

Joseph K. Miller

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University of Texas - Austin,
Mathematics Dept. 2515 Speedway,
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EDUCATION

- **University of Texas - Austin**
Ph.D. Candidate in Mathematics
Advised by Nataša Pavlović
August 2018 - May 2024
- **University of California - Los Angeles**
B.S with Honors in Mathematics
September 2015 - July 2018

TEACHING EXPERIENCE

- **Teaching Assistant**
Introduction to Real Analysis (M361K)
Taught by Mark Daniels at UT - Austin
Spring, 2022 (Teaching Feedback)
- **Workshop Assistant**
RTG Summer Program 2021 Analysis & PDE
With P. Isett and F. Maggi at UT - Austin
Summer, 2021
- **Undergraduate Mentor**
Directed reading project mentor at UT - Austin
Fall 2020 - Spring 2021 (Sam Perales), Spring 2020 (Olivia Ott)
- **Prelim Review Instructor**
Lead a week-long review session for the graduate preliminary exam on real analysis at UT - Austin
Summer, 2020
- **Teaching Assistant**
With the Los Angeles Math Circle
Fall 2017 - Spring 2018
- **Grader**
For linear algebra and multivariable calculus
Fall 2016 - Spring 2017

PUBLICATIONS

- [5] Ampatzoglou, I., Miller, J. K., Pavlović, N., Tasković, M. *On The Uniqueness and Global Existence of the Boltzmann Hierarchy*. In Preparation, 2023.
- [4] Cárdenas, E., Miller, J. K., Pavlović, N. *On the effective dynamics of Bose-Fermi mixtures*. arXiv:2309.04638. (2023).
- [3] Miller, J. K., Nahmod, A. R., Pavlović, N., Rosenzweig, M., Staffilani, G. *A rigorous derivation of the Hamiltonian structure for the Vlasov equation*. Forum of Mathematics, Sigma, 11, e77. (2023).
- [2] Ampatzoglou, I., Miller, J. K., Pavlović, N., *A Rigorous Derivation of a Boltzmann System for a Mixture of Hard-Sphere Gases*, SIMA, Vol. 54, Iss. 2, (2022).
- [1] Lyons, J., Miller, J., *The derivative of a solution to a second order parameter dependent boundary value problem with a nonlocal integral boundary condition*. Journal of Mathematical and Statistical Science, Vol. 1, Iss. 2, (2015).

AWARDS & GRANTS

- **Frank Gerth III Teaching Excellence Award**

Teaching award at UT - Austin

May, 2023

- **Oberwolfach Leibniz Graduate Student Grant**

Travel funding to Oberwolfach. Deterministic Dynamics and Randomness in PDE (2221)

May, 2022

- **Brown University & ICERM**

Visiting scholar for the semester on Hamiltonian Methods in Dispersive and Wave Evolution Equations

Fall, 2021

- **RTG Graduate Fellowship**

NSF Grant DMS-1840314, two semesters no teaching load and summer support

Spring 2021 - Fall 2021

- **Provost's Graduate Excellence Fellowship**

5 year fellowship, 3 years of no teaching at UT - Austin

August 2018 - July 2023

- **VIGRE REU**

NSF Research Experience Undergraduate

With Prof. John Garnett on harmonic analysis at UCLA

Summer, 2017

CONFERENCES

- **Monash University, AUS**

Nonlinear dispersive and wave equations (Invited Short Presentation)

A conference in honor of Carlos Kenig

December 10th - 15th, 2023

- **Simons Collaboration on Wave Turbulence**

Annual Meeting in NYC (Invited Participant)

November 30th - December 1st

- **Kansas State University**

The 19th Prairie Analysis Seminar (Poster Presentation)

November 3rd - 4th, 2023

- **MIT**

Summer School on Wave Turbulence (Invited Participant)

