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

Michigan State University

B.S. Advanced Mathematics

B.S. Physics

B.S. Computational Mathematics

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

Research Positions

Graduate Student Researcher

Under supervision of Monica Vişan and Rowan Killip

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

Professorial Assistant

Under supervision of Tyce DeYoung, with the IceCube Neutrino Observatory

• Focus: experimental particle astrophysics, computational simulation Created a simulation of photons scattering within ice. Goal was to correct approximations used in IceCube's detector model.

Publications and Preprints_

PUBLISHED/FORTHCOMING

Dispersive decay for the energy-critical nonlinear Schrödinger equation

Matthew Kowalski

Journal of Differential Equations, to appear. 2025 Preprint arXiv:2411.01466

Turbulent threshold for continuum Calogero-Moser models

James Hogan, *Matthew Kowalski Pure and Applied Analysis, 6(4):941–954. Mathematical Sciences Publishers, 2024

SUBMITTED

INVITED TALKS

Dispersive decay for the energy-critical nonlinear wave equation

Matthew Kowalski Preprint arXiv:2501.06387

Selected Presentations

Turbulence in Completely Integrable PDEs (upcoming)	CTU
International Conference on Integrable Systems and Quantum Symmetries, Prague	July 2025
Dispersive decay for the energy-critical nonlinear Schrödinger equation	
 Institute of Applied Physics and Computational Mathematics, Beijing 	July 2024
Analysis and PDE Seminar, Caltech	May 2024
Turbulent threshold and dispersive decay for continuum Calogero-Moser models	Howard Univ.
Nonlinear Hamiltonian PDEs Special Session, AMS Spring Eastern Sectional Meeting	April 2024

University of California, Los Angeles

Spring 2023 – Present

Michigan State University

Fall 2017 – Spring 2021

August 2017 – May 2021

Los Angeles, California

East Lansing, Michigan

August 2017 – May 2021

August 2017 – May 2021

August 2021 - December 2022

August 2021 - Present

February 13, 2025

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
Continuum Calogero	-Moser models	UCLA
Advancement to candidacy		February 2024
Student Present	ATIONS	
Sharp Well-Posednes	ss for the Dispersion-Managed NLS	UCLA
Participating Analysis Seminar		February 2024
Optical Fibers and NI	LS	UCLA
Participating Analysis Seminar		November 2024
Dispersive decay for	the energy-critical nonlinear Schrödinger equation	
Participating Analysis Se	minar	May 2024

Conferences Attended

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 Quantum computing and Shor's algorithm Ehrenpreis's fundamental principle for systems of linear PDEs with constant coefficients Quantum computing and Shor's algorithm Fourier analysis and split-step methods for cubic NLS 	Winter 2025 Fall 2024 Spring 2024 Spring 2024 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 Ui	niversity	
Undergraduate Lear	ning 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

Physics 231/232C Introductory Physics I/II

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