Mini-symposium B6
Quantum many body physics

Organizers:
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Thu - 8 Jan 2015 | 16:00 – 18:00 | 05-99, Block S16

Chair: Oleg Sushkov
16:00  B06-01 Keynote
Quantum Phase Transitions in Spin Systems
Ribhu Kaul
University of Kentucky, Lexington, USA

16:30  B06-02 Invited
Emergent topological quantum numbers and domain walls in a quantum spin system
Hui Shao¹, Wenan Guo¹,², Anders W. Sandvik²
¹Physics Department, Beijing Normal University, Beijing, China; ²Department of Physics, Boston University, Boston, USA; ³State Key Laboratory of Theoretical Physics, Institute of Theoretical Physics, Chinese Academy of Science, Beijing, China

17:00  B06-03 Invited
Quantum Critical Spin-2 Chain with Emergent SU(3) Symmetry
Pochung Chen¹,², Zhi-Long Xue¹, I. P. McCulloch¹, Ming-Chiang Chung³, Chao-Chun Hduang³, S.-K. Yip³
¹Department of Physics, National Tsing Hua University, Hsinchu 30013, Taiwan; ²Physics Division, National Center for Theoretical Sciences, Hsinchu 30013, Taiwan; ³Centre for Engineered Quantum Systems, The University of Queensland, Brisbane, Queensland 4072, Australia; ⁴Department of Physics, National Chung Hsing University, Taichung 40227, Taiwan; ⁵Institute of Physics and Institute of Atomic and Molecular Sciences, Academia Sinica, Taipei 11529, Taiwan

17:30  B06-04 Invited
Quantum Monte Carlo study of Disordered Spin Systems
Dao-Xin Yao¹, Nvsen Ma¹, Anders W Sandvik²
¹Sun Yat-Sen University, China; ²Boston University, USA

Fri - 9 Jan 2015 | 11:00 – 12:30 | 05-99, Block S16

Chair: Kipton Barros
11:00  B06-05 Keynote
Quest for Deconfined Criticality in Two-Dimensional Heisenberg Model
Naoki Kawashima
Institute for Solid State Physics, University of Tokyo, Japan

11:30  B06-06 Invited
Neel to valence-bond-solid phase transitions in correlated valence-bond states
Yu-Cheng Lin
Graduate Institute of Applied Physics, National Chengchi University, No. 64, Sec. 2, ZhiNan Rd., Taipei City 11605, Taiwan

12:00  B06-07 Invited
Quantum Monte Carlo Study of Quantum Criticality on SO(N) Bilinear-Biquadratic Chains
Kenji Harada¹, Kouichi Okunishi²
¹Graduate School of Informatics, Kyoto University, Kyoto 606-8501, Japan; ²Department of Physics, Niigata University, Niigata 950-2181, Japan

Fri - 9 Jan 2015 | 14:00 – 15:30 | 05-99, Block S16

Chair: Andreas Lauchli
14:00  B06-08 Keynote
Superconducting mechanisms of iron-based and cuprate superconductors
Masatoshi Imada
Department of Applied Physics, University of Tokyo, Hongo, Bunkyo-ku, Tokyo, Japan

14:30  B06-09 Invited
New scheme to calculate superconductivity instabilities in correlated electronic systems beyond single-site DMFT
Zi Yang Meng
Institute of Physics, Chinese Academy of Sciences, Beijing, China

15:00  B06-10 Invited
Quantum criticality, fractal nodal surface and the scaling behavior of the entanglement entropy in an interacting Fermion system
Tao Li
Renmin University of China, Beijing, China
Chair: Hong Yao

16:00 B06-11 Keynote
Tensor-network algorithms and frustrated quantum magnetism
Frederic Mila
École polytechnique fédérale de Lausanne

16:30 B06-12 Invited
Spin Liquids on the Kagome Lattice
Andreas Lauchli
Institut für Theoretische Physik, Universität Innsbruck, Austria

17:00 B06-13 Invited
Tensor Renormalisation using Projected Entangled Simplex States: New Insight into the Kagome Conundrum
Bruce Normand
Renmin University of China, Beijing, China

17:30 B06-14 Invited
Supersolid phases in the extended Shastry-Sutherland model
Keola Wierschem
National Taiwan University

Chair: Dao-Xin Yao

11:00 B06-15 Keynote
Correlated topological insulators
Fakher Assaad
Universität Würzburg, Germany

11:30 B06-16 Invited
Chiral and Time-reversal Invariant Spin Liquids in Anisotropic Kagome Antiferromagnets
Yan Chen
Laboratory of Advanced Materials, Fudan University, China

12:00 B06-17 Invited
Violation of the spin statistics theorem and the Bose-Einstein condensation of particles with half integer spin.
Harley D. Scammell, Oleg P. Sushkov
School of Physics, University of New South Wales, Sydney 2052, Australia

Chair: Wenan Guo

14:00 B06-18 Invited
Half-magnetization plateau of a dipolar spin ice in a [100] field
Sheng-Ching Lin, Ying-Jer Kao
Department of Physics, National Taiwan University

14:30 B06-19 Invited
Solving fermion sign problem in quantum Monte Carlo by Majorana representation
Zi-Xiang Li, Yi-Fan Jiang, and Hong Yao
Institute for Advanced Study, Tsinghua University, Beijing 100084, China

15:00 B06-20 Invited
Practical linear scaling simulation of Born-Oppenheimer dynamics
Kipton Barros
Los Alamos National Laboratory, Los Alamos, USA