

CURRICULUM VITAE

ELEANOR MCSPIRIT

Office Address: Mathematics Building, Stevenson Center 1, Office 505, Vanderbilt University

Email: eleanor.mcspirit@vanderbilt.edu

Website: eleanormcspirit.com

APPOINTMENTS

Vanderbilt University, Postdoctoral Researcher

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. Rolén, *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, *Swinerton-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

- 2025 Oct AMS Session on Modular Forms in Combinatorics and Number Theory, Tulane
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

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

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

Vanderbilt University

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| 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

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| 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
- The Ramanujan Journal
- Research in the Mathematical Sciences