

# Zhih-Ahn JIA<sup>1</sup>

## PERSONAL DATA [\[ORCID\]](#)

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ADDRESS: USTC, Hefei, Anhui, 230026, P. R. China  
EMAIL: [giannjia@foxmail.com](mailto:giannjia@foxmail.com)  
RESEARCH BLOG: [The lost worldline](#)  
HOMEPAGE: <http://home.ustc.edu.cn/~cajia/>  
ARXIV PAGE: [https://arxiv.org/a/jia\\_z\\_2.html](https://arxiv.org/a/jia_z_2.html)  
PHYSICS.STACKEXCHANGE: <https://physics.stackexchange.com/users/149857/zhih-ahn-jia>  
MATHOVERFLOW: <https://mathoverflow.net/users/106491/zhih-ahn-jia>

## ACADEMIC EXPERIENCE

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SEP 2015 - JUN 2021	CAS Key Laboratory of Quantum Information, <b>University of Science and Technology of China</b> , Hefei, China Advisor: Guang-Can Guo PhD degree in Physics Thesis: Classification, criteria and properties of quantum correlations and their applications in quantum many-body systems
NOV 2018 - DEC 2019	Microsoft Station Q, Department of Mathematics, <b>University of California, Santa Barbara</b> , CA, US Advisor: Zhenghan Wang Visiting scholar program
SEP 2017 - AUG 2018	Yau Mathematical Sciences Center, Department of Mathematical Sciences, <b>Tsinghua University</b> , Beijing, China Advisor: Liang Kong Visiting Ph.D.
SEP 2011 - JUN 2015	Institute of Super-microstructure and Ultrafast Process in Advanced Materials, School of Physics and Electronics, <b>Central South University</b> , Changsha, China Advisor: Fangping Ouyang B.S. in Applied Physics Thesis: Impurity effect of vacancy in two dimensional crystals and related quantum Hall effect

## SELECTED AWARDS

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2017	Guorui scholarship for graduate students
2016	National scholarship for graduate students
2016	The Best Presenters' Prize Talk title: monogamy as a fundamental quantum phenomenon The third PFUNT(Physics Five Universities,the National Top) PhD Student Forum
2016	The Third Prize of Talk Talk title: graph theoretic approach to quantum contextuality The sixth graduate student academic annual meeting of USTC
2015	The Outstanding Project Prize project title: First Principle Method of Single Layer Graphene-like Material and Its Functional Devices Design College students' innovative and entrepreneurial project
2014	College scholarships of Physics and Electronics, Central South University
2010	The Second Prize of The 27th national physics olympiad, 2010.

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<sup>1</sup>Chinese (Mandarin): Zhian Jia or Zhi-An Jia; English name: Elliott Jia

## PUBLICATIONS AND PREPRINTS [ARXIV]

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- **Zhih-Ahn Jia**, Lu We, Yu-Chun Wu, Guang-Can Guo  
Quantum Advantages of Communication Complexity from Bell Nonlocality  
[arXiv:2004.05098](#)
- **Zhih-Ahn Jia**, Lu We, Yu-Chun Wu, Guang-Can Guo, Guo-Ping Guo  
Entanglement Area Law for Shallow and Deep Quantum Neural Network States  
[New J. Phys. 22 053022 \(2020\)](#)
- **Zhih-Ahn Jia**, Biao Yi, Rui Zhai, Yu-Chun Wu, Guang-Can Guo and Guo-Ping Guo  
Quantum Neural Network States: A Brief Review of Methods and Applications  
[Adv. Quantum Technol.2019, 1800077](#)
- **Zhih-Ahn Jia**, Yuan-Hang Zhang, Yu-Chun Wu, Guang-Can Guo and Guo-Ping Guo  
Efficient Machine Learning Representations of Surface Code with Boundaries, Defects, Domain Walls and Twists  
[Phys. Rev. A 99, 012307 \(2019\)](#)
- Yuan-Hang Zhang, **Zhih-Ahn Jia**, Yu-Chun Wu, and Guang-Can Guo  
An Efficient Algorithmic Way to Construct Boltzmann Machine Representations for Arbitrary Stabilizer Code  
[arXiv:1809.08631](#)
- **Zhih-Ahn Jia**, Rui Zhai, Yu-Chun Wu, and Guang-Can Guo  
Entropic No-Disturbance as a Physical Principle  
[Phys. Rev. A 97, 052128 \(2018\)](#)
- Shang Yu, Chang-Jiang Huang, Jian-Shun Tang, **Zhih-Ahn Jia**, Yi-Tao Wang, Zhi-Jin Ke, Wei Liu, Zong-Quan Zhou, Ze-Di Cheng, Jin-Shi Xu, Yu-Chun Wu, Yuan-Yuan Zhao, Guo-Yong Xiang, Chuan-Feng Li, Guang-Can Guo, Gael Sentís, and Ramon Muñoz-Tapia  
Experimentally Detecting a Quantum Change Point via Bayesian Inference  
[Phys. Rev. A 98, 040301\(R\) \(2018\)](#)
- Bai-Chu Yu, **Zhih-Ahn Jia**, Yu-Chun Wu, and Guang-Can Guo  
Geometric Local Hidden State Model for Some Two-qubit States  
[Phys. Rev. A 98, 052345 \(2018\)](#)
- Bai-Chu Yu, **Zhih-Ahn Jia**, Yu-Chun Wu, and Guang-Can Guo  
Geometric Steering Criterion for Two-qubit States  
[Phys. Rev. A 97, 012130 \(2018\)](#)
- **Zhih-Ahn Jia**, Rui Zhai, Shang Yu, Yu-Chun Wu, and Guang-Can Guo  
Hierarchy of Genuine Multipartite Quantum Correlations  
[arXiv:1711.04664](#)
- **Zhih-Ahn Jia**, Gao-Di Cai, Yu-Chun Wu, Guang-Can Guo, and Adán Cabello  
The Exclusivity Principle Determines the Correlation Monogamy  
[arXiv:1707.03250](#)
- **Zhih-Ahn Jia**, Yu-Chun Wu, and Guang-Can Guo  
Characterizing nonlocal correlations via universal uncertainty relations  
[Phys. Rev. A 96, 032122\(2017\)](#)
- **Zhih-Ahn Jia**, Yu-Chun Wu, and Guang-Can Guo  
Monogamy Relation in No-disturbance Theories  
[Phys. Rev. A 94, 012111\(2016\)](#)
- SHAO Yan, OUYANG Fang-Ping, PENG Sheng-Lin, LIU Qi, **JIA Zhi-An**, ZOU Hui  
First-Principles Calculations of Electronic Properties of Defective Armchair MoS<sub>2</sub> Nanoribbons  
[\[J\]. Acta Phys. -Chim. Sin., 2015,31 \(11\): 2083-2090.](#)

