

# 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, nilpotence and periodicity, Adams spectral sequence, Steenrod algebra, spectral splittings, slice spectral sequence, periodic self-maps, telescope conjecture

### PUBLICATIONS AND PREPRINTS

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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

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

January 2026

**Joint Math Meetings**, Washington D.C.

January 2026

Invited talk: Cooperations in motivic homotopy theory

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

November 2025

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

November 2025

**eCHT Secondary Steenrod algebra seminar**, Online

November 2025

Contributed talk: Higher Adams differentials and hidden extensions

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

October 2025

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

September 2025

<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>

## **SERVICE AND PROFESSIONAL ACTIVITIES**

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### Refereeing and Reviewing

<b>Algebraic and Geometric Topology</b>	<i>2025-Present</i>
<i>Refereeing</i>	
<b>ZBMath</b>	<i>2026-Present</i>
<i>Reviewing</i>	

### Conference Organization

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

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

### Seminar Organization

<b>DUBTOP Seminar</b>	<i>2025-2026</i>
<i>Topics included: Chromatic homotopy theory, stacks, Goodwillie calculus</i>	

<b>Back-To-School seminar</b>	<i>Fall 2024</i>
<i>Sole organizer.</i>	

*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**

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<b>Instructor of Record</b>	
<b>University of Washington</b>	
<i>Math 480 – Homotopy theory</i>	<i>Spring 2026</i>
<i>Math 208 – Linear Algebra</i>	<i>Winter 2023, Summer 2023</i>

### Graduate Assistant

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

*Research Seminar*

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

*Fall 2025, Spring 2026*

*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*

## **HONORS AND AWARDS**

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### **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.*

## **SELECTED WORKSHOP AND CONFERENCE PARTICIPATION**

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### **( $\infty, \infty$ )-Categories Workshop**

*March 2026*

*Chicago, IL*

### **Igorfest: Midwest Topology Conference Fall 2025**

*October 2025*

*Minneapolis, MN*

### **European Talbot**

*July 2025*

*Kolding, DEN*

<b>(WAGS) Western Algebraic Geometry Seminar</b>	<i>Vancouver, VAN</i>	<i>April 2025</i>
<b>(GSTGC) Graduate Student Topology and Geometry Conference</b>	<i>Bloomington, IN</i>	<i>April 2025</i>
<b>Joint Math Meetings</b>	<i>Seattle, WA</i>	<i>January 2025</i>
<b>Hot Topics: Life after the Telescope Conjecture</b>	<i>Berkeley, CA</i>	<i>December 2024</i>
<b>(EAST) European Autumn School in Topology</b>	<i>Utrecht, NL</i>	<i>September 2024</i>
<b>Talbot</b>	<i>Nacogdoches, TX</i>	<i>August 2024</i>
<b>Motivic Homotopy, K-theory, and Modular Representations</b>	<i>Los Angeles, CA</i>	<i>August 2024</i>
<b>PCMI 2024: Motivic Homotopy Theory</b>	<i>Park City, UT</i>	<i>July 2024</i>
<b>eCHT Research Workshop on Hopf Rings</b>	<i>Online</i>	<i>June 2024</i>
<b>Scissors Congruence, Algebraic K-theory, &amp; Trace Methods</b>	<i>Bloomington, IN</i>	<i>July 2023</i>

## REFERENCES

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<b>Mark Behrens</b>	mbehren1@nd.edu
John and Margaret McAndrews Professor of Mathematics University of Notre Dame <i>Relationship: Research mentor</i>	
<b>Kyle Ormsby</b>	ormsbyk@reed.edu
Mathematics Department Chair Reed College <i>Relationship: PhD advisor and research collaborator</i>	
<b>John Palmieri</b>	jpalmier@uw.edu
Professor of Mathematics University of Washington <i>Relationship: PhD advisor; Mathematics Department Chair during first 2 years of graduate study</i>	
<b>J.D. Quigley</b>	mbp6pj@virginia.edu
Assistant Professor of Mathematics University of Virginia <i>Relationship: Research mentor; Program supervisor and mentor at PCMI</i>	
<b>Charles Camacho</b>	camachoc@uw.edu
Assistant Teaching Professor University of Washington <i>Relationship: Teaching supervisor and mentor</i>	
<b>Natalie Naehrig</b>	naehrnl@uw.edu
Assistant Teaching Professor University of Washington <i>Relationship: Teaching supervisor and mentor</i>	