

JACKSON MORRIS

CURRICULUM VITAE

Department of Mathematics
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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

New Mexico State University, Las Cruces, NM

Winter 2026

Invited talk: Splittings and cooperations in motivic homotopy theory

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 <i>Invited talk</i> : Splittings of truncated motivic Brown–Peterson cooperations algebras	<i>September 2025</i>
University of Michigan Geometry Seminar , Ann Arbor, MI <i>Invited talk</i> : On the ring of cooperations for real Hermitian K-theory	<i>September 2025</i>
University of Notre Dame Topology Seminar , South Bend, IN <i>Invited talk</i> : Splittings and cooperations in motivic homotopy theory	<i>September 2025</i>
University of Washington Topology Seminar , Seattle, WA <i>Invited talk</i> : On the ring of cooperations for real Hermitian K-theory <i>Preseminar</i> : The algebraic Atiyah–Hirzebruch spectral sequence	<i>June 2025</i>
GSTGC 2025 , Bloomington, IN <i>Invited talk</i> : On the ring of cooperations for real Hermitian K-theory	<i>April 2025</i>
Reed College Colloquium , Portland, OR <i>Invited talk</i> : Finding fixed points with invariants	<i>February 2025</i>
Joint Math Meetings , Seattle WA <i>Invited talk</i> : Towards real kq-resolutions	<i>January 2025</i>
EAST 2024 , Utrecht, NL <i>Lightning talk</i> : Towards real kq-resolutions	<i>September 2024</i>
GROOT seminar , Online <i>Invited talk</i> : Symplectic orientations	<i>August 2024</i>
Talbot 2024 , Nacogdoches, TX <i>Contributed talk</i> : $\pi_*\mathrm{THH}(\mathbb{Z}_p^{\mathrm{fil}})/p$ and $\pi_*\mathrm{THH}(\ell_p^{\mathrm{fil}})/(p, v_1)$	<i>August 2024</i>
eCHT Hopf rings seminar , Online <i>Contributed talk</i> : Motivic twisted K-theory	<i>April 2024</i>

SERVICE AND PROFESSIONAL ACTIVITIES

Journal Refereeing

Algebraic and Geometric Topology	<i>2025-Present</i>
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Conference Organization

JMM Special Session: Homotopy Theory <i>Secondary local organizer for satellite session.</i> <i>Reserved room on UW campus, set up projector, directed foot traffic.</i>	<i>January 2025</i>
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Seminar Organization

DUBTOP Seminar <i>Topics included: Chromatic homotopy theory, stacks, Goodwillie calculus</i>	<i>2025-2026</i>
Back-To-School seminar <i>Sole organizer.</i> <i>Student lectures on fun math learned over the summer.</i>	<i>Fall 2024</i>
Reading seminars <i>Topics included: Algebraic K-theory, cohomology operations, motivic homotopy theory, vector bundles and topological K-theory, categorical homotopy theory, model categories</i>	<i>2023 - 2024</i>

TEACHING EXPERIENCE

<u>Instructor of Record</u> University of Washington <i>Math 208 – Linear Algebra</i>	<i>Winter 2023, Summer 2023</i>
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Graduate Assistant

Electronic Computational Homotopy Theory (eCHT)

Research Seminar

Fall 2025

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

Directed Reading Mentor

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

Graduate Student Mentor

University of Washington

Mentor of an incoming first year graduate student

2023-2024

Math Olympiad Judge

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

Bloomington, IN

April 2025

Joint Math Meetings

Seattle, WA

January 2025

Hot Topics: Life after the Telescope Conjecture

Berkeley, CA

December 2024

(EAST) European Autumn School in Topology

Utrecht, NL

September 2024

Talbot

Nacogdoches, TX

August 2024

Motivic Homotopy, K-theory, and Modular Representations

Los Angeles, CA

August 2024

PCMI 2024: Motivic Homotopy Theory

Park City, UT

July 2024

eCHT Research Workshop on Hopf Rings

Online

June 2024

Scissors Congruence, Algebraic K-theory, & Trace Methods

Bloomington, IN

July 2023

REFERENCES

Mark Behrens

John and Margaret McAndrews Professor of Mathematics

University of Notre Dame

Relationship: Research mentor

mbehren1@nd.edu

Kyle Ormsby

Mathematics Department Chair

Reed College

Relationship: PhD advisor and research collaborator

ormsbyk@reed.edu

John Palmieri

Professor of Mathematics

University of Washington

Relationship: PhD advisor; Mathematics Department Chair during first 2 years of graduate study

jpalmier@uw.edu

J.D. Quigley

Assistant Professor of Mathematics

University of Virginia

Relationship: Research mentor; Program supervisor and mentor at PCMI

mbp6pj@virginia.edu

Charles Camacho

Assistant Teaching Professor

University of Washington

Relationship: Teaching supervisor and mentor

camachoc@uw.edu

Natalie Naehrig

Assistant Teaching Professor

University of Washington

Relationship: Teaching supervisor and mentor

naehrn@uw.edu