

Matthew Kowalski

✉ mattkowalski@math.ucla.edu | 🏠 www.math.ucla.edu/~mattkowalski/ | ☎ 0009-0006-6027-1592

Education

University of California, Los Angeles

Ph.D. Mathematics

M.A. Mathematics

- Advancement to Candidacy: 2/26/24

Los Angeles, California

August 2021 – Present

August 2021 – December 2022

Michigan State University

B.S. Advanced Mathematics

B.S. Physics

B.S. Computational Mathematics

- Minor in Computer Science, Honors College, graduated with high honors

East Lansing, Michigan

August 2017 – May 2021

August 2017 – May 2021

August 2017 – May 2021

Research Positions

Graduate Student Researcher

Under supervision of Monica Viřan and Rowan Killip

- Focus: dispersive partial differential equations, completely integrable systems, and harmonic analysis.

University of California, Los Angeles

Spring 2023 – Present

Professorial Assistant

Under supervision of Tyce DeYoung, with the IceCube Neutrino Observatory

- Focus: experimental particle astrophysics

Created a simulation of photons scattering within ice. Goal was to correct approximations used in IceCube's detector model.

Michigan State University

Fall 2017 – Spring 2021

Publications and Preprints

PUBLISHED/FORTHCOMING

Dispersive decay for the energy-critical nonlinear Schrödinger equation

Matthew Kowalski

Journal of Differential Equations, vol. 429392–426. 2025

Turbulent threshold for continuum Calogero–Moser models

James Hogan, *Matthew Kowalski

Pure and Applied Analysis, 6(4):941–954. Mathematical Sciences Publishers, 2024

SUBMITTED

Dispersive decay for the energy-critical nonlinear wave equation

Matthew Kowalski

Preprint [arXiv:2501.06387](#)

Selected Presentations

INVITED TALKS

Turbulence in completely integrable PDEs (upcoming)

International Conference on Integrable Systems and Quantum Symmetries, Prague

CTU

July 2025

Dispersive decay for the energy-critical nonlinear Schrödinger equation

- Institute of Applied Physics and Computational Mathematics, Beijing
- *Analysis and PDE Seminar*, Caltech

July 2024

May 2024

Turbulent threshold and dispersive decay for continuum Calogero–Moser models

Nonlinear Hamiltonian PDEs Special Session, AMS Spring Eastern Sectional Meeting

Howard Univ.

April 2024

Selected Presentations (continued)

CONTRIBUTED TALKS/POSTERS

Dispersive decay for the energy-critical nonlinear Schrödinger equation

- Contributed poster *International Congress of Basic Science, BIMSA, Beijing* July 2024
- Contributed speaker *Nonlinear PDEs Summer School, UC Berkeley* June 2024
- Contributed speaker *Nonlinear Waves and Relativity Thematic Program, Erwin Schrödinger Institute* May 2024

STUDENT PRESENTATIONS

Sharp Well-Posedness for the Dispersion-Managed NLS

Participating Analysis Seminar UCLA February 2024

Optical Fibers and NLS

Participating Analysis Seminar UCLA November 2024

Dispersive decay for the energy-critical nonlinear Schrödinger equation

Participating Analysis Seminar May 2024

Continuum Calogero–Moser models

Advancement to candidacy UCLA February 2024

Conferences Attended

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| July 2025 | (upcoming) International Conference on Integrable Systems and Quantum Symmetries, Prague | CTU |
| April 2025 | (upcoming) Dispersive Integrable Equations, Marseille, France | CIRM |
| July 2024 | International Congress of Basic Sciences, Beijing, China | BIMSA |
| June 2024 | Microlocal Analysis and Quantum Dynamics, | Northwestern |
| June 2024 | Nonlinear PDEs Summer School, | UC Berkeley |
| April 2024 | Rivière–Fabes Symposium on Analysis and PDE, | UMN |
| April 2024 | AMS Spring Eastern Sectional Meeting, | Howard |
| March 2024 | School on Soliton Dynamics, | Texas A&M |
| Nov. 2023 | 19th Prairie Analysis Seminar, | Kansas State |
| April 2023 | Rivière–Fabes Symposium on Analysis and PDE, | UMN |

Mentorship and Service

Lead Instructor

Olga Radko Endowed Math Circle, UCLA September 2024 – Present

Directed Reading Program Mentor

University of California - Los Angeles January 2024 – Present

- Quantum error correction Winter 2025
- Quantum computing and Shor’s algorithm Fall 2024
- Ehrenpreis’s fundamental principle for systems of linear PDEs with constant coefficients Spring 2024
- Quantum computing and Shor’s algorithm Spring 2024
- Fourier analysis and split-step methods for cubic NLS Winter 2024

Directed Reading Program Organizer

University of California, Los Angeles September 2024 – Present

First-Year Graduate Student Mentor

University of California, Los Angeles September 2024 – Present

Guest Judge for Annual Science Fair

Portola Highly Gifted Magnet Program January 2024

Teaching

University of California - Los Angeles

Teaching Fellow		September 2021 – Present
• Math 131AB	Analysis	Winter '25, Fall '24
• Math 32A	Calculus of Several Variables	Fall '24
• Math 115A	Linear Algebra	Spring '24, Fall '23, Spring '23
• Math 33B	Differential Equations	Spring '24, Winter '23, Spring '22
• Math 135	Ordinary Differential Equations	Winter '24
• Math 134	Linear and Nonlinear Systems of Differential Equations	Fall '23
• Math 31AB	Differential and Integral Calculus, Integration and Infinite Series	Spring '23, Fall '22, Fall '21
• Math 32B	Calculus of Several Variables	Winter '23, Winter '22
• Math 132	Complex Analysis for Applications	Fall '22, Summer '22

Michigan State University

Undergraduate Learning Assistant		August 2017 – May 2019
• Physics 184	Physics for Scientists and Engineers II	Spring '19
• Physics 231/232C	Introductory Physics I/II	Spring '18, Fall '17

Honors and Awards

July 2024	Outstanding Poster Award , International Congress of Basic Science	BIMSA
June 2022	Summer Mentored Research Fellowship ,	UCLA
May 2021	Board of Trustees Award ,	MSU
April 2020	Dr. Marshall and Barbara Hestenes Endowed Scholarship Award ,	MSU