**The 11th Workshop on Quantum Many-Body Computation**

13-17 April 2023, Fuzhou(福州)

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| Thursday, 13 April 2023  |
| Registration at the hotel lobby, 13:00-20:00  |
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| Friday, 14 April 2023 |
| Registration at conference venue , 8:00-10:30  |
| **Tutorial Lectures (3 lectures) Chair：Congjun Wu (morning), Yuan Wan (afternoon)** |
| 10:30-12:00 | Wenan Guo (Beijing Normal University) | Monte Carlo Simulations of Quantum Spin Systems |
| 12:00-14:00 | Lunch |
| 14:00-15:30 | Congjun Wu(Westlake University) | Novel states of matter with multi-component ultra-cold bosons and fermions |
| 15:30-16:00 | Tea Break |
| 16:00-17:30 | Guangming Zhang (Tsinghua University) | Topological phases and phase transitions in many-body systems |
| 18:00 |  Dinner |

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| Saturday, 15 April 2023  |
| Registration at conference venue , 8:00-8:30  |
| 08:30-08:40 |  Welcome and opening by **Tao Xiang**  |
| Session 1  | Chair: **Dao-Xin Yao** (4 talks) |
| 08:40-09:00 | Xiaoqun Wang (Zhejiang University) | Intriguing effects of quantum magnetic impurity with/without vertex in a topological superconductor |
| 09:00-09:20 | Hong Yao (Tsinghua University) | Pair-density-wave and high-temperature superconductivity: role of electron-phonon coupling |
| 09:20-09:40 | Hui Zhai (Tsinghua University) | Quantum Many-Body Physics with Rydberg Atoms Array |
| 09:40-10:00 | Zhengcheng Gu (CUHK) | The emergence of gapless quantum spin liquid near deconfined quantum critical point |
| 10:00-10:10 |  Photo  |
| 10:10-10:30 |  Tea Break  |
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| Session 2  | Chair: **Shi-Jie Hu** (4 talks) |
| 10:30-10:50 | Lei Wang (IOP, CAS) | A deep variational free energy approach to dense hydrogen |
| 10:50-11:10 | Shiju Ran (Capital Normal University) | Efficient quantum computing by optimal control of quantum many-body dynamics |
| 11:10-11:30 | Haijun Liao (IOP, CAS ) | Spin Excitation Spectra of Anisotropic Spin-1/2 Triangular Lattice Heisenberg Antiferromagnets |
| 11:30-11:50 | Xiao-Yu Dong (Hefei National Laboratory) | PEPS representation of anyon condensation on the edge |
| 11:50-13:30 |  Lunch  |
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| Session 3  | Chair: **Zi Cai** (7 talks) |
| 13:30-13:50 | Rubem Mondaini (Beijing CSRC) | Criticality and the sign problem |
| 13:50-14:10 | Zixiang Li (IOP, CAS) | Emergent unconventional superconductivity and non-Fermi liquid transport in a doped valence bond solid insulator |
| 14:10-14:30 | Yancheng Wang (Beihang University) | Scaling of Non-local Observables at Quantum Criticality |
| 14:30-14:50 | Jianping Lv (Anhui Normal University) | Extraordinary-log critical phenomena in plane defects |
| 14:50-15:10 | Hui Shao (Beijing Normal University) | Progress on stochastic analytic continuation of quantum Monte Carlo data |
| 15:10-15:30 | Zheng Yan (Westlake university) | Extracting entanglement spectrum from many-body system via quantum Monte Carlo: Path integral of reduced density matrix unlocks the Li-Haldane conjecture |
| 15:30-15:50 | Chao Zhang (East China Normal University) | Bond bipolarons and high temperature superconductivity |
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| Session 4  |   |
| 15:50-17:30 |  Tea Break & Poster Session  |
| 18:00  | Dinner  |

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| Sunday, 16 April 2023 |
| Session 5  | Chair: **Tao Xiang** (6 talks) |
| 08:00-08:20  | Zhongyi Lu (RUC) | NORG+DMFT approach to multi-orbital systems |
| 08:20-08:40  | Honggang Luo (Lanzhou University) | Pattern description of phase transition |
| 08:40-09:00  | Ninghua Tong (RUC) | Recent Progress on Projective Truncation Approximation in Equation of Motion of Two-Time Green's Functions |
| 09:00-09:20  | Yang Qi (Fudan University) | Phase Fluctuations in Two-Dimensional Superconductors and Pseudogap Phenomenon |
| 09:20-09:40  | Mingpu Qin (SJTU) | Augmenting Density Matrix Renormalization Group with Disentanglers |
| 09:40-10:00  | Li Huang (CAEP) | Stochastic pole expansion method for analytic continuation of quantum Monte Carlo data |
| 10:00-10:20  | Tea Break  |
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| Session 6  | Chair: **Ling Wang** (5 talks) |
| 10:20-10:40  | Xiwen Guan (APM, CAS) | Exact dynamical correlation functions of Lieb-Liniger model |
| 10:40-11:00  | Wei Zhu (Westlake University) | Emergent Electric Dipole Moment around the Interface between Topological Orders |
| 11:00-11:20  | Shoushu Gong (Beihang University) | Hole binding, emergent superconductivity, and competing charge orders in the hole-doped square-lattice t-J model |
| 11:20-11:40  | Zhiyuan Xie (RUC) | Suppression of order parameter by spin-orbital frustration, and neural networks with explicit coarse-grained structure |
| 11:40-12:00  | Qiang Luo (NUAA) | Topological phase transitions and nonmagnetic states in 1D Kitaev-Γ spin chains |
| 12:00-13:30  | Lunch  |
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| Session 7  | Chair: **Yuan Wan** (5 talks) |
| 13:30-13:50  | Jianxin Li (Nanjing University) | Gap and Topology of Ferromagnetic Excitation Spectra: Role of the Spin-Orbital Coupling |
| 13:50-14:10  | Long Zhang (UCAS) | Scaling analysis of 2D random singlet states |
| 14:10-14:30  | Shuo Yang (Tsinghua University) | Construction of Non-Hermitian Parent Hamiltonian fromMatrix Product States |
| 14:30-14:50  | Zhentao Wang (Zhejiang University) | Stabilization Mechanism of Skyrmion Crystals in Centrosymmetric Metallic Magnets |
| 14:50-15:10  | Han Li (UCAS) | High-field quantum spin liquid transitions and angle-field phase diagram of the Kitaev magnet α-RuCl3 |
| 15:10-15:30  | Tea Break  |
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| Session 8  | Chair: **Zheng-Xin Liu** (4 talks) |
| 15:30-15:50  | Zixiang Hu (Chongqing University) | Topological properties of fractional quantum Hall liquids: from Jack polynomial to Monte Carlo simulation |
| 15:50-16:10  | Chao Cao (Zhejiang University) | Band Topology of Kondo Lattice Ce334 Systems |
| 16:10-16:30  | Yu-Bo Zhang (Minjiang Univeristy) | DFT on Cuprates: Old Problem and New Opportunity |
| 16:30-16:50  | Chun Chen (SJTU) | Superdiffusive to Ballistic Transports in Nonintegrable Rydberg Chains |
| 16:50-17:30  | Closing remark by **Haiqing Lin**  |
| 18:00  | Dinner  |
| Monday, 17 April 2023  |
| Departure  |