

Yiran Hu

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Education	Department of Mathematics, University of Texas at Austin Ph.D. Mathematics, May 2024(expected) Advisor: Prof. Alexis F. VASSEUR Nanjing University B.S. Pure and Applied Mathematics(Cum Laude), July 2018
Research Interest	My research interest lies in PDE analysis and numerical computation, now I am focusing on degenerated 3D Quasi-geostrophic equations.
Research and Publications	Yiran Hu. Global in Time Weak Solutions to Singular 3D Quasi-Geostrophic Systems , preprint, arXiv:2302.05973 (2023)
Skills	Programme: Python, L ^A T _E X, MATLAB, C++ Language: Chinese(Mothertongue), English(Fluent)
Awards	<ul style="list-style-type: none">• 2019 Summer fellowship (\$ 6750)• 2019, 2022, 2023 Travel support from conferences• 2020 Summer fellowship (\$ 9226 including Tuition)
Teaching	Teaching Assistant: M408C (Calculus 1), M408D (Calculus 2), M427J (Differential Equation and Linear Algebra), M362K (Probability), M381D (Graduate Complex Analysis), M387C (Graduate Numerical Analysis 1), M328K (Introduction to Number Theory), M383C(Graduate Methods of Applied Mathematics 1).
Service	Numerical PDE Learning Seminar Co-organized a weekly learning seminar on finite element methods, Fall 2021. Junior Analysis Seminar Organized a student-run weekly seminar on analysis, Fall 2020-Spring 2021. Analysis Learning Seminar Co-organized a learning seminar on second order elliptic equations and harmonic analysis, Fall 2019. Direct Reading Program Mentored undergraduate students through one-on-one reading courses on Support Vector Machine, Stochastic Calculus for Finance and Discrete Fourier and Wavelet Transforms, Quantum Mechanics, Fall 2019-Fall 2020 and Fall 2021. Group Seminar of Vasseur's team Organized the weekly group seminar with Professor Alexis Vassuer, his students and visitors, Spring 2023.

Presentations

The 3D Quasi-Geostrophic System, Student Short Presentation, MSRI, July 2019
The 3D Quasi-Geostrophic System, Junior Analysis Seminar, UT Austin, Sept. 2019
The 3D Quasi-Geostrophic System, Candidacy Talk, UT Austin, Mar. 2020
Besov Space and its Application, Group Seminar, UT Austin, Apr. 2020
A Maximum Principle Applied to Quasi-Geostrophic, Junior Analysis Seminar, UT Austin, Sept. 2020
Existence of Global in Time Weak Solutions to a Family of Singular 3D Quasi-Geostrophic Systems, Texas Women In Math Symposium 2022, Feb. 2022
Existence of Global in Time Weak Solutions to a Family of Singular 3D Quasi-Geostrophic Systems, Junior Analysis Seminar, UT Austin, Feb. 2022
Existence of Global in Time Weak Solutions to a Family of Singular 3D Quasi-Geostrophic Systems, International Conferences on Hyperbolic Problems, Málaga (Spain), June 2022
Existence of Global in Time Weak Solutions to a Family of Singular 3D Quasi-Geostrophic Systems, International Conferences on Hyperbolic Problems, Duke University, Aug. 2022
Generalized Trace Theorem and The Beale-Kato-Majda Criterion on Euler Equation, Group Seminar, University of Texas at Austin, Spring 2023
Global in Time Weak Solutions to Singular 3D Quasi-Geostrophic Systems, ICIAM 2023, Waseda University, Tokyo(Japan), August 20-25, 2023
Global in Time weak solutions to singular 3D Quasi-Geostrophic Systems, 2023 Fall Southeastern Sectional Meeting, University of South Alabama, Mobile, AL, October 13-15, 2023

Conferences

AMS 2023 Fall Southeastern Sectional Meeting, University of South Alabama, Mobile, AL, October 13-15, 2023
ICIAM 2023, Waseda University, Tokyo(Japan), August 20-25, 2023
Shocking Developments: New Directions in Compressible and Incompressible Flows: A Conference in Honor of Alexis Vasseur's 50th Birthday, Max Planck Institute for Mathematics in the Sciences, Leipzig(Germany), June 26 - 30, 2023
Recent Trends in Partial Differential Equations — Summer School, Duke University, August 22-26, 2022
International Conferences on Hyperbolic Problems, Málaga (Spain), June 20-24, 2022
Nonlinear PDEs in Fluid Dynamics, CIRM (Marseille Luminy, France), May 9th-May 13th, 2022
Texas Women In Math Symposium 2022, Rice University, Feb. 4th- Feb 5th, 2022
New Mechanisms for Regularity, Singularity, and Long Time Dynamics in Fluid Equations(Online), BIRS, July 25th- July 20th, 2021
Summer Graduate School on Introduction to Water Waves, MSRI, July 27th- Aug.7, 2020
Recent Topics on Well-posedness and Stability of Incompressible Fluid and Related Topics, MSRI, July 22- Aug. 2, 2019
Summer Graduate School on Recent Advances in Mathematical Fluid Dynamics, USC, May 20-24, 2019