

Curriculum Vitae

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Yumin Shen

Personal Information

Email: shen.1742@osu.edu

Country of Citizenship: China

City of birth: Shanghai, China

Education

Master of Arts in Mathematics

2024 – Now

University of Wisconsin–Madison, Madison, WI, USA

Bachelor of Science in Mathematics, *Summa Cum Laude*

2022 – 2024

The Ohio State University, Columbus, OH, USA

Awards, Competitions, Honors, and Scholarships

2024 Grace Bareis Math Prize Scholarship

\$300

The Ohio State University

2024 Gordon Mathematics Competition

1st Place

The Ohio State University

Undergraduate Research Scholarship

\$1875

The Ohio State University

2023 Grace Bareis Math Prize Scholarship

\$200

The Ohio State University

2023 Gordon Mathematics Competition

2nd Place

The Ohio State University

Other Experiences, Researches, and Workshops

Anosov magnetic flows on surfaces

Complete

With James Marshall Reber

[Link](#)

Using the quotient bundle introduced by Wojtkowski, we give necessary and sufficient conditions for a magnetic flow on a closed, oriented surface to be Anosov.

Knots and Graphs

[Link](#)

The Ohio State University

Presentations and Posters

"Universal Cover of Non-Positively Curved Surface"

Directed Reading Program SP24

Gave a presentation on Cartan-Hadamard Theorem and Hadamard-Lévy's Theorem. Introduced enough background knowledge and emphasized on applications of covering space.

¹Update: June 29, 2024

"Some Algebraic Structures of Links: from 0 to ε "

Knots and Graphs 2023

Gave a presentation introducing braid group and its representation in Temperley-Lieb algebra, and get Jones polynomial in an algebraic way. Enough background knowledge introduced.

"Alternating knots and Tait Conjecture"

Knots and Graphs 2023

Gave a presentation on alternating knots and Tait conjecture as an application of Jones Polynomial.

"Fundamental Theorem of Riemannian Geometry"

Cycle Conference 2023

Made a poster on smooth manifolds, tangent bundles, vector fields, Riemannian manifolds, affine connection, existence and uniqueness of the Levi-Civita connection, geodesics defined by Euler-Lagrange equation and geodesics defined by affine connection, and their local consistency under Levi-Civita connection.

"The Invariant Subspace Problem"

Directed Reading Program SP23

Gave a presentation on Banach space, bounded linear operator, compact operator, Banach algebra, spectrum of a bounded linear operator, spectral radius formula, eigenvalue of compact operator, and the Lomonosov invariant subspace theorem of compact operators.

"Measure, Integration and Dominated Convergence Theorem"

Directed Reading Program AU22

Gave a chalk talk on Lebesgue measure, integration, Dominated Convergence Theorem and some examples.

Other Skills

Chinese

Native

English

Proficient

Japanese

Good

Programming languages

C, C++, Python, Matlab, Assembly Languages of AT89C51