ALVIS ZHAODH[1]

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EDUCATION

Rutgers University New Brunswick *Fall 2021 - Current*
Ph.D. in Mathematics Advisor: Avy Soffer, Dennis Kriventsov
University of North Carolina at Chapel Hill *Class of 2021*
B.S. in Mathematics with Honor, Phi Beta Kappa *GPA: 3.87*

EXPERIENCE

Nonlinear Schrödinger Type Equations Research Aug 2021 - current
Rutgers University *Piscataway, NJ*

· Conducting research under the supervision of professor Avy Soffer nonlinear Schrö dinger type equations. In particular, my current work is on the asymptotic completeness quantum scattering for general systems.

Mathematical Analysis and Modeling in Wildland Fire Science: Linking 3D Vegetative Fuels to Fire Behavior and Fire Effects June 2022 - Aug 2022
USDA Forest Service Southern Research Station, Athens Forestry Laboratory *Athens, GA*

· This is an NSF MSGI Project. I utilize mathematical tools including topological data analysis to advance the analysis, predictions, or modeling approaches for characterizing 3D forest vegetation structure and how it relates to physical properties of wildland fire.

Hyperbolic Boundary Value Problem Research May 2019 - May 2021
University of North Carolina at Chapel Hill *Chapel Hill, NC*

· Conducting research under the supervision of professor Williams on hyperbolic boundary problems with large oscillatory coefficients that arise from, for example, the study of classical questions concerning the stability of Mach stems and compressible vortex sheets. Currently, I have proved an uniform estimate, constructed geometric optics solutions, and proved a restricted existence theorem. This work is presented at AMS sectionals as contributed paper. The resulting paper will serve as my honors thesis upon graduation.

Riemannian Geometry Directed Reading Aug 2020 - Dec 2020
University of North Carolina at Chapel Hill *Chapel Hill, NC*

· Independent study under the supervision of professor Justin Sawon with main text *Jost, Riemannian geometry and geometric analysis.*

Summer School in Semiclassical Analysis July 2019 - Aug 2019
Northwestern University *Chicago, IL*

· Attended a three-week summer school held at Northwestern University as part of the activities of the NSF RTG grant "Analysis on Manifolds". The summer school is organised in partnership with the Clay Mathematics Institute. It consisted of three weeks of courses on semiclassical analysis.

1. aka. Alvis Donghan Zhao
Last updated: *Apr, 2022*

Fourier Analysis Directed Reading Jan 2019 - May 2019
University of North Carolina at Chapel Hill *Chapel Hill, NC*

· Independent study of Fourier Analysis under the supervision of professor Mark Williams using *Pinsky, Introduction to Fourier analysis and wavelets*. This project yields an expository paper of 10 pages on the topic.

Matrix Groups Directed Reading Aug 2018 - Dec 2018
University of North Carolina at Chapel Hill *Chapel Hill, NC*

· Reading *Tapp, Matrix Groups for Undergraduates* under the supervision of graduate student Yiyan Shou as participation of the Directed Reading Program. A presentation is given at the end of the project.

PRESENTATIONS

Zhaodh, Alvis (2020, October) *Hyperbolic boundary problems with large oscillatory coefficients on small frequency region (1162-35-103)*, AMS Contributed Paper Session II, Fall Western Sectional Meeting
Zhaodh, Alvis (2020, October) *Hyperbolic boundary problems with large oscillatory coefficients on small frequency region (1160-35-206)*, AMS Contributed Paper Session II, Fall Eastern Sectional Meeting
Zhaodh, Alvis (2020, January) *Introduction to Distributions*, Carolina Math Club Math Gem Talks, University of North Carolina at Chapel Hill
Zhaodh, Alvis (2019, January) *Lie Groups, Lie Algebras and the Exponential Map*, Directed Reading Program, University of North Carolina at Chapel Hill

PUBLICATIONS AND PREPRINTS

Zhaodh, A.,(2021) "First Order Hyperbolic Boundary Value Problems With a Large Oscillatory Zero Order Term". arXiv:2104.08532.

HONORS AND AWARDS

The Archibald Henderson Medal Recipient *2021*
Established in 1931, the medal is given annually to the undergraduate judged by the Department of Mathematics to have demonstrated both a high degree of mathematical ability and the greatest promise of originality in the field.
Wilson Family Honors Excellence Fund *2020*

COURSEWORK

Measure Theory, Functional Analysis, Partial Differential Equations, Differential Topology, Differential Geometry, Mathematical Physics

RESEARCH INTERESTS

Elliptic PDEs, Scattering Theory

PARTICIPATED CONFERENCE

Rivière-Fabes Symposium 2022, University of Minnesota *Apr 2022*
Great Lakes Mathematical Physics Meeting , Michigan State University *June 2022*

REFERENCE

Professor Avy Soffer<soffer@math.rutgers.edu>
Professor Michael Kiessling <miki@math.rutgers.edu>
Professor Mark Williams <williams@math.unc.edu>