General Ozochiawaeze

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Education

Purdue University
Ph.D. Candidate in Mathematics 2021 – 2027 (expected)
- Research Interests: Inverse Problems & Partial Differential Equations
- Advisors: Peijun Li & Isaac Harris

New Jersey Institute of Technology
M.S. in Applied Mathematics May 2021
- Advisor: Christina Frederick

Rutgers University
B.A. in Mathematics May 2018

Publications

1. I. Harris, P. Li, **G. Ozochiawaeze**. Sampling methods for the inverse cavity scattering problem of biharmonic waves. *Submitted to Inverse Problems*, 2025. arXiv:2509.02773

2. I. Harris, P. Li, and **G. Ozochiawaeze**. Factorization method for the biharmonic scattering problem for an absorbing penetrable obstacle. *Under Preparation*.

Work Experience

MIT Lincoln Laboratory | Lexington, MA May 2023 – Oct 2023
- *Summer Research Intern, Group 36 – Integrated Missile Defense Technology*
- Applied compressive sensing to enhance radar imaging for missile target detection, improving reconstruction accuracy.
- Presented compelling research findings on compressed radar sensing, demonstrating potential applications in enhanced defense technologies.

MIT Lincoln Laboratory | Lexington, MA May 2022 – Aug 2022
- *Summer Research Intern, Group 37 – Advanced Undersea Systems & Technology*
- Developed algorithms to analyze coherence loss in sonar signals, improving underwater detection and tracking.
- Applied sonar array interferometry to extract spatial information from acoustic wave-fronts.

Teaching

- Lecturer, **Purdue University** — *MA 16020: Applied Calculus II*, Fall 2025
- Recitation Instructor, **Purdue University** — *MA 261: Multivariable Calculus*, Spring 2024
- Teaching Assistant, **Purdue University** — *MA 511: Linear Algebra and Applications*, Spring 2023
- Recitation Instructor, **Purdue University** — *MA 261: Multivariable Calculus*, Fall 2022
- Recitation Instructor, **Purdue University** — *MA 162: Calculus II*, Spring 2022
- Recitation Instructor, **Purdue University** — *MA 161: Calculus I*, Fall 2021
- Instructor, **Accel Learning** — Mentored students in preparation for AMC and AIME math competitions, Spring–Fall 2020
- Math Instructor, **Mathnasium**, K-12 Teaching & Tutoring, Fall 2018–Spring 2019

Awards and Honors

- **NSF Computational Mathematics Program Award**, DMS-2208256, 2023.08
- **GEM Fellowship**, 2022.08
- **Graduate C/Startup Research Grant**, 2020.09
- **Tau Sigma Honors Society**, 2016.06

Skills

Computing & Software: `Python`, `C++`, `MATLAB`, `COMSOL`, `FEniCS`

Conferences Attended

Summer School: Theory and Applications of Elliptic PDE (Presented) — 2025
UC Irvine

Mathematics and Statistics in Industry Workshop and Panel Discussion — 2025
Purdue University

Conference on Mathematics of Wave Phenomena — 2025
Karlsruhe Institute of Technology (KIT)

Paris-Saclay Conference in Analysis and PDE — 2024
Laboratoire de Mathématiques d'Orsay

SIAM Student Chapter Conference (Presented) — 2024
Purdue University

Workshop on Scientific Computing — 2022
Purdue University

New Ideas in Computational Inverse Problems — 2022
BIRS, Banff International Research Station

Seminar & Conference Talks

Extending Qualitative Reconstruction to Biharmonic Scattering with Limited Data — 2025
Summer School: Theory and Applications of Elliptic PDE, UC Irvine

Extending Qualitative Reconstruction in Biharmonic Scattering from Limited Data — 2025
Graduate Student Analysis Seminar, Purdue University

On Sampling Methods for Recovering a Clamped Cavity in a Thin Plate — 2025
CCAM Lunch Seminar, Purdue University

A Linear Sampling Method for Recovering a Clamped Cavity in a Thin Plate — 2024
Purdue Graduate Research Day, Purdue University

The K-theoretic Atiyah-Singer Index Theorem — 2024
Student Operator Algebras Seminar, Purdue University

Comparing and Integrating the Probe Method and Method of Singular Sources — 2023
Graduate Student Analysis Seminar, Purdue University

The Factorization Method in Inverse Scattering — 2023
Graduate Student Analysis Seminar, Purdue University

Outreach & Projects

Mentor, Directed Reading Project in Computational Topology — 2025
Purdue University — mentee: Aaron (Sang Hyun) Kim

Founder and Organizer, Math History Seminar — 2022
Purdue University