JACKSON MORRIS

CURRICULUM VITAE

Department of Mathematics
University of Washington
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EDUCATION

Ph.D. in Mathematics   *June 2026* (Expected)
University of Washington
Advisors: Kyle Ormsby and John Palmieri
Thesis title: Cooperations and periodicity in motivic homotopy theory

B.S. in Mathematics, *magna cum laude*   *December 2020*
University of Kentucky

RESEARCH INTERESTS

Algebraic Topology: motivic homotopy theory, chromatic homotopy theory, Hermitian K-theory, algebraic K-theory, Brown–Gitler spectra, synthetic spectra, nilpotence and periodicity, Adams spectral sequence, Steenrod algebra, spectral splittings, slice spectral sequence, periodic self-maps, telescope conjecture

PUBLICATIONS AND PREPRINTS

1. *Real K-theory of C_2-equivariant stunted projective spaces*, joint with Manyi Guo, Alex Waugh, and Albert Jinghui Yang. In preparation
2. *Slices of fixed points and diachromatic blueshift*, joint with Kyle Ormsby. In preparation.
3. *Exotic motivic self-maps of periodicity 1.* In preparation.
4. *Spectrum level splittings of truncated motivic Brown–Peterson cooperations algebras*, joint with Sarah Petersen and Elizabeth Tatum. Submitted. `https://arxiv.org/abs/2509.19542`
5. *Rings of cooperations for Hermitian K-theory over finite fields.* Submitted. `https://arxiv.org/abs/2509.02786`
6. *On the ring of cooperations for real Hermitian K-theory.* Submitted. `https://arxiv.org/abs/2506.16672`
7. *Toric Double Determinantal Varieties*, joint with Alexander Blose, Patricia Klein, and Owen McGrath. **Communications in Algebra 49** (2020), **7**, 3085-3093. `https://arxiv.org/abs/2006.04191`

SELECTED PRESENTATIONS & SEMINAR TALKS

University of Illinois Champaign-Urbana, Champaign-Urbana, IL   *January 2026*
Invited talk: Splittings and cooperations in motivic homotopy theory

Joint Math Meetings, Washington D.C.   *January 2026*
Invited talk: Cooperations in motivic homotopy theory

University of Virginia Topology Seminar, Charlottesville, VA   *November 2025*
Invited talk: Splittings and cooperations in motivic homotopy theory

University of Kentucky Topology Seminar, Lexington, KY   *November 2025*
Invited talk: Splittings and cooperations in motivic homotopy theory

eCHT Secondary Steenrod algebra seminar, Online   *November 2025*
Contributed talk: Higher Adams differentials and hidden extensions

Duke University Geometry and Topology Seminar, Durham, NC   *October 2025*
Invited talk: Splittings and cooperations in motivic homotopy theory

University of Colorado Boulder Homotopy Theory Seminar, Boulder, CO   *September 2025*
Invited talk: Splittings of truncated motivic Brown–Peterson cooperations algebras

University of Michigan Geometry Seminar, Ann Arbor, MI *September 2025*
Invited talk: On the ring of cooperations for real Hermitian K-theory

University of Notre Dame Topology Seminar, South Bend, IN *September 2025*
Invited talk: Splittings and cooperations in motivic homotopy theory

University of Washington Topology Seminar, Seattle, WA *June 2025*
Invited talk: On the ring of cooperations for real Hermitian K-theory
Preseminar: The algebraic Atiyah-Hirzebruch spectral sequence

GSTGC 2025, Bloomington, IN *April 2025*
Invited talk: On the ring of cooperations for real Hermitian K-theory

Reed College Colloquium, Portland, OR *February 2025*
Invited talk: Finding fixed points with invariants

Joint Math Meetings, Seattle WA *January 2025*
Invited talk: Towards real kq-resolutions

EAST 2024, Utrecht, NL *September 2024*
Lightning talk: Towards real kq-resolutions

GROOT seminar, Online *August 2024*
Invited talk: Symplectic orientations

Talbot 2024, Nacogdoches, TX *August 2024*
Contributed talk: $\pi_*\mathrm{THH}(\mathbb{Z}_p^{\mathrm{fil}})/p$ and $\pi_*\mathrm{THH}(\ell_p^{\mathrm{fil}})/(p, v_1)$

eCHT Hopf rings seminar, Online *April 2024*
Contributed talk: Motivic twisted K-theory

SERVICE AND PROFESSIONAL ACTIVITIES

Refereeing and Reviewing

Algebraic and Geometric Topology *2025-Present*
Refereeing

ZBMath *2026-Present*
Reviewing

Conference Organization

JMM Special Session: Homotopy Theory *January 2025*
Secondary local organizer for satellite session.
Reserved room on UW campus, set up projector, directed foot traffic.

Seminar Organization

DUBTOP Seminar *2025-2026*
Topics included: Chromatic homotopy theory, stacks, Goodwillie calculus

Back-To-School seminar *Fall 2024*
Sole organizer.
Student lectures on fun math learned over the summer.

