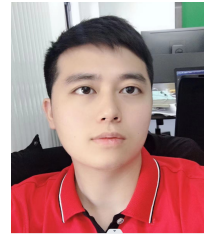


Linzhe Huang(黄林哲)



## Contact Information

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**Email:** huanglinzhe@bimsa.cn

## Research Interests

**Operator Algebras:** Hochschild cohomology of operator algebras, especially for Banach algebras; Amenable problem of Thompson's group; Operator algebras related to number theory.

**Quantum Fourier Analysis:** Quantum inequality, quantum uncertainty principle, and their applications in subfactor theory, category theory, quantum information.

## Work Experience

**Assistant Research Fellow**  
BIMSA

*2023.9–now*  
Beijing, China

**Postdoctoral Fellow**  
Tsinghua University, YMSC

*2020.9–2023.9*  
Beijing, China

## Education

**Ph.D. in Mathematics**  
Chinese Academy of Sciences, AMSS

*2015.9–2020.7*  
Beijing, China

**B.S. in Mathematics**  
Central South University

*2011.9–2015.7*  
Changsha, China

## Visiting Experience

**Visiting Scholar**  
Professor Arthur Jaffe, Harvard University, Department of Physics

*2018.2–2018.5*  
Boston, USA

## Publications

- [1] **Linzhe Huang**, Minghui Ma, Xiaomin Wei, Hochschild cohomology for free semigroup algebras, arXiv:2407.14729, 2024.
- [2] **L. Huang**, Thompson's semigroup and the first Hochschild cohomology, published by *Canad. J. Math.*, 2024.

- [3] **L. Huang**, Z. Liu and J. Wu, Quantum convolution inequalities on Frobenius von Neumann algebras, accepted by *Sci. China Math.*, 2024.
- [4] **L. Huang**, Z. Liu, J. Wu and A. Jaffe, The quantum Perron-Frobenius space, arXiv:2305.18971, 2023.
- [5] **L. Huang**, Z. Liu, S. Palcoux and J. Wu, Complete positivity of comultiplication and primary criteria for unitary categorification, *Int. Math. Res. Not.*, 2023, 1–44.
- [6] L. Cui, **L. Huang**, W. Wu, W. Yuan and H. Zhang, On cleanness of von Neumann algebras, *J. Math. Anal. Appl.*, **509** (2022), 125969.
- [7] **L. Huang**, Z. Liu and J. Wu, Quantum smooth uncertainty principles for von Neumann bi-algebras, arxiv:2107.09057, 2021. (accepted by Quantum Topol.)
- [8] G. Kibrom and **L. Huang**, Boundedness and spectrum of multiplicative convolution operators induced by arithmetic functions, *Acta Math. Sin. (Engl. Ser.)*, **35** (2019), 1300–1310.
- [9] A. Dong, **L. Huang** and B. Xue, Operator algebras associated with multiplicative convolutions of arithmetic functions, *Sci. China Math.*, **61** (2018), 1665–1676.

## Awards and Honors

- Qiuzhen College Postdoctoral Scholar Teaching Award, 2023
- 三亚数学科学年终盛会“博士后年度优秀奖”, 2022

## Teaching Experience

<b>Postdoc Scholar</b>	<i>2022.9– 2023.7</i>
Tsinghua University, Qiuzhen College	Beijing, China
<b>Postdoc Scholar</b>	<i>2021.9– 2022.7</i>
Tsinghua University, Qiuzhen College	Beijing, China
<b>Teaching Assistant</b>	<i>2020 – 2021 Spring Semester</i>
Mathematical Analysis III (by Prof. Jian Zhou)	Tsinghua University Beijing, China

## Courses

- Wednesday, April 3–July 3, 2024, Quantum inequalities and quantum entropy, at Beijing Institute of Mathematical Sciences and Applications

## Funding

- 北京市科学技术委员会、中关村科技园区管理委员会国际(港澳台)科技合作项目“拓扑量子场论衍生的前沿数学理论研究与应用”, 2022.12–2024.12, 250万元, 参与.

## Conference and seminar talks

2024

- Tuesday, July 9, Quantum Fourier Analysis, Workshop on Mathematics and Its Applications, (Chinese Academy of Sciences, AMSS, Beijing)
- Wednesday, June 26, Quantum Perron-Frobenius Theory, Quantum Information Seminar, (Hebei Normal University, School of Mathematical Sciences, Shijiazhuang)

- Tuesday, March 26, Quantum Fourier Analysis, Variational Methods and Critical Point Theory Seminar, (Renmin University of China, School of Mathematics, Beijing)

## 2023

- Sunday, December 3, Quantum Inequalities and their applications, Workshop on Linear Functional Analysis, (Chongqing Normal University, School of Mathematical Sciences, Chongqing)
- Tuesday, September 26, Complete positivity of comultiplication and primary criteria for unitary categorification, Workshop on Operator Theory and Quantum Information (Hebei Normal University, School of Mathematical Sciences, Shijiazhuang)
- Sunday, September 24, Quantum inequalities and unitary categorification, (Harbin Institute of Technology, IASM, Harbin)
- Saturday, April 15, Quantum Inequalities and Unitary Categorification, Workshop on Operator Algebras, (Qufu Normal University, School of Mathematical Sciences, Qufu)
- February, Quantum Inequalities and Unitary Categorification, (Naikai University, School of Mathematical Sciences, Tianjin)
- January 11, Complete Positivity of Comultiplication and Primary Criteria for Unitary Categorification, The 7th Huashan International Youth Scholars Forum, online talk (Xidian University, School of Mathematics and Statistics, Xi'an )

## 2022

- December, 2022, Quantum Inequalities and Unitary Categorification, 三亚数学科学年终盛会, (Tsinghua Sanya International Mathematics Forum, Sanya)
- Friday, November 18, Complete Positivity of Comultiplication and Primary Criteria of Unitary Categorification, Postdoc Workshop B, (Tsinghua University, Yau Mathematical Sciences Center, Beijing)
- Sunday, November 6, Complete Positivity of Comultiplication and Primary Criteria of Unitary Categorification, Analysis and Probability Seminar, online talk, (Central South University, School of Mathematics and Statistics, Changsha)
- Monday, June 27, Quantum Fourier Analysis, (Sun Yat-Sen University (Zhuhai), School of Mathematics, Zhuhai)
- Thursday, February 17, Quantum smooth uncertainty principles, online talk, (Harvard University, Department of Physics, Boston, USA)

## 2021

- Monday, June 28, Smooth uncertainty principles for von Neumann bialgebras, Postdoc Workshop, (Tsinghua University, Yau Mathematical Sciences Center, Beijing)
- Thursday, June 24, Thompson's semigroup and Hochschild cohomology, online talk, (Dalian University of Technology, School of Mathematical Sciences, Dalian)
- Sunday, May 2, On cleanness of von Neumann algebras, Jing-Jin-Ji Functional Analysis Conference, (Hebei Normal University, School of Mathematical Sciences, Shijiazhuang)

## 2020

- Thursday, October 8, Thompson's semigroup and arithmetic structures of natural numbers, Postdoc Workshop, (Tsinghua University, Yau Mathematical Sciences Center, Beijing)

## 2018

- Sunday, May 27, Operator Algebras Associated with Multiplicative Convolutions of Arithmetic Functions, Workshop on Number Theory and Dynamical Systems, (University of Science and Technology of China, School of Mathematical Sciences, Hefei)

Last updated on Tuesday 20<sup>th</sup> August, 2024