

Mathilde Gerbelli-Gauthier

Curriculum Vitae

Department of Mathematics and Statistics
Burnside Hall, McGill University
805 Sherbrooke Street West, Montreal, QC, H3A 0B9
✉ mathilde.gerbelli-gauthier@mcgill.ca
🌐 mgerbelli.github.io/website/

Positions Held

- 2020-present **Postdoctoral Fellow**, *Centre de Recherches Mathématiques and McGill University*, Montréal
2021-2022 **Member**, *Institute for Advanced Study*, Princeton

Education

- 2020 **Ph.D. in Mathematics**, *University of Chicago*, Advisor: Matthew Emerton
Thesis: Growth of Cohomology of Arithmetic Groups and the Stable Trace Formula.
2017 **M.Sc. in Mathematics**, *University of Chicago*
2014 **B.Sc. in Mathematics**, *McGill University*, First Class Honours

Publications and Preprints

- 2022 **Statistics of Cohomological Automorphic Representations via the Endoscopic Classification**, *with Rahul Dalal*
ArXiv: 2212.12138
2021 **Limit multiplicity for unitary groups and the stable trace formula**
Submitted. ArXiv: 2105.09834
2019 **Growth of cohomology of arithmetic groups and the stable trace formula: the case of $U(2, 1)$**
ArXiv: 1910.06900
2016 **The order of nilpotence of Hecke operators mod 2: a new proof**
Research in Number Theory, 2:7.

Awards

- 2020 **Postdoctoral Fellowship**, NSERC
Kowalsky Fellowship, Department of Mathematics, University of Chicago
2018 **Lawrence and Josephine Graves Prize for Excellence in Undergraduate Teaching**,
Department of Mathematics, University of Chicago
2016 **Postgraduate Scholarship - Doctoral**, NSERC
Alexander Graham Bell Canada Graduate Scholarship, NSERC, *declined*
Doctoral Scholarship, FRQNT, *declined*
2014 **Masters Scholarship**, FRQNT
McCormick Fellowship, University of Chicago

Talks

- 2023 Joint Mathematics Meeting: Automorphic Forms and Representation Theory, Boston
2022 Modern Math Workshop, San Juan.
Québec-Maine Number Theory Conference, Université Laval.

- Connecticut Summer School in Number Theory, University of Connecticut.
 "What is..." Seminar, Institute for Advanced Study.
 Philadelphia Area Number Theory Seminar, Bryn Mawr College.
 Mathematics Colloquium, Dalhousie University, *Remote*
- 2021 Automorphic Forms and Number Theory Seminar, Purdue University. *Remote*
 Members' Colloquium, Institute for Advanced Study.
 Workshop on Cohomology of Arithmetic Groups: Duality, Stability, and Computations, Banff.
 Boston University Number Theory Seminar. *Remote*
 Séminaire représentations des groupes réductifs, Institut Mathématique de Marseille. *Remote*
 CMS 75th+1 Anniversary Summer Meeting, Ottawa. *Remote*
 Séminaire de géométrie arithmétique et motivique, Université Sorbonne-Paris-Nord. *Remote*
 Arbeitsgemeinschaft: Derived Galois Deformation Rings and Cohomology of Arithmetic Groups, Oberwolfach. *Remote*.
 Joint IAS/Princeton Number Theory Seminar. *Remote*.
 (w/ Clara del Junco) CONSTRAIN Researcher Forum, University of Leeds. *Remote*.
- 2020 CMS Virtual Winter Meeting, University of Ottawa. *Remote*.
 Number Theory Seminar, University of Oregon. *Remote*.
 Québec-Vermont Number Theory Seminar, McGill University. *Remote*.
 Members' Seminar, CRM Special Semester on Cohomology in Arithmetic. *Remote*
 Number Theory Seminar, University of Wisconsin-Madison.
 Representation Theory and Number Theory Seminar, University of Utah.
 Group, Lie, and Number Theory Seminar, University of Michigan.
- 2019 Junior Number Theory Days, Johns Hopkins University.
 Number Theory Seminar, MIT.
 Number Theory Seminar, Johns Hopkins University.
 AMS Fall Sectional Meeting: Special Session on Automorphic Forms and L -functions, University of Wisconsin-Madison.
 Linfoot Seminar, University of Bristol.
- 2018 Women in Automorphic Forms, Technische Universität Darmstadt.