Reading seminars
Topics included: Algebraic K-theory, cohomology operations, motivic homotopy theory, vector *2023 - 2024*
bundles and topological K-theory, categorical homotopy theory, model categories

TEACHING EXPERIENCE

Instructor of Record
University of Washington
Math 480 – Homotopy theory *Spring 2026*
Math 208 – Linear Algebra *Winter 2023, Summer 2023*

<u>Graduate Assistant</u>
Electronic Computational Homotopy Theory (eCHT)
Research Seminar — *Fall 2025, Spring 2026*
Quadratic Curve Counting (TA for Thomas Brazelton *and* Sabrina Pauli) — *Fall 2024*

Park City Math Institute (PCMI)
Experimental Math Lab (TA for JD Quigley) — *Summer 2024*

University of Washington
Math 441 – Topology — *Summer 2022, Summer 2024*
Math 300 – Intro to Proofs — *Spring 2023, Winter 2024*
Math 208 – Linear Algebra — *Fall 2023, Spring 2024, Winter 2025, Spring 2025, Fall 2025, Winter 2026*
Math 126 – Multivariable Calculus — *Spring 2022, Fall 2024*
Math 124 – Differential Calculus — *Fall 2021, Winter 2022*
Math 120 – Precalculus — *Fall 2022*

<u>Directed Reading Mentor</u>
University of Washington
Homotopy Theory (Mentee: Solden Stoll) — *Spring 2025, Summer 2025*
Representation Theory (Mentees: Dylan Rosenlind, Samuel Hsu, and Jin Hu) — *Spring 2024, Fall 2024*
Geometric Group Theory (Mentee: Jack Zhang) — *Winter 2023*
Introductory Homotopy Theory (Mentees: Ansel Goh, Nathan Louie) — *Fall 2022, Winter 2023*

<u>Graduate Student Mentor</u>
University of Washington
Mentor of an incoming first year graduate student — *2023-2024*

<u>Math Olympiad Judge</u>
UW Math Hour
Judge for elementary school math competition — *2023, 2024*

HONORS AND AWARDS

Lee and Cozette McFarlan Travel Fellowship — *Summer 2025*
Department of Mathematics – University of Washington — *$750*
For travel to European Talbot in Kolding, Denmark

Research Assistantship — *Summer 2025*
Graduate School – University of Washington
For "good research progress."
Selected by mathematics graduate program committee.

JC Eaves Scholarship — *2019 -2020*
Department of Mathematics – University of Kentucky — *$2000*
For "continued excellence in mathematics as a Kentuckian."
Nominated by mathematics faculty.

Carolyn Bunyan Award — *2020*
Department of Mathematics – University of Kentucky — *$2000*
For "outstanding mathematics majors interested in continuing education in mathematics."
Nominated by mathematics faculty.

SELECTED WORKSHOP AND CONFERENCE PARTICIPATION

Igorfest: Midwest Topology Conference Fall 2025 — *October 2025*
Minneapolis, MN

European Talbot — *July 2025*
Kolding, DEN

(WAGS) Western Algebraic Geometry Seminar — *April 2025*
Vancouver, VAN

(GSTGC) Graduate Student Topology and Geometry Conference　　　　*April 2025*
Bloomington, IN

Joint Math Meetings　　　　*January 2025*
Seattle, WA

Hot Topics: Life after the Telescope Conjecture　　　　*December 2024*
Berkeley, CA

(EAST) European Autumn School in Topology　　　　*September 2024*
Utrecht, NL

Talbot　　　　*August 2024*
Nacogdoches, TX

Motivic Homotopy, K-theory, and Modular Representations　　　　*August 2024*
Los Angeles, CA

PCMI 2024: Motivic Homotopy Theory　　　　*July 2024*
Park City, UT

eCHT Research Workshop on Hopf Rings　　　　*June 2024*
Online

Scissors Congruence, Algebraic K-theory, & Trace Methods　　　　*July 2023*
Bloomington, IN

REFERENCES

Mark Behrens　　　　mbehren1@nd.edu
John and Margaret McAndrews Professor of Mathematics
University of Notre Dame
Relationship: Research mentor

Kyle Ormsby　　　　ormsbyk@reed.edu
Mathematics Department Chair
Reed College
Relationship: PhD advisor and research collaborator

John Palmieri　　　　jpalmier@uw.edu
Professor of Mathematics
University of Washington
Relationship: PhD advisor; Mathematics Department Chair during first 2 years of graduate study

J.D. Quigley　　　　mbp6pj@virginia.edu
Assistant Professor of Mathematics
University of Virginia
Relationship: Research mentor; Program supervisor and mentor at PCMI

Charles Camacho　　　　camachoc@uw.edu
Assistant Teaching Professor
University of Washington
Relationship: Teaching supervisor and mentor

Natalie Naehrig　　　　naehrn@uw.edu
Assistant Teaching Professor
University of Washington
Relationship: Teaching supervisor and mentor