kuan-Wen Lai).
   Submitted, 2022. [arXiv]

2. *Nonsplitting of the Hilbert exact sequence and the principal Chebotarev density theorem*
   (with Kelly Emmrich, Ning Ma and Xiyuan Wang).
   Submitted, 2021. [arXiv]

3. *Transverse linear subspaces to hypersurfaces over finite fields*
   (with Shamil Asgarli and Kuan-Wen Lai).
   Submitted, 2022. [arXiv]

Projects on going

1. *Refinement of the Effective Chebotarev density theorem for function fields*
   (with Ning Ma and Shaoyun Yi).
   file available upon request.

2. *Irreducibility of certain five dimensional geometric representations*
   (with Ariel Weiss and Xiyuan Wang).

3. *Torsion finiteness for Drinfeld modules*
   (with Jiangxue Fang and Xiyuan Wang).

Talks and poster sessions

"Bertini's theorem over finite fields and Frobenius nonclassical varieties" *June 27th, 2023*
Sichuan University, Invited talk.

"Torsion points of abelian varieties over torsion fields " *June 9th, 2023*
Shanghai Jiao Tong University, Invited talk.

"Torsion points of abelian varieties over torsion fields " *October 21st, 2022*
University of Electronic Science and Technology of China, Invited talk.

"Torsion points of abelian varieties over torsion fields " *December 18th, 2021*
Sichuan University, Invited talk.

"Torsion points of abelian varieties over large fields " *November 20, 2021*
Capital Normal University, Invited talk.

"Torsion points of abelian varieties over large fields " *November 16, 2021*
Amherst college, Five College Number Theory Seminar 2021, Invited talk.

"Principal version of the Chebotarev density theorem and class group" *August 19, 2021*
Young Researchers in Algebraic Number Theory 2021.

"Bertini's theorem over finite field and Frobenius nonclassical varieties" *April 24, 2021*
Colorado State University, Front Range Number Theory Day, Invited talk.

"Bertini's theorem over finite field and Frobenius nonclassical varieties" *April 8, 2021*
Simon Fraser University, Number Theory and Algebraic Geometry Seminar, Invited talk.

"Irreducibility of 3-dimensional selfdual representations and Tate conjecture" *October 8, 2020*
Sichuan University, Invited talk.

"An application of Fontaine-Mazur conjecture to Tate conjecture" February 26, 2020
Johns Hopkins University, Number Theory Seminar at Johns Hopkins University, Invited talk.

"An application of Fontaine-Mazur conjecture to Tate conjecture" February 9, 2020
Occidental College, Number Theory Series in Los Angeles II.

"Comparison of 3-dimensional Galois representations by computational method" January 18, 2020
Denver, Joint Mathematics Meeting.

"Irreducibility of 3-dimensional selfdual representations and Tate conjecture" *Januray 10, 2020*
Southwest Jiaotong University, Invited talk.

"Fontaine-Mazur conjecture and its application to Tate conjecture" *November 16, 2019*
Colorado State University, Front Range Number Theory Day.

"Irreducibility of 3-dimensional selfdual representations" *November 11, 2019*
Colorado State University, Number Theory lab.

"Transverse Lines to Hypersurfaces over Finite Fields" *June 10, 2019*
Amherst College, Ideals, Varieties, Applications. (Poster).

"Factorization of Hasse-Weil zeta functions of Dwork surfaces" *April 11, 2019*
University of California, Irvine, Invited talk.

"Transverse lines to surfaces over finite fields" *March 22, 2019*
University of Massachusetts Amherst, Algebraic Geometry Northeastern Series (AGNES). (Poster).

"Factorization of Hasse-Weil zeta functions of Dwork surfaces" *February 26, 2019*
University of Massachusetts Amherst, Five College Number Theory Seminar.

"Faltings-Serre method on three dimensional representations" *January 4, 2019*
Sichuan Normal University, Invited talk.

"Explicit generators of Néron-Severi groups of Dwork surfaces" *October 19, 2018*
University of Massachusetts Amherst, Graduate Student Seminar.

