

Chengdu-Chongqing Quantum Workshop 2023

Quantum Sensing: Theory to Applications

Chengdu June 13-16

Program of the mini one-day summer school and workshop

Program of the mini 1-day summer school on Monday June 12

Mini one-day Summer School		
Date: June 12, 2023		
Venue: 电子科技大学（沙河校区）通信楼 725		
Chair: Abolfazl Bayat		
Time	Speaker	Title
09:45 – 10:45	Lorenzo Maccone (University of Pavia)	Quantum Metrology and its applications (lecture 1)
10:45 – 11:15	Coffee Break	
11:15 – 12:15	Matteo Paris (University of Milan)	An invitation to quantum estimation theory (lecture 1)
14:00 – 15:00	Lorenzo Maccone (University of Pavia)	Quantum Metrology and its applications (lecture 2)
15:00 – 15:30	Coffee Break	
15:30 – 16:30	Matteo Paris (University of Milan)	An invitation to quantum estimation theory (lecture 2)

Program of the Workshop

Morning Session day 1: Tuesday 13 June		
Venue: 电子科技大学（沙河校区）学术交流中心		
Time	Speaker	Title
08:30 – 09:00	Registration	
09:00 – 09:15	Opening Remarks	
09:15 – 09:55	Matteo Paris (University of Milan)	Beyond Cramèr-Rao?
09:55 – 10:15	Gaoyong Sun (Nanjing University of Aeronautics and Astronautics)	Anatomy of Dynamical Quantum Phase Transitions
10:15 – 10:45	Coffee Break	
Morning Session day 1: Tuesday 13 June		
Venue: 电子科技大学（沙河校区）学术交流中心		
10:45 – 11:25	Haidong Yuan (Chinese University of Hong Kong)	Incompatibility measures in multi-parameter quantum estimation
11:25 – 12:05	Yaoming Chu (Huazhong University of Science and Technology)	Strong Quantum Metrological Limit from Many- Body Physics
12:15 – 14:00	Buffet lunch at the UESTC hotel	

Afternoon Session day 1: Tuesday 13 June		
Venue: 电子科技大学（沙河校区）学术交流中心		
Time	Speaker	Title
14:00 – 14:40	Xue-Ren Huang (China Academy of Science)	Systematic shifts of an $^{27}\text{Al}^+$ ion optical clock co-trapped with $^{40}\text{Ca}^+$
14:40 – 15:20	Yi-Ge Lin (National Institute of Metrology, China)	Strontium Optical Clocks and High-precision Measurements of Optical Frequencies
15:20 – 15:40	Shaolong Chen (Innovation Academy for Precision Measurement Science and Technology, CAS)	Sympathetic cooling and spectroscopy measurement of Nickel highly charged ions
15:40 – 16:00	Coffee Break	
Afternoon Session day 1: Tuesday 13 June		
Venue: 电子科技大学（沙河校区）学术交流中心		
16:00 – 16:40	Hua Guan (China Academy of Science)	The progress on $^{40}\text{Ca}^+$ optical clocks
16:40 – 17:20	Xiu-Hao Deng (Southern University of Science and Technology)	A geometric perspective of quantum noise and universal robust quantum control
17:20 – 18:30	Poster Session	
18:15 – 20:00	Dinner at the UESTC hotel	

Morning Session day 2: Wednesday 14 June		
Venue: 电子科技大学（沙河校区）学术交流中心		
Time	Speaker	Title
09:00 – 09:40	Lorenzo Maccone (University of Pavia, Italy)	Quantum metrology of noisy spreading channels
09:40 – 10:20	Gang Li (Shanxi University)	Quantum manipulation of single atoms and cavity QED
10:20 – 10:50	Coffee Break	
Afternoon Session day 2: Wednesday 14 June		
Venue: 电子科技大学（沙河校区）学术交流中心		
10:50 – 11:30	Nana Liu (Shanghai Jiao Tong University)	Quantum simulation of partial differential equations
11:30 – 12:10	Shiju Ran (Capital Normal University)	Tensor network for efficient quantum computation and many-body simulation
12:15 – 14:00	Buffet lunch at the UESTC hotel	

