Matthew Gillespie

My Email

My Website

Department of Mathematics & Statistical Sciences, Arizona State University
901 Palm Walk, Tempe, AZ 85281

Education

2022–27*	**Ph.D., Mathematics**, Arizona State University	4.00/4.00 GPA
2017–21	**B.S., Mathematics**, Oregon State University	3.75/4.00 GPA

*Expected.

Research Interests

Operator Algebras C*-algebras

Crossed Products Crossed product C*-algebras, maximal and normal coactions, ideal correspondences, ideal invariance

Quantum Groups (Locally) compact quantum groups, discrete quantum groups, partial coactions, partial corepresentation theory

Other Interests Model theory of C*-algebras and von Neumann algebras, cryptography, operations research, machine learning, quantum computing, quantum information theory, quantitative finance, actuarial science

Awards & Honors

2026 Completion Fellowship, Arizona State University

Hand selected for a university-wide competitive merit based fellowship awarded to small number of outstanding graduate students for research excellence, perfect GPA, and fantastic mentorship. Full tuition and stipend award for the last semester / year of the Ph.D program depending on credit requirements.

2021 Joel Davis Award, Oregon State University

Award given to a selective pool of undergraduate students showing strong research potential and competitive scholarship.

Publications and Preprints

◇ ORCID: 0009-0008-9638-0824

J1. Buss, A., Gillespie, M., Hall, L. *Partial Corepresentations of Quantum Groups.* In progress

J2. Gillespie, M., Jones, B., Kaliszewski, S., Quigg, J. *Comparing Two Notions of Coaction Invariance of Ideals in C*-Algebras*. Journal of Operator Theory, in review, 2026

J3. Gillespie, M. *The Ladder Technique - Quantum Groups*. New York Journal of Mathematics, accepted, 2026.

J4. Gillespie, M., Hall, L., Jones, B., Tobolski, M. *Principal Actions on Topological Quivers and Associated Operator Dynamics* arXiv preprint, 2025 arXiv:2503.16352

J5. Gillespie, M., Kaliszewski, S., Williams P., D., Quigg, J. *Bijections Between Sets of Invariant Ideals, Via the Ladder Technique*. New York Journal of Mathematics, accepted, 2025.

Talks

T1. *A Partial Group C*-Algebra for Discrete Quantum Groups*. Contributed conference talk. Great Plains Operator Theory Symposium, University of Iowa. May, 2026.

T2. *A Partial Group C*-Algebra for Discrete Quantum Groups*. Invited seminar talk. MSU Operator Theory Seminar, Michigan State University, April, 2026.

T3. *Comparing Two Notions of Coaction Invariance*. Contributed conference talk. Great Plains Operator Theory Symposium, University of Puerto Rico, October 2025.

T4. *An Ideal Correspondence Result for Crossed Products by Quantum Groups*. Contributed conference talk. Canadian Operator Algebras Symposium, University of Waterloo, May 2025.

T5. *An Ideal Correspondence Result for Crossed Products by Quantum Groups* Invited seminar talk. Methods of Noncommutative Topology Seminar, Warsaw University, April 2025.

T6. *Principal Actions on Topological Quivers*. Contributed conference talk. Great Plains Operator Theory Symposium, University of Nebraska - Lincoln, May 2024.

T7. *The Ladder Technique*. Contributed conference talk. Great Plains Operator Theory Symposium, The Ohio State University, May 2023.

Teaching

Spring 2027	Fellowship Awardee
Fall 2026	Graduate Teaching Assistant, Advanced Calculus, Measure Theory I
Summer 2026	Instructor, Pre calculus
Spring 2026	Graduate Teaching Assistant, Intermediate Real Analysis II, Measure Theory II
Fall 2025	Instructor, Calculus for Engineers II

Summer 2025	Instructor, Calculus for Engineers I
Spring 2025	Instructor, Calculus for Engineers II
Fall 2024	Instructor, Calculus for Engineers I
Summer 2024	Instructor, Pre calculus
Spring 2024	Grader, Advanced Calculus, Measure Theory II
Fall 2023	Grader, Advanced calculus, Measure Theory I
Summer 2023	Summer Research Assistant
Spring 2023	Grader, Advanced Calculus
Fall 2022	Graduate Teaching Assistant, Calculus W/ Analytic Geometry I

Conferences & Seminars

C1. Young Mathematicians in C*-Algebras, University of Oxford, August 2026.

C2. Great Plains Operator Theory Symposium, University of Iowa, May 2026.

C3. MSU Operator Theory Seminar, Michigan State University, April 2026.

C4. ASU C*-Seminar, Arizona State University, 2026.

C5. Great Plains Operator Theory Symposium, University of Puerto Rico, October 2025.

C6. Canadian Operator Algebras Symposium, University of Waterloo, May 2025.

C7. Methods of Noncommutative Topology Seminar, Warsaw University, April 2025.

C8. ASU C*-Seminar, Arizona State University, 2025.

C9. Young Mathematicians in C*-Algebras, University of Glasgow, July 2024.

C10. Great Plains Operator Theory Symposium, University of Nebraska - Lincoln, May 2024.

C11. ASU C*-Seminar, Arizona State University, 2024.

C12. Young Mathematicians in C*-Algebras, KU Leuven, August 2023.

C13. Groundwork for Operator Algebras Lecture Series, Purdue University, June, 2023.

C14. Great Plains Operator Theory Symposium, The Ohio State University, May 2023.

C15. ASU C*-Seminar, Arizona State University, 2023.

C16. ASU C*-Seminar, Arizona State University, 2022.

C17. Great Plains Operator Theory Symposium, Washington University, May 2022.

References

John Quigg
Department of Mathematical & Statistical Sciences, Arizona State University
Contact Them

S. Kaliszewski
Department of Mathematical & Statistical Sciences, Arizona State University
Contact Them

Jack Spielberg
Department of Mathematical & Statistical Sciences, Arizona State University
Contact Them

Brett Kotschwar
Department of Mathematical & Statistical Sciences, Arizona State University
Contact Them

Alcides Buss
Department of Mathematics, Federal University of Santa Catarina
Contact Them