

# Miao (Pam) Gu

Department of Mathematics  
University of Michigan  
Ann Arbor, MI 48104  
pmgu@umich.edu

984-292-9703  
EH 4827

<https://sites.lsa.umich.edu/pmgu/>

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## Professional Positions

Postdoctoral Assistant Professor, University of Michigan Aug 2023 - present

## Education

PhD, Mathematics, Duke University May 2023  
(Advisor: Jayce Getz)  
BSc, Mathematics, Minor in Music, University of British Columbia May 2018  
(Supervisor: Greg Martin)

## Research Interests

Automorphic forms, representations, and L-functions, Trace formula, Arithmetic aspects of automorphic forms and Langlands program, Arithmetic topology.

## Publications & Preprints

- (1) (with C. Darwin, A. Galimova and S. Mckean) *Conics meeting eight lines over perfect fields*, J. Algebra 631 (2023), 24–45.
- (2) *Automorphic-twisted summation formulae for pairs of quadratic spaces*, recommended for publication pending revision at Represent. Theory. (arXiv:2102.06113)
- (3) (with G. Martin) *Factorization tests and algorithms arising from counting modular forms and automorphic representations*, Canad. Math. Bull. 62 (2019), no. 1, 81–97.
- (4) (with J. Y. Fu) *Generalized Kloosterman sheaves for symplectic groups*, in preparation.
- (5) (with J. Getz, C-H. Hsu and S. Leslie) *A family of period integrals related to triple product L-functions*, in preparation.
- (6) (with R. Dalal and C.-R. Lee) *An estimation for orbital integrals*, in preparation.

## Invited Research Talks

TBA  
Mathematics Colloquia, University of Michigan-Dearborn

Spring 2024

<i>TBA</i>	Jan 2024
Number Theory Seminar, Caltech	
<i>A family of period integrals related to triple-product L-functions</i>	Sep 2023
Fall 2023 AMS Eastern Sectional Meeting “Homological aspects of p-adic groups and automorphic representations”, University at Buffalo (SUNY)	
<i>A family of period integrals related to triple-product L-functions</i>	Jan 2023
2023 JMM special session: Women in Automorphic Forms	
<i>A family of period integrals related to triple-product L-functions</i>	Dec 2022
Johns Hopkins Junior Number Theory Days 2022, Johns Hopkins University	
<i>A family of period integrals related to triple-product L-functions</i>	Sep 2022
Number Theory/Representation Theory Seminar, University of Wisconsin-Madison	
<i>A family of period integrals related to triple-product L-functions</i>	Aug 2022
Community-building in the Langlands Program (CLAP) HCM, Bonn, Germany	
<i>Automorphic-twisted summation formulae for pairs of quadratic spaces</i>	Mar 2022
2022 Midwest Representation Theory Conference, University of Michigan	
<i>Automorphic-twisted summation formulae for pairs of quadratic spaces</i>	Mar 2022
Algebra and Number Theory Seminar, Yale University	
<i>Automorphic-twisted summation formulae for pairs of quadratic spaces</i>	Jan 2022
Periods, functoriality and L-functions, CIRM, Luminy, France	
<i>Automorphic-twisted summation formulae for pairs of quadratic spaces</i>	Oct 2021
HAAR (Harmonic Analysis and Automorphic Representations) Zoominar	
<i>Automorphic-twisted summation formulae for pairs of quadratic spaces</i>	Mar 2021
Ngô’s geometric representation theory seminar, University of Chicago	

### Other Research Talks & Presentations

<i>Conics meeting eight lines over perfect fields</i>	Oct 2022
Arithmetic and topology over global fields (poster presentation), University of Wisconsin-Madison	
<i>Rigidity method for automorphic forms over function fields</i>	Mar 2022
Zhiwei Yun’s project group presentation, Arizona Winter School 2022	
<i>On automorphic L-functions for <math>GL_3 \times GL_3 \times GL_n</math></i>	Oct 2020
Number Theory Seminar, Duke University	
<i>Factorization tests and algorithms arising from counting modular forms and automorphic representations</i>	Apr 2019
SERMON 2019, University of North Carolina Greensboro	

Graduate-Faculty Talk, Duke University Mar 2019  
ANTS XIII (poster presentation), University of Wisconsin-Madison July 2018

### Selected Other Conferences & Workshops

Automorphic forms, endoscopy and trace formulas Sep 2023  
CIRM, Luminy, France

Oberwolfach Seminar: Analysis of Automorphic Forms and L-Functions in Higher Rank May-June 2023  
Oberwolfach, Germany

2022 IHES Summer School on the Langlands program July 2022  
IHES, France

Iwasawa 2019 June 2019  
Institut de mathématiques de Bordeaux, Bordeaux, France

Arizona Winter School 2019: Topology and Arithmetic Mar 2019  
Group Research Project: *Tamagawa numbers in the function field case: Parahoric Harder-Narasimhan Theory*  
Supervisor: Jacob Lurie  
Tucson, AZ, USA

On the Langlands Program: Endoscopy and Beyond Dec 2018-Jan 2019  
Institute for Math Sciences (IMS), National University of Singapore, Singapore

### Undergraduate Students Mentored

Zizai Cui, Max Fleischer, Yijia Liu Summer 2020  
*Statistics on class groups and representation theory*  
DOMath2020 program, Duke University

### Awards

Graduate Student Travel Grant Jan 2023  
American Mathematical Society

Conference Travel Award July 2021 - June 2022  
Graduate School, Duke University

Summer Research Fellowship Summer 2019, 2020, 2021, 2022  
Duke University

Graduate Representative Travel Grant 2019  
Department of Mathematics, Duke University

Go Global International Learning Programs Award 2016  
University of British Columbia

### Professional Service

Refereeing Work  
 Pacific Journal of Mathematics  
 Banff International Research Station (BIRS) Workshop Proposals  
 Co-organizer of Number Theory Seminar  
 Duke University Fall 2021, 2022  
 Panelist for Graduate Bootcamp  
 Duke University Fall 2020  
 Founder and Organizer of Pre-seminar Number Theory/Algebraic Geometry Seminar  
 Duke University Fall 2019  
 Organizer of Graduate-student-sponsored Colloquia  
 Duke University Fall 2019-2020  
 Graduate Representative  
 Duke University Spring 2019-2020

### Teaching Experience

University of Michigan: Instructor  
 Math 412: Introduction to Modern Algebra (2 sections) Winter 2024  
 Math 105: Data, Functions, and Graphs (2 sections) Fall 2023  
 Duke University: Lab Instructor  
 Math 111L: Laboratory Calculus I Fall 2021  
 Duke University: Teaching Assistant  
 Math 111L: Laboratory Calculus I (Lead TA) Spring 2023  
 Math 611: Algebraic Topology I Fall 2022  
 Math 601: Groups, Rings, and Fields Fall 2022  
 Math 633: Complex Analysis Spring 2021  
 Math 221: Linear Algebra and Applications Spring 2021  
 Math 603: Representation Theory Fall 2019  
 Math 501: Introduction to Algebraic Structures I Fall 2019  
 University of British Columbia: Mathematics Learning Centre Tutor  
 Tutor for all-level math courses offered in the department 2017-2018  
 University of British Columbia: Undergraduate Teaching Assistant  
 Math 103: Integral Calculus with Applications to Life Sciences Spring 2017  
 Math 102: Differential Calculus with Applications to Life Sciences Fall 2016

### Language

Native: Mandarin  
 Fluent: English, Cantonese

Basic: German, French