

Robert Harron

Quantitative Researcher
Radix Trading

email robert.harron@gmail.com

website math.hawaii.edu/~rharron

ACADEMIC RESEARCH: Algebraic number theory, arithmetic statistics, computational number theory, Iwasawa theory

POSITIONS:

- 08/2020 – Present **Quantitative Researcher**
Radix Trading
- 08/2014 – 07/2020 **Assistant Professor**
University of Hawai'i at Mānoa
- 08/2012 – 08/2014 **Van Vleck Visiting Assistant Professor and RTG Postdoctoral Fellow**
- 08/2011 – 08/2012 **Visiting Assistant Professor**
University of Wisconsin–Madison
- 09/2009 – 08/2011 **Postdoctoral Faculty Fellow and Instructor**
Boston University

EDUCATION

- 2004 – 2009 **PhD in Mathematics, Princeton University**
Thesis: L -invariants of some low symmetric powers of modular forms and Hida deformations
Advisor: Andrew Wiles
- 2000 – 2004 **BSc First Class Honours in Mathematics and Physics, McGill University**

PUBLICATIONS

- *Shapes of sextic fields and log-terms in Malle's conjecture*
with Erik Holmes, in preparation
- *The shapes of Galois quartic fields*
with Piper H
Transactions of the American Mathematical Society **373**, no. 10 (2020), doi: [10.1090/tran/8137](https://doi.org/10.1090/tran/8137)
- *Equidistribution of shapes of complex cubic fields of fixed quadratic resolvent*
to appear in *Algebra and Number Theory*, preprint available at [arxiv:1907.07209](https://arxiv.org/abs/1907.07209)
- *Explicit computations of Hida families via overconvergent modular symbols*
with Evan P. Dummit, Márton Hablicsek, Lalit Jain, Robert Pollack, and Daniel Ross
Research in Number Theory 2:25 (2016), doi: [10.1007/s40993-016-0052-8](https://doi.org/10.1007/s40993-016-0052-8)
- *The shapes of pure cubic fields*
Proceedings of the American Mathematical Society **145**, no. 2 (2017), doi: [10.1090/proc/13309](https://doi.org/10.1090/proc/13309)
- *Iwasawa theory for symmetric powers of CM modular forms at non-ordinary primes, II*
with Jonathan Pottharst
Journal de Théorie des Nombres de Bordeaux **28**, no. 3 (2016), doi: [10.5802/jtnb.957](https://doi.org/10.5802/jtnb.957)
- *Counting elliptic curves with prescribed torsion*
with Andrew Snowden
Journal für die reine und angewandte Mathematik **729** (2017), doi: [10.1515/crelle-2014-0107](https://doi.org/10.1515/crelle-2014-0107)

- *On symmetric power L -invariants of Iwahori level Hilbert modular forms*
with Andrei Jorza
American Journal of Mathematics **139**, no. 6 (2017), doi: [10.1353/ajm.2017.0040](https://doi.org/10.1353/ajm.2017.0040)
- *Gauss–Manin connections for p -adic families of nearly overconvergent modular forms*
with Liang Xiao
Annales de l'Institut Fourier **64**, no. 6 (2014), doi: [10.5802/aif.2916](https://doi.org/10.5802/aif.2916)
- *Iwasawa theory for symmetric powers of CM modular forms at non-ordinary primes*
with Antonio Lei
Journal de Théorie des Nombres de Bordeaux **26**, no. 3 (2014), doi: [10.5802/jtnb.885](https://doi.org/10.5802/jtnb.885)
- *The exceptional zero conjecture for symmetric powers of CM modular forms: the ordinary case*
International Mathematics Research Notices **2013**, no. 16, art. ID rns161, doi: [10.1093/imrn/rns161](https://doi.org/10.1093/imrn/rns161)
- *On Greenberg's L -invariant of the symmetric sixth power of an ordinary cusp form*
Compositio Mathematica **148**, no. 4 (2012), doi: [10.1112/S0010437X12000176](https://doi.org/10.1112/S0010437X12000176)

AWARDS AND GRANTS

| | |
|-----------|---|
| 2019 | NSF Conference Grant HINT 2019 (\$30,000, Sole PI, DMS-1903815) |
| 2016–2021 | Simons Collaboration Grant |
| 2013–2015 | NSA Young Investigator Grant |
| 2012 | Honored Instructor Teaching Award |
| 2006–2009 | FQRNT Doctoral Fellowship |
| 2004–2006 | FQRNT Masters Fellowship |
| 2004–2006 | NSERC Postgraduate Scholarship (awarded, but accepted FQRNT instead) |
| 2003 | NSERC Undergraduate Summer Research Award |
| 2002 | NSERC Undergraduate Summer Research Award |

ADVISING

| | |
|-----------------------|---|
| Students: | Current: 1 PhD student Completed: 1 PhD student, 2 MA students |
| Fall 2014 – Fall 2017 | MATH 699: Directed Reading and Research Reading course on Algebraic Number Theory Learning seminar on L -functions Reading course on Modular Forms (twice) Reading course on Galois Representations Reading course on Quadratic Forms (twice) |
| Spring 2011 | MA 944: Directed Study in Number Theory II Reading course on Algebraic Number Theory |
| Fall 2009 | MA 648: Research Methods in Mathematics II Advised a student on representing integers by quadratic forms |