## COMPUTER SKILLS

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Programming Languages: Python, C, C++, Matlab,  $\LaTeX$   
Operating System: Windows, macOS, Ubuntu

## SELECTED ATTENDED CONFERENCES

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- DEC 16 - 20, 2019 [Topological quantum computing \(TQC2019\)](#)  
Southern University of Science and Technology, Peng Cheng Laboratory  
Institute for quantum science and engineering, Shenzhen, China
- AUG 13 - 17, 2018 [Summer school on AdS/CFT](#)  
Center for High Energy Physics, Peking University, Beijing, China
- JUL 16 - 20, 2018 [Tsinghua Summer School on Quantum Physics \(TSSQP\)](#)  
State Key Laboratory of Low-Dimensional Quantum Physics,  
Tsinghua University, Beijing, China
- JUL 4 - 6, 2018 [The First International Conference on Machine Learning and Physics](#)  
Institute for Advanced Study, Tsinghua University, Beijing, China
- MAY 4 - 6, 2018 [Conference: Topological Matter and Topological Computation](#)  
Kavli Institute for Theoretical Sciences,  
University of Chinese Academy of Sciences, Beijing, China
- MAR 19 - 23, 2018 [Quantum Machine Learning and Biomimetic Quantum Technologies](#)  
University of the Basque Country, Leioa, Spain
- JUN 20 - 30, 2017 Workshop: Tensor categories and topological quantum matter  
Fudan University, Shanghai, China
- JUN 4 - 5, 2017 [Workshop: Quantum Contextuality in Quantum Mechanics and Beyond](#)  
Talk title: Exclusivity principle determines the correlation monogamy  
Prague, Czech Republic
- JAN 23 - 26, 2017 [Conference on 90 Years of Quantum Mechanics](#)  
Nanyang technological university, Singapore
- DEC 15 - 17, 2016 The Third PFUNT(Physics Five Universities,the National Top) PhD Student Forum  
Talk title: monogamy as a fundamental quantum phenomenon  
Tsinghua university, Beijing, China
- NOV 26, 2016 The Sixth Graduate Student Academic Annual Meeting of USTC  
Talk title: graph theoretical approach to quantum contextuality  
University of Science and Technology of China, Hefei, China
- AUG 6 - 8, 2016 The 17th National Conference on Quantum Optics  
Talk title: monogamy relations of different kinds of quantum correlations  
Lanzhou university, Lanzhou, China
- AUG 1 - 6, 2016 Strings 2016 conference  
Tsinghua University, Beijing, China
- JUN 16- JUL 16, 2016 Summer School on Supersymmetry and Fiber bundle  
University of Chinese Academy of Sciences, Beijing, China
- MAY 23 - 24, 2015 The First Conference of The Second Revolution of Quantum Mechanics  
University of Science and Technology of China, Hefei, China