Chenxin Zhong

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Education

Southern University of Science and Technology Sep 2016 – July 2021
B.S. in Mathematics with Excellent Thesis *Shenzhen China*

University of Regensburg Oct 2022 – Aug 2024
M.S. in Mathematics *Regensburg Germany*

Research Experience

Bachelor Thesis:The Classification of Quadratic Forms over $\mathbb{Q}$ Dec 2020 – Apr 2021
Supervisor:Yong Hu *Shenzhen, China*

- This thesis explores the Galois cohomology on the quadratic forms, and from the method, we can define some cohomology constants. Using the Hasse principle, we will show the quadratic forms over $\mathbb{Q}$ is classified by some constants by restricting to each $\mathbb{Q}_p$.

Master Thesis:Semistability Condition of Adelic Curves Dec 2023 – Jun 2024
Supervisor: Klaus Künnemann *Regensburg, Germany*

- This thesis explores the estimation of slope of the tensor product of Hermitian adelic vector bundles on adelic curves over K. By the method of GIT and Harder-Narasimhan filtration, we get a result such that the slope of tensor product of Hermitian vector bundles has an explicit lower bound for K of both characteristic 0 and p. Especially, when K is of characteristic p, we have that the tensor product of semistable Hermitian adelic vector bundles is semistable. Finally, we compare the tensorial semistability on vector bundles on algebraic curves X over K and on the corresponding adelic vector bundles over the corresponding adelic curves over $K(X)$ when K is of characteristic $p > 0$.

Professional Experience

Research Assistant Jun 2021 – Jan 2022
Westlake University *Hangzhou China*

- I Studied number theory and local class field theory under the supervisor Yigeng Zhao.

Research Assistant Jun 2024 – Aug 2024
University of Regensburg *Regensburg Germany*

- Mainly literature review about the paper HHK17, study the modular analysis of FO transformation. And analysis different FO transfromations of code based schemes they used.

Research Interests in Mathematics

I am interested in number theory and related subjects. Right now, I am working on non-archimedean Arakelov theory in the group of non-Archimedean geometry in Regensburg. Especially, I am passionate about calculating integral solutions and rational solutions of Diophantine equations, and its connections with other subjects, such as height theory and stable conditions.

Research Interests in Cryptography

I am interested in the mathematical foundation of post quantum cryptography. And I focus on the cryptography application about number theory. I am widely interesting in different schemes, including code-based schemes, isogeny based schemes and lattice based schemes.

Awards & Honors

Excellent Student in Shude College 2nd Prize
Southern University of Science and Technology *2017*

Excellent Student in Shude College 1st Prize
Southern University of Science and Technology *2018*

China Undergraduate Mathematical Contest in Modeling 2nd National Prize
Southern University of Science and Technology *2017*

Reading Seminars

Algebraic Number Theory,2020
Algebraic Geometry,2021
Complex Geometry,2021
Galois Cohomology,2022
p**-divisible Group**,2023
Adelic Line Bundles on Quasi-projective Variety,2023
Height of K**-semistable Fano Variety**,2024
The Arithmetic of Elliptic Curves,2024

Other Interests

Language: English(C1), Chinese(Native), Germany(A1)
Programming: LaTex, Python, Matlab, SageMath, Lean