Selected Workshops and Conferences

- 2023 **Joint Mathematics Meeting**, *Boston*
- 2022 **Modern Math Workshop and National Diversity in STEM Conference**, *San Juan*
Connecticut Summer School in Number Theory, *Storrs*
Arizona Winter School: Automorphic Forms Beyond GL_2 , *Tucson*
- 2021 **Cohomology of Arithmetic Groups: Duality, Stability, and Computations**, *Banff*
Rethinking Number Theory, *Online*
CMS 75th+1 Anniversary Summer Meeting, *Ottawa*, *Remote*
Arbeitsgemeinschaft: Derived Galois Deformation Rings and Cohomology of Arithmetic Groups, *Oberwolfach*, *Remote*
- 2020 **CMS Winter Meeting**, *Ottawa*, *Remote*
CRM Workshop: Arithmetic Quotients of Symmetric Spaces and Their Cohomology, *Montreal*
- 2019 **CMO Workshop: Modularity and Moduli Spaces**, *Oaxaca*

- A Conversation on Professional Norms in Mathematics**, *Baltimore*
AMS Fall Sectional Meeting: Special session on Automorphic Forms and L -functions, *Madison*
- 2018 **Sixth Abel Conference: A Mathematical Celebration of Robert P. Langlands**, *Minneapolis*
Women in Automorphic Forms, *Darmstadt*
IAS Workshop: Representation Theory and Analysis on Locally Symmetric Spaces, *Princeton*
- 2017 **IAS Workshop: Motives, Galois Representations and Cohomology Around the Langlands Program**, *Princeton*
MSRI Summer School: Automorphic Forms the Langlands Programme, *Berkeley*
Arizona Winter School: Perfectoid Spaces, *Tucson*
Barcelona Graduate School of Mathematics: p -adic Methods in Galois Representations and Modular Forms, *Barcelona*

Teaching

Instructor of Record

McGill University

- 2022-2023 Linear Algebra and Geometry, *Fall*.
University of Chicago
- 2019-2020 Calculus III, *Fall*.
 2018-2019 Mathematical Methods for the Social Sciences, *Fall*.
 2017-2018 Mathematical Methods for the Social Sciences, *Fall and Summer*.
 2016-2017 Calculus III, *Fall*, Mathematical Methods for the Social Sciences, *Spring*.

Teaching Assistant

Arizona Winter School

- 2022 Automorphic Forms and the Theta Correspondance, Study Group Leader. *Arizona Winter School on Automorphic Forms Beyond GL_2* .
University of Chicago
- 2018-2019 Mathematics Study Abroad at the University of Chicago Center in Paris: Arithmetic in Function Fields, Introduction to p -groups, Random Walks and The Heat Equation, *Spring*.
 2015-2016 Calculus I-II-III, Inquiry-Based Learning, *Fall, Winter, and Spring*.

Workshops Attended

- 2022 Pedagogy Discussion Group, *Department of Mathematics and Statistics, McGill University*.
 2019 Fundamentals of Teaching Mathematics, *Chicago Center for Teaching*.
 2018 Inclusive Teaching in STEM, *Race and Pedagogy working group at the University of Chicago*.

Service and Outreach

Refereeing

I have served as a referee for Transactions of the American Mathematical Society.

Volumes Edited

- 2021 **A Conversation on Professional Norms in Mathematics**, *American Mathematical Society*, ISBN: 978-1-4704-6780-7

Burnout: a zine about academia, travel, and climate change, *self-published*,
knowledge.uchicago.edu/record/2773

Conferences and Seminars Organized

- 2023 **AMS Special Session: Women in Automorphic Forms**, *Joint Mathematics Meeting*, Co-organizer.
- 2022 **Mathematical Conversations**, *Institute for Advanced Study*, Co-organizer
- 2020 **CRM Women's Seminar**, *Centre de Recherche Mathématiques*, Co-organizer
- 2016-2017 **Student Number Theory Seminar**, *University of Chicago*, Organizer
Fall-Winter 2016: p -adic geometry, Summer 2017: the Local Langlands correspondence for GL_2

Other

- 2022 **Lunch in the Time of Covid**, Panelist
Discussion on the role and responsibility of academics in climate change.
- 2021-2022 **Women's Lunches**, *Institute for Advanced Study*, Co-organizer
Organized a monthly lunch meeting for female members at the Institute's School of Mathematics.
- 2019-2020 **Arts + Science Collaboration Grant**, *University of Chicago*, Fellow
Recipient of a \$3000 grant for an interdisciplinary arts and science project with two students at the School of the Art Institute of Chicago. Title: *Numerical Alternatives*
- 2018-2020 **Lunchtime Ado with Female Speakers**, *University of Chicago*, Co-organizer
Organized and moderated a series of biquarterly lunchtime conversations with women speaking in the department's research seminars. Recipient of an \$800 grant in 2019-2020.
- 2017-2020 **Directed Reading Program**, *University of Chicago*, Co-organizer
Managed a program pairing undergraduate and graduate students for quarter-long reading projects.
- 2018-2019 **Graduate Students United**, *University of Chicago*, Steward
Union representative for graduate workers in the mathematics department.
- 2018 **Department of Mathematics Climate Survey**, *University of Chicago*
Co-development of a climate survey to assess the experiences of graduate students.
- 2016-2018 **Directed Reading Program**, *University of Chicago*, Mentor
Projects: Class field theory, Pythagorean triples, Fermat's theorem on the sum of two squares, Algebraic Varieties, Fourier Series, Arithmetic of Elliptic Curves.
- 2013-2014 **Program in Mathematics for Young Scientists**, *Boston University*, Counselor
Mentorship of high-school students in a 6-week number theory summer camp.