

**CONTACT
INFORMATION**

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Austin, TX 78751

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EDUCATION

Department of Mathematics, The University of Texas at Austin
Ph.D. Candidate, Mathematics August 2022 - Present
Advised by Nataša Pavlović

Departments of Mathematics and Physics, University of Dallas
B.S. in Mathematics and Physics August 2018 - May 2022
Thesis: *Developing a Machine Learning-enabled Monte Carlo Event Generator*.
Advised by Richard Olenick

**RESEARCH
INTERESTS**

Kinetic and dispersive equations, mathematical physics, analysis, probability

PUBLICATIONS

Submitted:

Six-wave kinetic equation in exponentially weighted L^∞ spaces.
with N. Pavlović and M. Tasković, arXiv:2501.10565

Refereed Articles:

On the Diophantine equations of the form $\lambda_1 U_{n_1} + \lambda_2 U_{n_2} + \dots + \lambda_k U_{n_k} = w p_1^{z_1} p_2^{z_2} \dots p_s^{z_s}$.
with E. Goedhart, B. Ha, L. McBeath
To be seen in Boletín de la Sociedad Matemática Mexicana (2024)

cFAT-GAN: Conditional Simulation of Electron-Proton Scattering Events with Variate Beam Energies by a Feature Augmented and Transformed Generative Adversarial Network. In: Wani M.A., Raj B., Luo F., Dou D. (eds) Deep Learning Applications, Volume 3 (2022). Advances in Intelligent Systems and Computing, vol 1395. Springer, Singapore.

Simulation of Electron-Proton Scattering Events by a Feature-Augmented and Transformed Generative Adversarial Network (FAT-GAN) Thirtieth International Joint Conference on Artificial Intelligence, IJCAI-21, edited by Zhi-Hua Zhou (International Joint Conferences on Artificial Intelligence Organization, 2021) pp. 2126 - 2132

cFAT-GAN: Conditional Simulation of Electron-Proton Scattering Events with Variate Beam Energies by a Feature Augmented and Transformed Generative Adversarial Network 2020 19th IEEE International Conference on Machine Learning and Applications (ICMLA), 2020, pp. 372-375.

RESEARCH TALKS

<i>Six-wave kinetic equation in exponentially weighted L^∞ spaces</i> BIRS Women in Analysis Workshop – Banff, Canada	May 2025
<i>Six-wave kinetic equation in exponentially weighted L^∞ spaces</i> Eastern Sectional AMS Meeting – Hartford, CT	April 2025
<i>Six-wave kinetic equation in exponentially weighted L^∞ spaces</i> Joint Math Meetings – Seattle, WA	January 2025
<i>The Six-Wave Kinetic Equation</i> Junior Analysis Seminar, UT Austin - Austin, TX	October 2024
<i>An Introduction to Wave Turbulence and the Wave Kinetic Equation</i> Junior Analysis Seminar, UT Austin - Austin, TX	April 2024
<i>Brownian Motion and the Heat Equation</i> Junior Analysis Seminar, UT Austin - Austin, TX	November 2023
<i>Convergence of Single-Layer Neural Network</i> Junior Analysis Seminar, UT Austin - Austin, TX	April 2023
<i>Deriving the Boltzmann Equation in the Case of Hard Spheres</i> Texas Women in Math Symposium, UT Austin - Austin, TX	March 2023
<i>Introduction to the Euler Equations for Fluid Dynamics</i> Junior Analysis Seminar, UT Austin - Austin, TX	November 2022
<i>Calculus of Variations</i> Sophex Seminar, UT Austin - Austin, TX	October 2022
<i>Writing a Product of Prime Powers as a Sum of Recurrence Terms</i> Gulf Coast Undergraduate Research Symposium, Rice University - Virtual	October 2021
<i>Writing a Product of Prime Powers as a Sum of Recurrence Terms</i> Young Mathematicians Conference, Ohio State University - Virtual	August 2021
<i>cFAT-GAN: Conditional Simulation of Electron-Proton Scattering Events with Variate Beam Energies by a Feature Augmented and Transformed Generative Adversarial Network</i> International Conference for Machine Learning Applications - Virtual	December 2020
<i>Improving the Particle Multiplicity Generator for the Empirically Trained Hadronic Event Regenerator</i> Division of Nuclear Physics Conference - CEU Undergraduate Poster Session	October 2019

