The 2nd Workshop on Quantum Computation meets Quantum Many-Body Computation

18-20 June 2025, Shanghai

Wednesday, 18 June 2025		
08:50-09:00	Welcome and opening	
Session 1	Chair: Shuo Yang	
09:00-09:30	Yingfei Gu	Detecting quantum anomalies from a density matrix perspective
09:30-10:00	Shenghan Jiang	Reduced density matrix as a probe of topological phases
10:00-10:30	Photo & tea break	
Session 2	Chair: Guoyi Zhu	
10:30-11:00	Zi-Wen Liu	Long-range nonstabilizerness from quantum codes, orders, and correlations
11:00-11:30	Zhi-Cheng Yang	Stabilizer entanglement as a magic highway
11:30-12:00	Huangjun Zhu	The magic in shadow estimation based on the Clifford group
12:00-14:00	Lunch	
Session 3	Chair: Jing Wang	
14:00-14:30	Minhyuk Kim	Toward quantum simulations with three-dimensional Rydberg atoms
14:30-15:00	Seiji Yunoki	Quantum many-body dynamics simulations using trapped-ion quantum computers
Poster flash 15:00-15:30	Chair: Shuo Yang	2 minutes for each presenter
Panel discussion：15:30-16:30	Coordinator: Mingpu Qin	The interplay between quantum computation and quantum many-body computation.
16:30-18:00	Tea break & poster	
18:00	Dinner	

Thursday, 19 June 2025		
Session 4	Chair: Yuxiang Zhang	
09:00-09:30	Li You	Observation of disorder-induced interacting topological phase in an atom array
09:30-10:00	Jian Cui	Novel Ground States and Emergent Quantum Many-Body Scars in a Two-Species Rydberg Atom Array
10:00-10:30	Tea break	
Session 5	Chair: Chun Chen	
10:30-11:00	Yu-An Chen	Generalized planar and toric codes as high-efficiency quantum LDPC codes
11:00-11:30	Hao Song	Topological theory of high-efficiency quantum low-density parity-check codes
11:30-12:00	Jin-Peng Liu	Linear Combination of Hamiltonian Simulation for Non-unitary Dynamics: Theorems and Applications
12:00-14:00	Lunch	
14:00-20:00	Excursion & banquet in the downtown (bus departs from the hotel at 14:00)	

Friday, 20 June 2025		
Session 6	Chair: Huihai Zhao	
09:00-09:30	Xiao Yan Xu	Negativity in fermionic many body systems
09:30-10:00	Nobuyuki Yoshioka	Recent advances in (early) fault-tolerant quantum algorithms
10:00-10:30	Tea break	
Session 7	Chair: Yuan Yao	
10:30-11:00	Xiao Chen	Coherent error induced phase transition
11:00-11:30	Song Cheng	Pauli Path Integral Simulation and The Complexity of Noisy Variational Quantum Algorithms
11:30-12:00	Tongzhou Zhao	Describing Landau Level Mixing in Fractional Quantum Hall States with Deep Learning
12:00-14:00	Lunch	
Session 8	Chair: Liping Yang	
14:00-14:30	Yantao Wu	Alternating and Gaussian fermionic Isometric Tensor Network States
14:30-15:00	Jianxin Chen	Unifying Quantum Computing: The Quest for a Cross-Platform Quantum Instruction Set
15:00-15:30	Tea break	
Session 9	Chair: Yadong Wu	
15:30-16:00	Shixin Zhang	Effective temperature in approximate quantum many-body states
16:00-16:30	Yibin Guo	Heuristic Initialization of Quantum Circuits for Qubit Systems Using Matrix Product States
16:30-17:00	Closing Remarks	
17:30-20:00	Dinner	