Program of Frontier Physics workshop (Lanzhou, September 21 - 23, 2014)

Registration: September 21, 2014

22 September (Monday)

9:00am - 9:20am	Welcome Ceremony
***Plenary Session I* (Venue: Yifu Lecture Hall)**	
	Chairman: XUE De-Sheng (LZU)
09:20 - 10:00	**FENG Yuanping (NUS)** Prediction of high performance GMR and TMR devices from first-principles
10:00 - 10:40	**ZHANG Guang-Ming (Tsinghua University)** Critical entanglement spectrum of one-dimensional symmetry protected topological phases
10:40 - 11:00	Group photo & Coffee Break
***Plenary Session II* (Venue: Yifu Lecture Hall)**	
	Chairman: FENG Yuanping (NUS)
11:00 - 11:40	**Ariando (NUS)** Emergent phenomena at complex oxide interfaces
11:40 - 12:20	**CHANG Kai (Institute of Semiconductors, CAS)** Searching for unconventional quantum phase in conventional materials

	Venue: Room 202	**Venue: Room 204**	**Venue: Room 205**
	Parallel Session A **(first principle calculations)**	***Parallel Session B*** **(strongly correlated systems)**	***Parallel Session C*** **(quantum optics)**
	Chairman: WANG Jian-Sheng (NUS)	**Chairman: ZHANG Guang-Ming (Tsinghua University)**	**Chairman: AN Jun-Hong (LZU)**
14:30 - 15:00	**XIA Ke (Beijing Normal University)** First principle study on the TST at MgO based tunnel junctions	**LI Tao (Renmin University of China)** A new mean field theory and variational wave function for Mott transition in Hubbard models	**LI Fuli (Xi'an Jiaotong University)** Super sub-wavelength patterns in photon coincidence detection
15:00 - 15:30	**DU Shixuan (Institute of Physics, CAS)** Growth mechanism of metal clusters on a Graphene/Ru(0001) template	**YANG Fan (Beijing Institute of Technology)** Time-reversal-invariant topological superconductivity in an n-type doped BiH	**CHENG Jing (South China University of Technology)** Quantum metrology for simultaneously estimating the linear and nonlinear phase shifts
15:30 - 16:00	**LYU Jing-Tao (Huazhong University of Science and Technology)** Current-induced forces, Joule heating, and heat transport in molecular conductors	**ZHONG Yin (LZU)** Z2 fractionalized BCS superconductor	**WEI Lianfu (Southwest Jiaotong University)** Weak light detection with low temperature superconducting technique
16:00 - 16:30	Coffee Break		
	Parallel Session D **(quantum Systems)**	***Parallel Session E*** **(transport and measurement)**	***Parallel Session F*** **(novel materials and biology)**
	Chairman: OH Choo Hiap (NUS)	**Chairman: SOW Chorng Haur (NUS)**	**Chairman: CHOWDARI B.V.R. (NUS)**
16:30 - 17:00	**WANG Zhi-Guo (Tongji University)** The cooperative effects of gain and loss in plasmonic systems	**MAHENDIRAN Ramanathan (NUS)** Spincaloric transport in oxides	**WANG Xuesen (NUS)** Preparation of 1-bilayer Bi(111) and investigation of its electronic states
17:00 - 17:30	**AN Jun-Hong (LZU)** Non-equilibrium quantum phase transition induced by periodic driving	**WANG Haifeng (NUS)** Chirped time-resolved CARS microscopy with square-pulse excitation	**XIE Er-Qing (LZU)** Three-dimensional interconnected carbon-based networks for high performance flexible super capacitors
17:30 - 18:00	**Tong Dianmin (Shandong University)** A theorem on the existence of non-zero energy gap in adiabatic quantum computation	**PENG Yong (LZU)** Design and manufacture of magneto-transport testing instrument in-situ electron microscopes and its application	**WANG Zhisong (NUS)** Bioinspired nanoscale motors

