

Quantum Correlations of Nature (Quantum Corona III)

Program

Organized by:

Peking University & Universität Siegen

Supported by:

**Chinesisch-Deutsches Zentrum für
Wissenschaftsförderung**

Beijing | China

October 21-25, 2024



The 2024 China-Germany Joint Workshop on Quantum Correlations of Nature

Scope:

The workshop "Quantum Correlations of Nature" (Quantum Corona), hosted at the School of Physics, Peking University, aims to bring together researchers from the field of quantum correlations in a relaxed atmosphere. The main topics of the workshop include (but are not limited to): quantum steering, Bell nonlocality and violations of Bell inequalities, entanglement theory and quantum networks, ranging from the latest theoretical developments to the experimental implementations.

The workshop is a part of ongoing collaboration between the research groups of Qiongyi He (Beijing, China) and Otfried Gühne (Siegen, Germany) on quantum steering, which receives support from the Sino-German Center for Research Promotion. We warmly welcome you to participate in the workshop.

Organizing Committee:

Qiongyi He (Peking University, China)

Otfried Gühne (Universität Siegen, Germany)

Time:

Monday 21st to Friday 25th October 2024.

Conference venue:

Room 213 West, School of Physics, Peking University, Beijing, China.

北京大学物理学院，西213报告厅

Website:

Quantum Corona III

<https://faculty.pku.edu.cn/heqiongyi/en/zdylm/52753/list/index.htm>

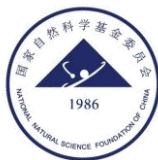
Quantum Corona II

https://www.physik.uni-siegen.de/tqo/conferences/quantum_corona_ii.html?lang=de

Quantum Corona I

https://www.physik.uni-siegen.de/tqo/conferences/quantum_corona.html?lang=de

Funding:



Day 1: 2024/10/21 Monday

8:50-9:00	Opening	
9:00-9:55	Xiongfeng Ma	Exploring the Computational and Entanglement Limitations of Noisy Quantum Devices
9:55-10:30	Ties-A. Ohst	Revealing Hidden Physical Nonclassicality with Nonnegative Polynomials
10:30-11:00	Coffee Break	
11:00-11:55	Giulio Chiribella	The Nonequilibrium Cost of Accurate Information Processing
11:55-14:00	Lunch Break	
14:00-14:55	Pei Zhang	Observation of Quantum Steering and Quantum Incompatibility in High-Dimensional Multi-Measurement Systems
14:55-15:30	Chengjie Zhang	Uncertainty Relations for Non-Hermitian Operators and its Application in Quantum Metrology
15:30-16:00	Coffee Break	
16:00-16:55	Bi-Heng Liu	Preparation and Measurement of High-Dimensional Quantum Entanglement
16:55-17:30	Lisa T. Weinbrenner	Certifying the Topology of Quantum Networks: Theory and Experiment
17:30-18:05	Jiangwei Shang	Beating the Optimal Verification of Entangled States via Collective Strategies
18:30	Conference Dinner	

Day 2: 2024/10/22 Tuesday

9:00-9:55	Jordi Tura	Certifying Spectral Gaps of Quantum Many-Body Systems
9:55-10:30	Giulio Gasbarri	Sequential Hypothesis Testing for Continuously-Monitored Quantum Systems
10:30-11:00	Coffee Break	
11:00-11:55	Mile Gu	Quantum Agents, Non-Markovian and Temporal Correlations: How to identify them and what can they do?
11:55-14:00	Lunch Break	
14:00-14:55	Yeong-Cherng Liang	Single-Copy Distillation of Quantumness from Higher-Dimensional Entanglement
14:55-15:30	Shuheng Liu	Characterizing the Entanglement Dimensionality Vector in Multipartite Quantum States
15:30-16:05	Zaw Lin Htoo	Witnessing Wigner Negativity and Entanglement with Characteristic Function Measurements
16:05-16:30	Coffee Break	
16:30-17:25	Weibo Gao	Overlapping Tomography
17:25-18:00	Yunlong Xiao	Quantum Uncertainty Principles for Measurements with Interventions
18:00	Dinner	

Day 3: 2024/10/23 Wednesday

9:00-9:55	Matteo Paris	Chiral Quantum Walks and Applications
9:55-10:30	Zhen-Peng Xu	From Graph Theory to Uncertainty Relation, and Back Again
10:30-11:00	Coffee Break	
11:00-11:55	Ravishankar Ramanathan	TBA
11:55-14:00	Lunch Break	
14:00-14:55	Xiao-Dong Yu	Rank-Constrained Optimization in Quantum Information
14:55-15:30	Zi-Wen Liu	Complexity and Order in Approximate Quantum Error-Correcting Codes
15:30-16:00	Coffee Break	
16:00-16:55	Satoyo Imai	Metrological Usefulness of Entanglement and Nonlinear Hamiltonians
16:55-17:30	Shuming Cheng	Faithful Geometric Measures for Genuine Tripartite Entanglement
17:30-18:05	Jiajie Guo	Entanglement Criteria of Non-Gaussian Quantum States
18:05	Dinner	



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