

# JACKSON MORRIS

## CURRICULUM VITAE

Department of Mathematics  
University of Washington  
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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  $C_2$ -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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**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> : $\pi_*\mathrm{THH}(\mathbb{Z}_p^{\mathrm{fil}})/p$ and $\pi_*\mathrm{THH}(\ell_p^{\mathrm{fil}})/(p, v_1)$	<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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### 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>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

<b>DUBTOP Seminar</b> <i>Chromatic homotopy theory and the language of stacks</i> <i>Co-organized with Alex Waugh.</i> <i>Goodwillie calculus</i> <i>Co-organized with Nelson Niu and Alex Waugh.</i>	<i>Winter 2025</i>  <i>Fall 2024</i>
<b>Back-To-School seminar</b> <i>Sole organizer.</i> <i>Student lectures on fun math learned over the summer.</i>	<i>Fall 2024</i>
<b>Reading seminars</b> <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

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<u>Instructor of Record</u> <b>University of Washington</b> <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**

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#### **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**

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#### **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**

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**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*

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**Charles Camacho**

Assistant Teaching Professor

University of Washington

*Relationship: Teaching supervisor and mentor*

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**Natalie Naehrig**

Assistant Teaching Professor

University of Washington

*Relationship: Teaching supervisor and mentor*

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