

Eden Danielsen–Jensen

Ph.D. Candidate in Mathematics

Department of Mathematics, Brigham Young University

edendj@math.byu.edu • Academic Website

Education

Brigham Young University

Ph.D. in Mathematics

Expected Graduation: August 2027

- Advisor: Jennifer Brooks.
- Dissertation: Group-invariant CR Maps from Spheres to Hyperquadrics (working title).
Investigates the possible target dimensions and signatures of group-invariant CR maps from spheres in $\mathbb{C}^2$ to hyperquadrics, including constructions and regions where no such maps exist.

University of the Sunshine Coast

Bachelor of Science (Honours), Mathematics — First Class Honours

2022

- Advisors: Robert McDougall & Lauren Thornton.
- Honours thesis: *A Revised Introduction for the Base Semisimple Class*.
Used class operators to reinterpret existing results in radical theory concerning the base-semisimple class.

University of the Sunshine Coast

Bachelor of Science — GPA 6.96/7.00

2021

- Major: Mathematics
- Minor: Chemistry

Research Interests

Several Complex Variables, CR Geometry, proper holomorphic mappings, group-invariant CR maps, hyperquadrics, invariant polynomial maps, computational methods in complex analysis.

Publications

Submitted

- Eden Danielsen–Jensen, Dusty Grundmeier, Abdullah Al Helal, Valentin Kunz, Jiří Lebl, Ming Xiao, and Weixia Zhu. *Degree-Three Rational Sphere Maps: Sharp Denominator Region and Gram Normal Forms*. [arXiv:2608.29451](#).

In Preparation

- Jennifer Brooks, Eden Danielsen–Jensen, Dusty Grundmeier, and Alex Lee. *Lower Bounds for Invariant CR Maps*.
- Jennifer Brooks, Eden Danielsen–Jensen, Dusty Grundmeier, and Alex Lee. *Ranks and Signatures for Group-Invariant Polynomials*.

Presentations

Existence and Nonexistence of Group-Invariant Maps from Spheres to Hyperquadrics

- Math of Montana Conference, Bozeman, MT

October 2026

Signatures for Group-Invariant Monomial Maps from Spheres to Hyperquadrics

- MAA Intermountain Section Meeting, Provo, UT
- BYU Student Research Conference, Provo, UT
- Joint Mathematics Meetings (JMM), Washington, DC

March 2026

February 2026

January 2026

A Revised Introduction for the Base Semisimple Class

- Australian Mathematical Society Conference, Sydney, NSW
- Australian Algebra Conference, Sunshine Coast, QLD

December 2022

December 2022

Research Activities

Collaborative Research Workshop in Several Complex Variables

June 2026

Invited Participant — Institute for Advanced Study (IAS), Princeton, NJ

Teaching Experience

Instructor of Record — Brigham Young University

- **MATH 213** Elementary Linear Algebra Summer 2026
- **MATH 109** Precalculus Winter 2026
- **MATH 116** Essentials of Calculus Fall 2025
- **MATH 112** Calculus I Spring 2025

Teaching Assistant / Recitation Leader — Brigham Young University

- **MATH 341** Theory of Analysis I Fall 2025, Fall 2026
- **MATH 113** Calculus II Fall 2026

Grader — Brigham Young University

- **MATH 570** Matrix Analysis Winter 2025
- **MATH 510** Numerical Linear Algebra Fall 2025
- **MATH 314** Calculus of Several Variables Summer 2024

Sessional Academic Tutor — University of the Sunshine Coast

- **MATH 104** Introductory Calculus Semester 2 2023
- **MATH 103** Introduction to Applied Mathematics Semester 1 2023
- **SCI 110** Science Research Methods Semester 1 & 2 2023

Service & Outreach

- Assistant Director, Women in Math, BYU Mathematics 2026–Present
- Graduate Student Cohort Representative, BYU Mathematics 2024–Present
- Organizer, Graduate Student Writing Group, BYU Mathematics 2026–Present
- Organizer, Academic Website Professional Development Workshop, BYU Mathematics 2026
- Invited Speaker, Graduate TA Training: Building Rapport with Students, BYU Mathematics 2026
- Invited Graduate School Panelist, BYU Mathematics 2025–Present
- Creator and Facilitator, Mathematics Support Sessions, UniSC 2023
- Conference Organization Support, Australian Algebra Conference 2022

Honors & Awards

- Vice-Chancellor's Honours Scholarship, University of the Sunshine Coast 2022
- Thompson Excellence Scholarship, University of the Sunshine Coast 2019–2021
- Rural and Regional Enterprise Scholarship 2019–2021

Professional Memberships

• American Mathematical Society	Member
• Mathematical Association of America	Member
• Australian Mathematical Society	Member
• Women in Mathematics Special Interest Group (WIMSIG) AustMS	Member