Jeremiah Isu

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PHSC 916, University of Oklahoma, 73019, Norman, OK

Education

- **Doctor of Philosophy, Mathematics** — *In progress*
  University of Oklahoma (OU) — Norman, Oklahoma
  ◦ Advisor: Dr. Javier Chávez-Domínguez
  ◦ Research area: Quantum Information Theory
- **Master of Arts, Mathematics** — *May 2024*
  University of Oklahoma — Norman, Oklahoma
- **Bachelor of Science, Mathematics** — *June 2018*
  University of Port Harcourt — Port Harcourt, Nigeria
  ◦ First Class Honors

Research

My primary research area is quantum information theory. My current work employs quantum tomography to extend and generalize phase-retrievability results for quantum channels and quantum measurements. I am also interested in quantum computation and its broader scientific and technological applications.

Manuscripts:

1. *Phase Retrievability of Super Operators and Measurements* (31-page arXiv preprint)
2. *Quantum Weaving Phase Retrieval* (in progress)

Research Visit:

1. Visited Professor Deguang Han at the University of Central Florida in Summer 2026 as part of the DFCAS research fellowship award.

Professional Experience

- **Graduate Teaching Assistant** — *August 2021 - Present*
  University of Oklahoma — Norman, Oklahoma

  Courses taught as instructor of record:

  ◦ *MATH 1005 - Mathematical Reasoning (Fall 2025)*
  ◦ *MATH 2924 - Differential and Integral Calculus II (Summer 2025)*
  ◦ *MATH 1743 - Calculus I for Business, Life and Social Sciences (Spring 2025)*
  ◦ *MATH 1643 - Functions and Modeling for Business, Life and Social Sciences (Fall '24 & '23, Sum. '24, Spring '26)*
  ◦ *MATH 1503 - College Algebra (Fall 2022)*

  Discussion sections led:

  ◦ *MATH 1823 - Calculus and Analytic Geometry I (Spring 2022)*
  ◦ *MATH 2924 - Differential and Integral Calculus II (Spring 2024)*

  Courses graded:

  ◦ *MATH 3333 - Linear Algebra (Fall 2021)*
  ◦ *MATH 4193/5103 - Introductory Mathematical Modeling/Mathematical Models (Spring 2025)*

- **Directed Reading Program Mentor** — *October 2025 - Present*
  David & Judi Proctor Department of Mathematics, OU — Norman Oklahoma

  Undergraduate students I mentored in Fall 2025 & Spring 2026:

  1. Jiawen Li, Logan Jones and Tien Huynh — Introduction to Quantum Information & Computation
  2. John Hernandez — Functional Analysis

Certifications

- **Qiskit Global Summer School 2026 - Quantum Excellence Badge** *August 2026*
  IBM
- **Quantum Computing Boot Camp** *July 2026*
  The Erdős Institute
- **Basics of Quantum Information** *June 2025*
  IBM

Quantum Libraries and Tools

◦ Qiskit

Talks & Presentations

- **Quantum Phase Retrieval** *Scheduled, September 2026*
  OU-OSU Applied Math Joint Seminar
- **The Geometry of Qubit States** *February 2026*
  Graduate Student Seminar, David & Judi Proctor Department of Mathematics, OU
- **Quantum State Recovery Beyond Rank-One: Generalizing Phase Retrieval Techniques** *November 2025*
  General Exam and Analysis Seminar, David & Judi Proctor Department of Mathematics, OU
- **A Gentle Introduction to Quantum Channels and Quantum Measurements II** *October 2025*
  Student Analysis Seminar, David & Judi Proctor Department of Mathematics OU
- **A Gentle Introduction to Quantum Channels and Quantum Measurements I** *September 2025*
  Student Analysis Seminar, David & Judi Proctor Department of Mathematics OU
- **Phase-retrievability of Quantum Channels** *July 2025*
  SLMath Summer Graduate School at IBM Yorktown

Awards & Scholarships

- **Andree Scholarship** *April 2026*
  David & Judi Proctor Department of Mathematics, OU
- **DFCAS Graduate Research Fellowship** *March 2026*
  Dodge Family College of Arts and Sciences, OU
- **Harold Huneke Endowed Scholarship for the 2025-2026 academic year** *May 2025*
  David & Judi Proctor Department of Mathematics, OU
- **Harold Huneke Endowed Scholarship for the 2024-2025 academic year** *April 2024*
  David & Judi Proctor Department of Mathematics, OU
- **Nancy Scofield Hester Mathematics Scholarship for the 2023-2024 academic year** *April 2023*
  David & Judi Proctor Department of Mathematics, OU

Service

- **Lead Organizer, Qiskit Fall Fest at OU** *Fall, 2026*
  A global, IBM-anchored annual quantum computing event.
- **Member, Directed Reading Program Committee** *September 2025 - Present*
  David & Judi Proctor Department of Mathematics, OU
- **Organizer, Student Analysis Seminar** *February 2025-Spring 2026*
  David & Judi Proctor Department of Mathematics, OU
- **Vice President Math Graduate Students Association** *August 2024- May 2025*
  David & Judi Proctor Department of Mathematics, OU
- **First Year Representative in the Graduate Advocacy Committee** *August 2021-May 2022*
  David & Judi Proctor Department of Mathematics, OU