

Shuo Wang

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EDUCATIONAL BACKGROUND

BS, School of Mathematics, Shandong University(SDU),

Jinan, China, 09/2018 – 06/2022

- **GPA: 90.54/100, Major GPA: 92.97/100**
- **Ranking: 5/32 (major of mathematics and applied mathematics) 13/152 (School of Mathematics)**
- **Core Courses:** Mathematical Analysis I,II,III (92,83,96), Advanced Algebra I,II (91,93), Ordinary Differential Equations (99, 1st), Complex Variables Functions (96, 2nd), Real Variables Functions (98, 1st), Probability Theory (97), Partial Differential Equations (95), Advanced Real Analysis (95, 1st), Functional Analysis (99, 1st), Abstract Algebra (98, 1st), Mathematical Statistics (98, 2nd), Differential Geometry (84), Operational Research (94), Elementary Algebraic Geometry (90), Basics of Number Theory (92), Topology (97), Advanced Abstract Algebra (96, 1st), Numerical Analysis (99, 1st), Basic Representation Theory (95), Graduation Thesis (98, 1st).

RESEARCH EXPERIENCE

Summer Research on the Mckay Correspondence, the Coxeter Element and Representation Theory

Jinan, China, 07/2021 – 08/ 2021

Advisor: Hong Kong University of Science and Technology (HKUST).

- Review the works about the Mckay correspondence, the Coxeter element, and the representation theory
- make up for the gap in knowledge such as Lie algebra, Kac-Moody Lie algebra, matrix Lie groups, representation theory of finite groups, and fill in the details in the paper.
- completed two reports about the program:
 - 1) the correspondence between the finite subgroups of $SU(2)$ and the finite subgroups about $SO(3)$, and the Mckay correspondence between the finite subgroups of $SU(2)$ and the simply-laced Dynkin diagrams of five types of simple Lie algebras;
 - 2) the universal cover $SU(2)$ of $SO(3)$: $SU(2)$ is the simply-connected universal covering space of $SO(3)$, and the covering map is a Lie group homomorphism, and the corresponding Lie algebra homomorphism between $\mathfrak{su}(2)$ and $\mathfrak{so}(3)$ is a Lie algebra isomorphism.

PID (proportional-integral-derivative) Control for Single-Motor System

Jinan, China, 07/2020-08/2020

Advisor: Shuqian Zhu, professor, School of Mathematics of Shandong University

- Reviewed the control research of the single-motor system in the networked environment, the networked control system (NCS), the control strategy of the motor synchronisation, and the history of the PID control.
- Mathematical derivation for the stability criterion of the system (exponentially mean-square stable).

Summer School on Algebraic Topology and Data Analysis

Jinan, China, 07/ 2020 – 07/ 2020

Advisor: Ziqin Feng, associate professor, Auburn University

- Learnt knowledge in the field of algebraic topology in the three following aspects:
 - 1) Fundamental groups of curves and surfaces and universal covering spaces together with Van-Kampen theorem.
 - 2)Simplicial complex and simplicial homology.
 - 3)Singular complex and singular homology and the relation between simplicial and singular homology.

Seminars on Advanced Real Analysis

Jinan, China, 01/ 2020 – 05/ 2020

Advisor: Yunrui Zheng, associate researcher, School of Mathematics of Shandong University

- Learnt knowledge in the field of real analysis in the three following aspects:
 - 1) Establishment of σ -algebra and the measure on σ -algebra, the Borel measure on the straight line \mathbb{R} and the Lebesgue-Stieltjes measure.
 - 2) Establishment of integrals of measurable functions from the measurement space and the relationship between Lebesgue integral and Riemann integral.

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3) Signed measure together with complex measure, Lebesgue-Radon-Nikodym theorem to establish the differentiation on the Euclidean space.

- Undertake teaching assistant tasks for the several sections of this course to help the advisor share lesson tasks.

HONORS AND AWARDS

- 07/2022
Excellent undergraduate thesis of Shandong University (Awarded because of the top 1st graduation thesis in School of Mathematics)
- 09/2021
First-class academic scholarship in 2021 (It was elected mainly by GPA in the fourth academic year and 4 in 153 students won this scholarship)
- 09/2021
National Encouragement Scholarship in 2021 (Awarded by comprehensive development and excellence in character and learning and 7 in 153 students won this scholarship)
- 08/2021
Certificate for Summer Research Program 2021 in Hong Kong University of Science and Technology (HKUST) (Awarded by the successful completion of the Online Summer Research Program organized by Hong Kong University of Science and Technology in 2021 summer)
- 09/2020
Merit Student of Shandong University in 2020 (Awarded by examining students' comprehensive abilities in academic, moral education, and innovation and 9 in 153 students was awarded)
- 09/2020
First-class academic scholarship in 2020 (It was elected mainly by GPA in the third academic year and 5 in 153 students won this scholarship)
- 09/2020
First-Class Specialty Scholarship in 2020 (3 out of 153 because of the outstanding performance in innovation and entrepreneurship and social practice)
- 09/2020
National Encouragement Scholarship in 2020 (Awarded by comprehensive development and excellence in character and learning and 9 in 153 students won this scholarship)
- 09/2019
National Encouragement Scholarship in 2019 (Awarded by comprehensive development and excellence in character and learning and 5 in 109 students won this scholarship)

SKILLS

- Programming: Matlab, Latex
- Language: IELTS Band 6.5 (Listening 6.5; Speaking 6.0; Reading 7.0; Writing 6.5) (Remain valid until 10/2023)