"Galois representation of Dwork surfaces" *August 21, 2018*
MIT, Arithmetic Geometry, Number Theory, and Computation.

"Elliptic curves and congruent numbers" *April 30, 2015*
University of Massachusetts Amherst, Graduate Student Seminar.

Seminar organized/co-organized

1. Number Theory Lab, organizer.
2. Graduate students number theory seminar at UMass Amherst, co-organizer.

Teaching Experience

Lecturer for Linear algebra II	*Spring, 2023*
Lecturer for Algebra	*Fall, 2022*
Lecturer for Math 156 (Calculus for computer science)	*Spring, 2022*
Lecturer for Math 156 (Calculus for computer science)	*Fall, 2021*

Lecturer for Math 369 (Linear Algebra)	*Fall, 2021*
Lecturer for Math 261 (Calculus III)	*Spring, 2021*
Lecturer for Math 160/161/261 (Calculus I, II, III)	*Fall, 2020*
Lecturer for Math 101 (Math in the Social Sciences)	*Fall, 2020*
Lecturer for Math 369 (Linear Algebra)	*Spring, 2020*
Lecturer for Math 161 (Calculus II)	*Fall, 2019*
Lecturer for Math 235 (Introduction to Linear Algebras)	*Spring, 2019*
Lecturer for Math 132 (Calculus II)	*Spring, 2018 - Fall, 2018*
Teaching Assistant for Math 455 (Introduction to Discrete Structures)	*Fall, 2017*
Lecturer for Math 235 (Introduction to Linear Algebra)	*Summer, 2017*
Lecturer for Math 132 (Calculus II)	*Fall, 2016 - Spring, 2017*
Teaching Assistant for Math 132 (Calculus II)	*Spring, 2015 - Spring, 2016*
Teaching Assistant for Math 131 & 132 (Calculus I & II)	*Summer, 2014*
Grader for Math 532 (Introduction Modern Analysis I)	*Spring, 2014*
Grader for Math 331 (Ordinary Differential Equations)	*Fall, 2013*

Conferences and Summer/Winter schools attended

The international seminar on L-function and related topics	*Aug 5-9*, 2023
The international seminar on L-function and related topics	*Aug 5-9*, 2022
Around Frobenius distributions and related topics II	*Jun 28-29*, 2021
Curves over Finite Fields: Past, Present and Future	*May 25-29, 2021*
Rational Points and Galois Representations An online workshop hosted by the University of Pittsburgh	*May 10-12, 2021*
Front Range Number Theory Day	*Apr 24, 2021*
Front Range Number Theory Day	*Apr 25, 2020*
Front Range Number Theory Day	*Sep 26, 2020*
Number Theory Series in Los Angeles I	*October 26-27, 2019*
49th John H. Barrett Memorial Lectures: Recent Developments in Number Theory	*May 28 - May 30, 2019*
Bi-annual Algebraic and Tropical Meetings of Brown and YaLE (BATMOBYLE)	*January 2, 2019*
Joint Mathematics Meetings 2019	*January 16- January 19, 2019*
Arizona Winter School 2018: Iwasawa Theory	*March 3- March 7, 2018*
MSRI Summer School 2017: Automorphic Forms and the Langlands Program	*July 24 - August 04, 2017*
AGNES at Stony Brook	*April 21- April 23, 2017*
Arizona Winter School 2017: Perfectoid Spaces	*March 11- March 15, 2017*
AGNES at University of Massachusetts Amherst	*November 4- November 6, 2016*
Connecticut Summer School in Number Theory	*August 8 - August 14, 2016*
AGNES at Yale University	*April 8 - April 10, 2016*
Arizona Winter School 2016: Analytic Methods in Arithmetic Geometry	*March 12 - March 16, 2016*

Honors and Awards	Department fellowship	*2018*
	Department fellowship	*2015*
	Excellent Prize in Graduate thesis	*2013*
	Excellent Prize in Undergraduate thesis	*2009*
	Teaching Assistantship, University of Massachusetts Amherst.	*2013-2018*

Computer Languages	Pari/gp, Magma, Sagemath, Mathematica, C, LaTeX