Luochen ZHAO

Contact Information

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Education

Johns Hopkins University — Baltimore, MD, USA
Ph.D candidate in mathematics — Sept 2019 – Now
Thesis advisor: Antonio Lei Department advisor: Yiannis Sakellaridis
Research area: Number theory, p-adic L-functions, p-adic Fourier transform

Rutgers, The State University of New Jersey — New Brunswick, NJ, USA
Ph.D candidate in mathematics — Sept 2017 – Aug 2019

Peking University — Beijing, China
Bachelor of Science in mathematics — Sept 2013 – Jul 2017
Supervisor: Ruochuan Liu

Publications & Preprints

Sum expressions for p-adic Hecke L-functions of totally real fields
Preprint, submitted to *Pure and Applied Mathematics Quarterly.*
https://arxiv.org/pdf/2204.07364.pdf.

Sum expressions for Kubota-Leopoldt p-adic L-functions
Proceedings of the Edinburgh Mathematical Society 65 (2022), no. 2, 460–479.
https://doi.org/10.1017/S0013091522000177; https://arxiv.org/pdf/2201.08870.pdf.

Note on p-adic local functional equation
p-Adic Numbers, Ultrametric Analysis and Applications, 2022, Vol. 14, No. 3, pp. 238–264.
https://doi.org/10.1134/S2070046622030037; https://arxiv.org/pdf/2201.08874.pdf.

Scholarships

Professor Joel Dean Award — Johns Hopkins, 2022
for excellence in the teaching of mathematics

Academic Excellence Award — Rutgers, 2017
for passing written qualifying exams on arrival

Chun-Tsung Endowment — Peking University, 2015-2016
researched on the Erdős-Szemerédi problem supervised by Prof. Rongquan Feng

Undergraduate Young Talent Project in Pure Mathematics — Peking University, 2014-2017
mentored by Prof. Ruochuan Liu on algebraic number theory

Presentation

Fourier transform according to Cartier — Piscataway, NJ
Rutgers Graduate Algebra and Representation Theory Seminar (GARTS) — Oct 2022

Explicit period formulas for totally real p-adic L-functions, à la Cassou-Noguès Online
The Ohio State University Number Theory Seminar Sept 2022

Explicit period formulas for totally real p-adic L-functions, à la Cassou-Noguès Swarthmore, PA
Philadelphia Area Number Theory Seminar Sept 2022

Construction of p-adic L-functions attached to modular forms via modular symbols Online
Guest lecture for the graduate topic course MAT7395 of Université Laval November 2021

Sum expressions for Kubota-Leopoldt p-adic L-functions Online
Maine-Québec Number Theory Conference October 2021

Informal Talks

Outline of "Kolyvagin's work on modular elliptic curves" by Gross Baltimore, MD
Johns Hopkins number theory learning seminar Fall 2022

Deducing the Brumer-Strak conjecture from the main theorem Online
Galois cohomology classes associated to modular forms Online
ULaval learning seminar on the Brumer-Stark conjecture Spring 2022

Generalities on the modular curve of level N Online
ULaval learning seminar on Eisenstein ideals Fall 2021

"Formal complex multiplication in local fields" by Lubin-Tate Online
Johns Hopkins classic papers in number theory learning seminar Spring 2021

"p-divisible groups" by Tate Online
Johns Hopkins classic papers in number theory learning seminar Fall 2020

Introduction to rigid analytic geometry Baltimore, MD
JHU number theory learning seminar Fall 2019

Structure theorem for reductive groups (absolute theory), I Piscataway, NJ
Rutgers Graduate Algebra and Representation Theory Seminar (GARTS) Spring 2019

Teaching Experience

Teaching assistant Johns Hopkins University

AS.110.401 Introduction to Abstract Algebra	Fall 2022
AS.110.601 Algebra	Fall 2022
AS.110.202 Calculus III	Spring 2022
AS.110.202 Calculus III	Fall 2021
AS.110.601 Algebra	Fall 2021
AS.110.201 Linear Algebra	Spring 2021
AS.110.413 Introduction to Topology	Spring 2021
AS.110.106 Calculus I (Biology and Social Sciences)	Fall 2020
AS.110.411 Honors Algebra I	Fall 2020
AS.110.405 Real Analysis I	Spring 2020
AS.110.445 Mathematical and Computational Foundations of Data Science	Spring 2020
AS.110.411 Honors Algebra I	Fall 2019
AS.110.422 Representation Theory	Fall 2019

Teaching assistant Rutgers-New Brunswick

01:640:152 Calculus II for Mathematical and Physical Sciences	Spring 2019
01:640:151 Calculus I for Mathematical and Physical Sciences	Fall 2018

Conferences Attended

A Pair of Automorphic Workshops in 2022	University of Oregon, Eugene, OR, Jul 2022
2021 CMS Winter Meeting	Online, Dec 2021
Junior Number Theory Days	Johns Hopkins, Baltimore, MD, Dec 2021
Maine-Québec Number Theory Conference	Online, Oct 2021
Elliptic curves and the special values of L-functions	Online, ICTS, Aug 2021
JHU-UMD Algebra and Number Theory Day	University of Maryland, College Park, MD, Nov 2019
Sphericity 2019	CIRM, Luminy, France, Jan 2019
Sixth Abel Conference: A Mathematical Celebration of Robert P. Langlands	Minneapolis, MN, Nov 2018
Arithmetic algebraic geometry on the occasion of the 70th birthday of Rapoport	Bonn, Germany, Oct 2018
Connecticut Summer School in Number Theory	University of Connecticut, Storrs, CT, May-Jun 2018
Old and New themes in p-adic Cohomology	University of Arkansas, Fayetteville, AR, Apr 2018

Services

Organizer of a learning seminar on characteristic classes	Rutgers, Spring 2019
Organizer of a student learning seminar on abelian varieties	Rutgers, Spring 2019
Co-organizer of a student learning seminar on linear algebraic groups	Rutgers, Fall 2018

Languages

English - proficient
Chinese - native
French - limited proficiency
Japanese - limited proficiency