Afternoon Session day 2: Wednesday 14 June		
Venue: 电子科技大学（沙河校区）学术交流中心		
Time	Speaker	Title
14:00 – 14:40	Barry Sanders (University of Calgary)	Kittens, cats and compasses: superposing coherent states for quantum sensing, quantum communication, quantum computing and quantum fun
14:40 – 15:20	Peng Xue (Beijing Computational Science Research Center, CSRC)	Topological multiple phase transition in non-Hermitian quasicrystals
15:20 – 15:40	Rozhin Yousefjani (University of Electronic Science and Technology of China)	Stark localization as a resource for weak-field sensing with super-Heisenberg precision
15:40 – 16:10	Coffee Break	
Afternoon Session day 2: Wednesday 14 June		
Venue: 电子科技大学（沙河校区）学术交流中心		
16:10 – 16:50	Dong-Sheng Ding (University of Science and Technology of China)	Criticality enhanced metrology with Rydberg atoms
16:50 – 17:30	Lin-Jie Zhang (Shanxi University)	Microwave electric fields sensing based on Rydberg atoms
17:30 – 17:50	Kunkun Wang (Anhui University)	Experimental Simulation of Symmetry-Protected Exceptional Points with Single Photons
17:50 – 18:10	Yue Fu (Beijing institute of Technology)	Experimental Investigation of Quantum Correlations in a Two-Qutrit Spin System
18:30 – 20:00	Dinner at the UESTC hotel	

Morning Session day 3: Thursday 15 June Venue: 电子科技大学（沙河校区）学术交流中心		
Time	Speaker	Title
09:00 – 09:40	Xing Rong (University of Science and Technology of China)	Searching for Exotic Spin Interactions with Diamond Quantum Sensors
09:40 – 10:20	Qi Zhang (University of Science and Technology of China)	Sensing biomolecules with quantum defects in diamond
10:20 – 10:50	Coffee Break	
Morning Session day 3: Thursday 15 June Venue: 电子科技大学（沙河校区）学术交流中心		
10:50 – 11:30	Oscar Dahlsten (City University of Hong Kong)	On the relation between information and energy
11:30 – 12:10	Hai-Bin Wu (East China Normal University)	Quantum phase transition and quenching dynamics of the long-ranged interacting Fermi gases
12:15 – 14:00	Buffet lunch at the UESTC hotel	

Afternoon Session day 3: Thursday 15 June		
Venue: 电子科技大学（沙河校区）学术交流中心		
Time	Speaker	Title
14:00 – 14:40	Li You (Tsinghua University)	Quantum enhanced nonlinear interferometry protocols with Bose condensed atoms
14:40 – 15:20	Victor Montenegro (University of Electronic Science and Technology of China)	Advancing Quantum Metrology by Sequential Measurements
15:20 – 15:40	Chiranjib Mukhopadhyay (University of Electronic Science and Technology of China)	Modular Many-Body Quantum Sensors
15:40 – 16:10	Coffee Break	
Afternoon Session day 3: Thursday 15 June		
Venue: 电子科技大学（沙河校区）学术交流中心		
16:10 – 16:50	Ying Hu (Shanxi University)	Fractional quantum Zeno effect emerging from non-Hermitian physics
16:50 – 17:30	Shao-Kai Wang (National Institute of Metrology, China)	NIM -AAG1 and its contribution to the primary standard of g
17:30 – 18:10	Yang Liu (Jinan Institute of Quantum Technology)	Long Distance Quantum Key Distribution with Vibration Sensing
18:10 – onwards	Free Evening	

Morning Session day 4: Friday 16 June Venue: 电子科技大学（沙河校区）通信楼 725 会议室		
Time	Speaker	Title
09:00 – 09:40	Chao-Hong Li (Shenzhen University)	Quantum lock-in amplifier with cold atoms
09:40 – 10:20	Xiaotong Lu (China Academy of Science)	Strontium optical lattice clock and physical researches
10:20 – 10:50	Coffee Break	
Morning Session day 4: Friday 16 June Venue: 电子科技大学（沙河校区）通信楼 725 会议室		
10:50 – 11:30	Min Jiang (University of Science and Technology of China)	Spin-based quantum sensing and its applications
11:30 – 11:50	Lei Xiao (Beijing Computational Science Research Center, CSRC)	Non-Bloch parity-time symmetry and exceptional points
11:50 – 12:00	Closing Remarks	
12:15 – 14:00	Buffet lunch at the UESTC hotel	