CURRICULUM VITAE

ELEANOR MCSPIRIT

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APPOINTMENTS

Vanderbilt University, Postdoctoral Scholar, Research   August 2024 - Present

EDUCATION

University of Virginia   2020 – 2024
Ph.D. in Mathematics
Advisor: Ken Ono
Thesis: *Insights From Number Theory: From Arithmetic Geometry to Quantum Topology*

University of California, Berkeley   2016 – 2020
B.S. in Mathematics
Minor in Gender & Women's Studies
Summa Cum Laude

PREPRINTS

1. E. McSpirit and L. Rolen, *Quantum Modular Forms and Resurgence.* arXiv:2505.00799

RESEARCH PUBLICATIONS

1. L. Liles and E. McSpirit, *Infinite Families of Quantum Modular 3-Manifold Invariants.* Communications in Number Theory and Physics **18** (2024), no. 1,237-260.

2. E. McSpirit and K. Ono, *Hypergeometry and the AGM over Finite Fields.* To appear in Contemporary Mathematics, American Mathematical Society.

3. E. McSpirit 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. McSpirit 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. McSpirit, and A. Vishnu, *Algebraic relations between partition functions and the j-function.* Research in Number Theory **6** (2020) no. 2.

EXPOSITORY PUBLICATIONS

1. E. McSpirit, *Swinnerton-Dyer and the Ramanujan Congruences for $\tau(n)$.* To appear in Ramanujan Handbook by Springer.

2. E. McSpirit, *K3 Surfaces and Ramanujan's Sum of Two Cubes.* To appear in Ramanujan Handbook by Springer.

Honors and Awards

- AMS-Simons Travel Grant, Vanderbilt, 2024-2026
- Chair Award for Excellence in Teaching, Vanderbilt, 2025
- Dean's Doctoral Fellowship, University of Virginia, 2020-2024

Conference and Seminar Talks

2026	Jan	JMM AWM Session on Recent Developments by Women in Mathematical Physics
2025	Dec	Number Theory Seminar, University of Cologne
	Oct	AMS Session on Modular Forms in Combinatorics and Number Theory, Tulane
	Sept	Number Theory Seminar, University of Florida
	Aug	AMS Session on Areas Influenced by Ramanujan's Mathematics, U. Denver
2024	Dec	Joint AMS/NZMS/AustMS Meeting
		Special Session on Special Functions, q-Series and Beyond
	Nov	Algebra and Number Theory Seminar, Oregon State University
		Number Theory Seminar, Vanderbilt University
	Apr	AMS Session on Elementary Number Theory and Elliptic Curves, Howard
	Mar	Meeting on Plumbings and Spectra, Caltech
		Algebra, Geometry, and Number Theory Seminar, University of South Carolina
	Feb	Algebra and Number Theory Seminar, Louisiana State University
		The Web of Modularity, Tulane University
		Algebra Seminar, Virginia Tech
	Jan	Graduate Student Seminar, University of Virginia
		Joint Mathematics Meetings, San Francisco
		AMS Session on Mock modular forms, physics, and applications
		AMS Session on Partition Theory and q-Series
2023	Oct	Vanderbilt University Number Theory Seminar
		AMS Session on Number Theory and Friends, University of South Alabama
	Sept	Ramanujan–Serre Seminar, University of Virginia
	May	35th Automorphic Forms Workshop, Louisiana State University
	Apr	AMS Session on Hypergeometric Functions, q-series and Generalizations III
	Jan	Texas Number Theory and Combinatorics Seminar
2022	Mar	Graduate Student Seminar, University of Virginia
	Jan	Joint Mathematics Meetings, Virtual
		AMS Session on Modular Forms and Combinatorics

Leadership and Mentorship

- Fall 2025: Member of the Outreach Committee in the Vanderbilt Math Department
- 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

Vanderbilt University

2025	Fall	Instructor of record for MATH 3800/5800 (Number Theory)
	Spring	Instructor of record for MATH 2610/5610 (Ordinary Differential Equations)
2024	Fall	Instructor of record for MATH 1300 (Calculus I)

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)

Additional Conference and Workshop Participation

- March 2025: Simons Collab. New Structures in Low-Dim. Topology Annual Meeting
- May 2024: Shanks Conference on L-functions and Automorphic Forms, Vanderbilt
- 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

Referee Service

- Annals of Combinatorics
- College Math Journal Problem Section
- International Journal of Number Theory
- Israel Journal of Mathematics
- Journal of Number Theory
- Journal of Combinatorial Theory, Series A
- The Ramanujan Journal
- Research in the Mathematical Sciences