CONFERENCES ATTENDED **Focused Research Group Meeting 2025**

New Challenges in the Derivation and Dynamics of Quantum Systems
(invited participant)
Amherst, MA / June 16-20, 2025

BCAM-UPV/EHU Summer School on Harmonic Analysis and PDEs
Probabilistic Approaches to Dispersive PDEs (invited participant)
Bilbao, Spain / June 16-20, 2025

BIRS Workshop

Women in Analysis (invited participant and speaker)

Banff, Canada / May 11-16, 2025

AIM Workshop

Integro-differential equations in many-particle interacting systems (invited participant)

Pasadena CA / April 14-18, 2025

AMS Eastern Sectional Meeting

Special session: Recent developments in nonlinear evolution equations (invited speaker)

Hartford, CT / April 5-6, 2025

Workshop on Kinetic Theory and Fluids

(invited participant)

Madison, WI / March 28-30, 2025

Joint-Math Meeting 2025

Special session: Advances in Nonlinear Dispersive and Kinetic Equations (invited speaker)

Seattle, WA / January 10, 2025

Summer school on effective approximation and dynamics of many-body quantum systems

Summer school on many-body quantum systems at Lorraine University, UFR Mathematics, Informatics and Mechanics / Institute Élie Cartan of Lorraine (Participant)

Metz, France / June 24 - June 27, 2024

Mathematical aspects of fluid flows

Summer school on recent mathematical (PDE) theories relevant to processes involving fluids sponsored by the European Mathematical Society (Participant)

Kácov, Czech Republic / May 12 - May 17, 2024

Focused Research Group Meeting 2024

New challenges in the derivation and dynamics of quantum systems (invited participant)

Austin, TX / April 27, 2024

Recent developments in wave turbulence theory

Mini school on wave turbulence theory at UNC sponsored by RTG: Partial Differential Equations on Manifolds (Participant)

Chapel Hill, NC / April 5-6, 2024

Summer school of wave turbulence

Summer school on Wave Turbulence sponsored by the Simons collaboration (Participant)

Cambridge, MA / July 24 - July 28, 2023

Stability and dynamics in fluid mechanics and kinetic theory

Summer School at Imperial College (Participant)

London, England / July 10 - July 14, 2023

AWARDS AND HONORS

NSF Graduate Research Fellowship, NSF	2024
Frank Gerth III Teaching Excellence Award, University of Texas at Austin	2023

Frank Gerth III Graduate Excellence Award, University of Texas at Austin	2023
Dean's Strategic Fellowship, University of Texas at Austin	August 2022
Outstanding Math Major, University of Dallas	May 2022
First Academic Honors, University of Dallas	May 2022
Goldwater Scholar, Goldwater Foundation	May 2020
Outstanding Teaching Assistant, University of Dallas	Spring 2019
Honorable Mention, Mathematical Contest in Modeling	January 2019
Trustee Scholarship, University of Dallas	August 2018
Physics Departmental Scholarship, University of Dallas	August 2018

RESEARCH EXPERIENCE

NSF REU: Diophantine Equations	
SMALL at Williams College, Williamstown, MA	June 2021 - August 2021
Jefferson Sciences Associates (JSA) Intern: Theoretical Nuclear Physics	
Jefferson National Lab - Virtual	September 2019 - December 2020
NSF REU: Theoretical Nuclear Physics	
Old Dominion University, Norfolk, VA	May 2019 - August 2019

TEACHING EXPERIENCE

Teaching Assistant , University of Texas at Austin	
M 408C: Differential and Integral Calculus	Fall 2023
Teaching Assistant , University of Dallas	
PHYS 2311: General Physics I (Calculus)	Spring 2020
PHYS 2312: General Physics II (Calculus)	Spring 2019

SERVICE

Representative on the Math Grad Rep Committee	August 2024 - present
Organizer Distinguished Women in Math Colloquium	April 2023-present
Conference Organizer Texas Women in Math Symposium	March 2023
Mentor in Directed Reading Program, UT Austin	Fall 2022-present
<u>Mentees:</u>	
Fall 2022: Asim Suhail – Analytic number theory	
Spring 2024: Samantha Ward – Functional analysis	
Summer 2024: Jessica Loyola – Point-set topology	
Fall 2024: Audrie Ibanez – Functional analysis	
Spring 2025: Jacob Busby and Fiona Roman – Measure theory and probability	
Officer of Math Club, University of Dallas	2021-2022
Mathematics Tutor at University of Dallas	Fall 2021 - Spring 2022