Sponsored by the Simons Collaboration on Wave Turbulence

July 24th - 28th, 2023

- **Imperial College London, UK**

Stability and dynamics in fluid mechanics and kinetic theory (Invited Short Talk)

July 10th - 14th, 2023

- **Simons Collaboration on Wave Turbulence**

Annual Meeting in NYC (Invited Participant)

December 1st - 2nd, 2022

- **MIT Focused Research Group (FRG)**
New Challenges in the Derivation and Dynamics of Quantum Systems (Invited Collaborator)
(Unable to attend due to COVID)
November 19th, 2022
- **Banff International Research Station (BIRS), CA**
Recent Progress in Kinetic and Integro-Differential Equations (Invited Participant)
November 6th - 11th, 2022
- **Brown University & ICERM**
Semester Program on Harmonic Analysis and Convexity (Invited Participant)
Workshop: Probabilistic Methods in Geometry and Analysis
October 17th - 21st, 2022
- **Simons Collaboration on Wave Turbulence, IT**
Wave Turbulence and Beyond: Summer School in Torino, IT
(Unable to attend due to illness)
July 17th - July 21st, 2022
- **Methods and Models of Kinetic Theory, IT**
11th Summer School held in Pesaro, IT (Poster)
June 12th - June 18th, 2022
- **Oberwolfach, GE**
Deterministic Dynamics and Randomness in PDE, ID: 2221 (Invited Short Talk)
(Was also Video Conference Organizer)
May 22nd - May 28th, 2022
- **Simons Collaboration on Wave Turbulence**
Annual Meeting in NYC (Invited Participant)
December 2nd - December 3rd, 2021
- **Brown University & ICERM**
Hamiltonian Methods in Dispersive and Wave Evolution Equation (Visiting Scholar)
October 18th - December 10th, 2021
- **Institut d'Etudes Scientifiques de Cargèse (IESC), FR**
Advanced Summer School on Mathematical Fluid Dynamics (Poster Presentation)
August 13th - August 21st, 2021
- **MSRI**
CRM-PIMS Summer school in probability (Invited Participant)
May 24th - June 18th, 2021
- **University of Texas - Austin**
RTG Summer Program in PDE and Analysis (TA/Participant)
May 17th - May 21st, 2021
- **Univesity of Texas - Austin**
Texas Analysis and Mathematical Physics (Short Contributing Talk)
April 19th - April 11th, 2021
- **University of Ohio/University of Kentucky**
Ohio River Analysis Meeting (Short Contributing Talk)
March 20th - March 21st, 2021

- **University of Pennsylvania**
Non-linear Dynamics in Quantum Mechanics (Participant)
October 1st - October 2nd, 2020
- **ENS de Lyon, FR**
Scaling Limits in Kinetic Theory (Participant)
September 30th - October 4th, 2019
- **University of Texas - Austin**
Fitting Smooth Functions to Data (Participant)
August 5th - August 9th, 2019
- **Universitat de Barcelona, ES**
Barcelona Analysis Conference (Participant)
June 25th - June 28th, 2019
- **EMS Summer School in Applied Mathematics, CZ**
Mathematical Aspects of Fluid Flows, Kàcov, CZ (Participant)
May 26th - May 31st, 2019

VISITING PRESENTATIONS

- **CUNY Graduate Center**
Harmonic Analysis and PDE seminar
December 1st, 2023
- **Emory University**
Analysis Seminar
August, 2022
- **University of California - Davis**
Student Run Analysis & PDE Seminar
February 25th, 2021

SKILLS & LANGUAGES

- **Languages**
 - English: Native
 - Standard Chinese: Proficient (HSK 2.0, Level 5)
 - French: Reading only
- **Programming Languages**
 - Python: Proficient in the NumPy and PyTorch libraries
 - MATLAB: Proficient
- **Other Skills**
 - SCUBA Diving: PADI Open Water Certified, 100+ hours experience
 - Rock Climbing: Outdoor lead sport/traditional climbing, 50+ hours of experience