TEACHING

| | |
|-------------|--|
| Spring 2020 | MATH 413/612: Topics: Commutative Algebra and Modules MATH 661: Introduction to Algebraic Number Theory |
| Fall 2019 | MATH 412: Introduction to Abstract Algebra |
| Spring 2019 | MATH 612: Modern Algebra II |
| Fall 2018 | MATH 252A: Accelerated Calculus II MATH 611: Modern Algebra I |
| Spring 2018 | MATH 241: Calculus I MATH 649: Representation theory |

Fall 2017 **MATH 649: Topics: Arithmetic Statistics and Bhargavology**
 Spring 2017 **MATH 243: Calculus III**
MATH 661: Introduction to Algebraic Number Theory
 Fall 2016 **MATH 412: Introduction to Abstract Algebra**
 Spring 2016 **MATH 480: Senior Seminar**
MATH 612: Modern Algebra II
 Fall 2015 **MATH 611: Modern Algebra I**
 Spring 2015 **MATH 242: Calculus II**
MATH 411: Linear Algebra
 Fall 2014 **MATH 242: Calculus II**
 Dept. of Mathematics, University of Hawai'i at Mānoa
 Spring 2014 **MATH 847: Topics in Algebra: Modular Forms and their Arithmetic**
 Fall 2013 **MATH 475: Introduction to Combinatorics**
 Spring 2013 **MATH 340: Elementary Matrix and Linear Algebra**
 Fall 2012 **MATH 541: Modern Algebra**
 Spring 2012 **MATH 217: Calculus with Algebra and Trigonometry II** (two sections)
 Fall 2011 **MATH 221: Calculus and Analytic Geometry** (two sections)
 Dept. of Mathematics, University of Wisconsin–Madison
 Spring 2011 **MA 341: Introduction to Number Theory**
 Fall 2010 **MA 123: Calculus I**
 Spring 2010 **MA 542: Modern Algebra II**
 Fall 2009 **MA 142: Introduction to Linear Algebra**
 Dept. of Mathematics and Statistics, Boston University
 Spring 2009 **MAT 218: Analysis in Several Variables**
 Fall 2009 **MAT 201: Multivariable Calculus**
 Fall 2007 **MAT 203: Advanced Multivariable Calculus**
 Dept. of Mathematics, Princeton University

INVITED TALKS

2018 **Conference: Arizona Winter School, Problem session leader**
 2017 **Conference: Mathematical Congress of the Americas**
University of Washington Number Theory Seminar
Brown University Algebra Seminar
Tufts University Algebra, Geometry, and Number Theory Seminar
Conference: AMS/MAA Joint Mathematics Meetings
 2016 **Conference: Congreso Latinoamericano de Matemáticos V**
Conference: Canadian Number Theory Association, 14th meeting
Duke University Number Theory Seminar
 2015 **AMS/MAA Joint Mathematics Meetings**
 2014 **Conference: Atkin Memorial Workshop**
University of Hawai'i at Mānoa Special Colloquium
Eastern Illinois University Special Colloquium
University of Notre Dame Special Colloquium
University of Illinois at Urbana–Champaign Special Colloquium
 2013 **Université Laval Séminaire d'algèbre et de théorie des nombres**
Boston University Number Theory Seminar
University of Illinois at Chicago Number Theory Seminar
University of North Carolina at Chapel Hill Number Theory Seminar
Conference: Modular forms, p -adic L -functions and Selmer groups
University of Chicago Number Theory Seminar
Northwestern University Number Theory Seminar

- Conference: Sage Days 44
 Québec–Vermont Number Theory Seminar
 Université Laval Séminaire d'algèbre et géométrie gradué
 2012 University of Washington Number Theory Seminar
 University of Washington Sage Seminar
 University of Chicago Number Theory Seminar
 California Institute of Technology Number Theory Seminar
 Joint Columbia–CUNY–NYU Number Theory Seminar
 2011 University of Wisconsin–Madison Number Theory Seminar
 Brandeis University Everytopic Seminar
 University of Michigan, Ann Arbor GLNT Seminar
 2010 University of Texas at Austin Number Theory Seminar
 2009 Boston University Number Theory Seminar
 Wesleyan Departmental Colloquium
 Boston University Number Theory Seminar

CONFERENCES ORGANIZED OR COORGANIZED

- 2019 **Advances in Iwasawa Theory** (Special session, AMS Central and Western Sectional)
HINT 2019: Hawai'i Number Theory Conference
 2013 **Sage Days 44**

SEMINARS ORGANIZED OR COORGANIZED

- 09/2016 – 12/2016 **Seminar on L -functions**
 09/2015 – 05/2016 **Number Theory Lunch Meeting**
 University of Hawaii'i at Mānoa
 09/2011 – 05/2014 **Number Theory/Representation Theory Seminar**
 09/2011 – 05/2014 **Graduate Student Number Theory/Representation Theory Seminar**
 10/2012 – 02/2013 **Learning Seminar on Shimura Varieties**
 University of Wisconsin–Madison
 09/2009 – 05/2011 **Algebra/Number Theory Seminar**
 01/2011 – 05/2011 **Graduate Student Étale Cohomology Seminar**
 07/2010 – 12/2010 **Seminar on p -adic L -functions**
 01/2010 – 05/2010 **Seminar on p -adic Hodge Theory and (φ, Γ) -modules**
 Boston University
 09/2004 – 05/2009 **Several graduate student seminars**
 Princeton University