

# JACKSON MORRIS

## CURRICULUM VITAE

Department of Mathematics  
University of Washington  
Seattle, WA 98195-4350

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### EDUCATION

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#### 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

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**Algebraic Topology:** motivic homotopy theory, chromatic homotopy theory, Hermitian K-theory, algebraic K-theory, Brown–Gitler spectra, synthetic spectra, periodicity, Adams spectral sequence, Steenrod algebra, slice spectral sequence, syntomic cohomology, symplectic cobordism, telescope conjecture

### PUBLICATIONS AND PREPRINTS

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1. *Real K-theory of equivariant classifying 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

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#### 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

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

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## SERVICE AND PROFESSIONAL ACTIVITIES

### Journal Refereeing

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

<b>JMM Special Session: Homotopy Theory</b>	<i>January 2025</i>
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*Secondary local organizer for satellite session.*

*Reserved room on UW campus, set up projector, directed foot traffic.*

### Seminar Organization

#### **DUBTOP Seminar**

<i>Chromatic homotopy theory and the language of stacks</i>	<i>Winter 2025</i>
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*Co-organized with Alex Waugh.*

#### *Goodwillie calculus*

*Fall 2024*

*Co-organized with Nelson Niu and Alex Waugh.*

#### **Back-To-School seminar**

*Fall 2024*

*Sole organizer.*

*Student lectures on fun math learned over the summer.*

#### **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>
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## TEACHING EXPERIENCE

### Instructor of Record

#### **University of Washington**

*Math 208 – Linear Algebra*

*Winter 2023, Summer 2023*

### Graduate Assistant

#### **Electronic Computational Homotopy Theory (eCHT)**

*Research Seminar*

*Quadratic Curve Counting (TA for Thomas Brazelton and Sabrina Pauli)*

*Fall 2025*

*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: Soden 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*

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## HONORS AND AWARDS

### **Lee and Cozette McFarlan Travel Fellowship**

*Summer 2025*

*\$750*

*Department of Mathematics – University of Washington*

*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*

*\$2000*

*Department of Mathematics – University of Kentucky*

*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.*

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## 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*

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**REFERENCES****Mark Behrens**

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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**

naehrnl@uw.edu

Assistant Teaching Professor

University of Washington

*Relationship: Teaching supervisor and mentor*