23 September (Tuesday)

Plenary Session III **(Venue: Yifu Lecture Hall)**	
Chairman: WANG Xiang-Bin (Tsinghua University)	
09:00 - 9:40	**OH Choo Hiap (NUS)** Multipartite nonlocality
9:40 - 10:20	**YOU Jian-Qiang (Beijing Computational Science Research Center)** Nanowire spin-orbit qubits: Electric-dipole spin resonance and anisotropic exchange coupling
10:20 - 10:40	Coffee Break
Plenary Session IV **(Venue: Yifu Lecture Hall)**	
Chairman: XIA Ke (Beijing Normal University)	
10:40 - 11:20	**SOW Chorng Haur (NUS)** A Focused Laser Beam: Useful Tool for Nanoscience Research
11:20 - 12:00	**LU Zhong-Yi (Renmin University of China)** Theoretical study on electronic and magnetic structures of iron-chalcogenides from bulk to thin film

	Venue: Room 202	**Venue: Room 204**	**Venue: Room 205**
	Parallel Session G **(quantum systems)**	***Parallel Session H*** **(Correlated and transport)**	***Parallel Session I*** **(multiferroics)**
	Chairman: YOU Jian-Qiang (CSRC)	**Chairman: CHANG Kai (Institute of Semiconductors, CAS)**	**Chairman: WANG Xuesen (NUS)**
14:30 - 15:00	**WANG Xiang-Bin (Tsinghua University)** Non-Markovian dynamics of open quantum systems without rotating wave approximation	**WANG Jian-Sheng (NUS)** Theories of thermal expansion: Grüneisen vs NEGF	**JIA Chenglong (LZU)** Mechanism of interfacial magnetoelectric coupling in composite multiferroics
15:00 - 15:30	**YI Xue-Xi (Dalian University of Technology)** Hall conductance and topological invariant for open systems	**WAN Xin (Zhejiang University)** Single-mode approximation for rotational symmetry broken quantum Hall states	**YOU Wen-Long (Soochow University)** Exact treatment of the magnetocaloric and magnetoelectric effects in the one-dimensional compass model
15:30 - 16:00	**LU Hantao (LZU)** Ultrafast optical response in the one-dimensional half-filled Hubbard model	**CHO Sam Young (Chongqing University)** How to define proper spin operators of massive particles	
16:00 - 16:30	Coffee Break		
	Parallel Session J **(quantum gas and collisions)**	***Parallel Session K*** **(nanomaterials)**	***Parallel Session L*** **(superconductors)**
	Chairman: LU Zhong-Yi (Renmin University of China)	**Chairman: Ariando (NUS)**	**Chairman: WAN Xin (Zhejiang University)**
16:30 - 17:00	**ZHANG Yunbo (Shanxi University)** Pairing and phase separation in 1D quantum gas	**CHOWDARI B.V.R (NUS)** Nano-Materials for Energy Storage Applications in Lithium Ion Batteries	**YAO Dao-Xin (Sun Yat-sen University)** Itinerancy enhanced quantum fluctuation of magnetic moments in iron-based superconductors
17:00 - 17:30	**YIN Lan (Peking University)** Supersolidity of a dipolar Fermi gas in a cubic optical lattice	**LIU Dequan (LZU)** Nanostructured Silicon and Germanium Anodes for High-Performance Lithium-ion Batteries	**ZHANG Yu-Zhong (Tongji University)** Magnetic phase transitions controlled by excess iron in $Fe_{1+x}Te$
17:30 - 18:00	**HUANG Liang (LZU)** Time-Reversal Symmetry Broken in 2D Quantum Billiard Systems	**CHEN Wei (NUS)** Interface engineering for 2D materials based optoelectronic devices	**Ma Tianxing (Beijing Normal University)** Pairing in doped Hubbard model on a honeycomb lattice: A quantum Monte Carlo study