

CURRICULUM VITAE

ELEANOR MCSPIRIT

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EDUCATION

University of Virginia ◦ 2020 – 2024

Ph.D. in Mathematics

Advisor: Ken Ono

Thesis: *Insights From Number Theory: From Arithmetic Geometry to Quantum Topology*

Dean's Doctoral Fellow

University of California, Berkeley ◦ 2016 – 2020

B.S. in Mathematics

Minor in Gender & Women's Studies

Graduated Summa Cum Laude

RESEARCH PUBLICATIONS

1. L. Liles and E. McSpirt, *Infinite Families of Quantum Modular 3-Manifold Invariants*. Communications in Number Theory and Physics **18** (2024), no. 1, 237-260.
2. E. McSpirt and K. Ono, *Hypergeometry and the AGM over Finite Fields*. To appear in Contemporary Mathematics, American Mathematical Society.
3. E. McSpirt and K. Ono, *Zeros in the character tables of symmetric groups with an ℓ -core index*. Canadian Mathematical Bulletin **66** (2023), no. 2, 467-476.
4. E. McSpirt and K. Scheckelhoff, *On the number of 2-hooks and 3-hooks of integer partitions*. Bulletin of the Australian Mathematical Society **107** (2023) no. 3, 432-439.
5. A. Lin, E. McSpirt, and A. Vishnu, *Algebraic relations between partition functions and the j -function*. Research in Number Theory **6** (2020) no. 2.

EXPOSITORY PUBLICATIONS

1. E. McSpirt, *Swinerton-Dyer and the Ramanujan Congruences for $\tau(n)$* . To appear in Ramanujan Handbook by Springer.
2. E. McSpirt, *K3 Surfaces and Ramanujan's Sum of Two Cubes*. To appear in Ramanujan Handbook by Springer.

CONFERENCE AND SEMINAR TALKS

- 2024 Apr AMS Special Session on Elementary Number Theory and Elliptic Curves, Howard U.
Jellyfish, the Arithmetic-Geometric Mean, and Elliptic Curves
- Mar Meeting on Plumbings and Spectra, Caltech
Infinite Families of Quantum Modular 3-Manifold Invariants
 Algebra, Geometry, and Number Theory Seminar, University of South Carolina
Infinite Families of Quantum Modular 3-Manifold Invariants
- Feb Algebra and Number Theory Seminar, Louisiana State University
Infinite Families of Quantum Modular 3-Manifold Invariants
 The Web of Modularity, Tulane University
Infinite Families of Quantum Modular 3-Manifold Invariants
 Algebra Seminar, Virginia Tech
Jellyfish, the Arithmetic-Geometric Mean, and Elliptic Curves
- Jan Graduate Student Seminar, University of Virginia
Infinite Families of Quantum Modular 3-Manifold Invariants
 Joint Mathematics Meetings, San Francisco
 AMS Special Session on Mock modular forms, physics, and applications
Infinite Families of Quantum Modular 3-Manifold Invariants
 AMS Special Session on Partition Theory and q -Series
Zeros in the Character Tables of Symmetric Groups
- 2023 Oct Vanderbilt University Number Theory Seminar
Jellyfish, the Arithmetic-Geometric Mean, and Elliptic Curves
 AMS Special Session on Number Theory and Friends, University of South Alabama
Jellyfish, the Arithmetic-Geometric Mean, and Elliptic Curves
- Sept Ramanujan–Serre Seminar, University of Virginia
Infinite Families of Quantum Modular 3-Manifold Invariants
- May 35th Automorphic Forms Workshop, Louisiana State University
Lattice Cohomology and Quantum Modular Forms
- Apr AMS Special Session on Hypergeometric Functions, q -series and Generalizations III
Jellyfish, Hypergeometric Functions, and the AGM
- Jan Texas Number Theory and Combinatorics Seminar
Zeros in the Character Tables of Symmetric Groups
- 2022 Mar Graduate Student Seminar, University of Virginia
Representation Theory of the Symmetric Group
- Jan Joint Mathematics Meetings, Virtual
 AMS Special Session on Modular Forms and Combinatorics
On the Number of 2-Hooks and 3-Hooks of Integer Partitions

ADDITIONAL CONFERENCE AND WORKSHOP PARTICIPATION

- September 2023: Merging Categorification, Gauge Theory, & Physics, Simons Collab.
- February 2023: Learning Workshop on BPS States and 3-Manifolds, ICTP
- Summer 2022: PCMI on Number Theory Informed by Computation
- May 2022: 100 Years of Mock Theta Functions, Vanderbilt University
- January 2020: Joint Mathematics Meetings, Denver

LEADERSHIP AND MENTORSHIP

- Fall 2023: Mentor for Graduate Teaching Assistants.
Observed and advised five first-time graduate instructors throughout the semester.
- Fall 2023: Mentor for the Directed Reading Program at the University of Virginia.
- Spring 2023–Present: Founding President of the University of Virginia AMS Graduate Student Chapter. Leader of the executive committee and organizing chapter events.
- Summer 2023: Mentor for the University of Virginia REU in Number Theory.
Advised two projects on Shintani zeta functions and class number formulas.
- Fall 2022: Mentor for the Directed Reading Program at the University of Virginia.
Advised a project on partitions and the representation theory of the symmetric group.
- Summer 2022: Mentor for the University of Virginia REU in Number Theory.
Advised a project on the arithmetic of McKay numbers.

TEACHING

University of Virginia

2024	Spring	Instructor of record for MATH 1320 (Calculus II)
2023	Spring	Instructor of record for MATH 1320 (Calculus II)
2022	Spring	Instructor of record for MATH 1220 (A Survey of Calculus II)
2021	Fall	Instructor of record for MATH 1210 (A Survey of Calculus I)
	Spring	Teaching Assistant for MATH 3315 (Advanced Calculus and Linear Algebra)
2020	Fall	Teaching Assistant for MATH 1190 (A Survey of Calculus I with Algebra)

University of California, Berkeley

2018	Fall	Teaching Assistant for MATH 1B (Calculus II)
	Spring	Teaching Assistant for MATH 53 (Multivariable Calculus)

REFeree SERVICE

- Annals of Combinatorics
- International Journal of Number Theory
- Israel Journal of Mathematics
- Journal of Number Theory
- Journal of Combinatorial Theory, Series A
- Research in the Mathematical Sciences

REU PARTICIPATION

- Emory University, Summer 2019
- University of Chicago, Summer 2019
- University of Chicago, Summer 2018