

Yukawa International Seminar (YKIS) 2014

# Nonequilibrium Phenomena in Novel Quantum States

December 3-5, 2014

Yukawa Institute for Theoretical Physics, Kyoto University

<http://www2.yukawa.kyoto-u.ac.jp/~nqs2014.ws/YKIS2014/index.html>

## Program

December 3	December 4	December 5
10:00-10:10 opening	Session 4	Session 7
Session 1	9:00-9:40	9:00-9:40
10:10-10:50 Rosch	Tatara	Poletti
10:50-11:30 Cazalilla	9:40-10:20 Ono	9:40-10:20 Bulgac
11:30-11:50 Tezuka	break	break
11:50-12:10 Mierzejewski	Session 5	Session 8
Lunch	10:50-11:30 Kobayashi	10:50-11:30 Werner
Session 2	11:30-12:10 Sagawa	11:30-12:10 Oka
13:30-14:10 Okamoto	12:10-12:30 Tohyama	12:10-12:30 Bonča
14:10-14:50 Prelovsek	Lunch	Lunch
14:50-15:10 Eckstein	Session 6	Session 9
break	14:00-14:40 Potthoff	14:00-14:40 Freericks
Session 3	14:40-15:20 Schmiedmayer	14:40-15:20 Ishihara
15:40-16:20 Shimizu	15:20-15:40 T. Ikeda	15:20-15:40 M. Sato
16:20-16:40 Yamada	break	15:40-16:00 Tsuji
16:40-17:00 Watanabe	16:00-18:00 poster session	16:00-16:10 Closing
17:00-17:20 Uchiyama	18:00-- banquet	

**December 3 (Wed), 2014**

10:00-10:10 Opening

Chair: Ippei Danshita (Kyoto University)

10:10-10:50

Achim Rosch (University of Cologne)

" Equilibration and projective measurements in interacting many particle systems "

10:50-11:30

Miguel Cazalilla (National Tsing Hua University)

" Quantum quenches: from the generalized Gibbs ensemble to prethermalization "

11:30-11:50

Masaki Tezuka (Kyoto University)

" Long-range order and quench dynamics in one-dimensional quantum systems with power-law interactions "

11:50-12:10

Marcin Mierzejewski (University of Silesia)

" Breakdown of the generalized Gibbs ensemble for current-generating quenches "

~~~~~ Lunch (12:10 – 13:30) ~~~~~

Chair: James Freericks (Georgetown University)

13:30-14:10

Hiroshi Okamoto (The University of Tokyo)

" Nonlinear and ultrafast optical responses in Mott insulators "

14:10-14:50

Peter Prelovšek (Jozef Stefan Institute)

" Charge recombination and relaxation in photoexcited Mott-Hubbard insulators "

14:50-15:10

Martin Eckstein (University of Hamburg)

" The role of non-local correlations for photo-induced metal-insulator transitions in Mott insulators "

~~~~~ Coffee Break (15:10 – 15:40) ~~~~~

Chair: Hisao Hayakawa (Kyoto University)

15:40-16:20

Akira Shimizu (The University of Tokyo)

" Liquid is more rigid than solid in a high-frequency region "

16:20-16:40

Yasuhiro Yamada (The University of Tokyo)

" Universal departure from the fluctuation theorem caused by a resolution limit "

16:40-17:00

Gentaro Watanabe (Asia Pacific Center for Theoretical Physics)

" Generalized energy measurements and modified transient quantum fluctuation theorems "

17:00-17:20

Chikako Uchiyama (University of Yamanashi)

" Nonadiabatic effect on the quantum heat flux control "

## **December 4 (Thurs), 2014**

Chair: Keisuke Totsuka (Kyoto University)

9:00-9:40

Gen Tatara (RIKEN)

" Electron transport and magnetization dynamics in metallic ferromagnets "

9:40-10:20

Teruo Ono (Kyoto University)

" Current-induced magnetic domain wall motion "

~~~~~ Coffee Break (10:20 – 10:50) ~~~~~

Chair: Ian Affleck (The University of British Columbia)

10:50-11:30

Kensuke Kobayashi (Osaka University)

" Nonequilibrium Kondo effect in a quantum dot "

11:30-12:10

Takahiro Sagawa (The University of Tokyo)

" Nonequilibrium thermodynamics of quantum information processing "

12:10-12:30

Takami Tohyama (Tokyo University of Science)

" Nonequilibrium charge dynamics in one-dimensional extended Hubbard model "

~~~~~ Lunch (12:30 – 14:00) ~~~~~

Chair: Ehud Altman (Weizmann Institute of Science)

14:00-14:40

Michael Potthoff (University of Hamburg)

" Non-equilibrium self-energy-functional theory "

14:40-15:20

Joerg Schmiedmayer (Vienna University of Technology)

" Relaxation in an isolated many body quantum system "

15:20-15:40

Tatsuhiko Ikeda (The University of Tokyo)

" Entanglement prethermalization "

~~~~~ Coffee Break (15:40 – 16:00) ~~~~~

16:00-18:00

Poster Session (see below)

18:00-20:00

*Banquet (at the university cafeteria "Hokuto")*

## **December 5 (Fri), 2014**

Chair: Norio Kawakami (Kyoto University)

9:00-9:40

Dario Poletti (Singapore University of Technology and Design)

" Exploring unconventional Hubbard models engineered with periodic modulations "

9:40-10:20

Aurel Bulgac (University of Washington)

" Time-dependent dynamics of fermionic superfluids: from cold atomic gases, to nuclei and neutron stars "

~~~~~ Coffee Break (10:20 – 10:50) ~~~~~

Chair: Michael Potthoff (University of Hamburg)

10:50-11:30

Philipp Werner (University of Fribourg)

" Thermalization of pump-excited Mott insulators "

11:30-12:10

Takashi Oka (The University of Tokyo)

" Floquet phase transitions: Control of quantum matter by laser "

12:10-12:30

Janez Bonča (University of Ljubljana)

" Relaxation dynamics of a charge carrier in correlated electron systems "

~~~~~ Lunch (12:30 – 14:00) ~~~~~

Chair: Takami Tohyama (Tokyo University of Science)

14:00-14:40

James Freericks (Georgetown University)

" Theoretical description of pump/probe time-resolved photoemission in electron-phonon coupled materials "

14:40-15:20

Sumio Ishihara (Tohoku University)

" Real time dynamics in spin-charge correlated electron systems "

15:20-15:40

Masahiro Sato (Aoyama-Gakuin University)

" Laser-driven orders and topological states in quantum magnets with magnetoelectric couplings "

15:40-16:00

Naoto Tsuji (The University of Tokyo)

" Light-induced Anderson pseudospin resonance with Higgs mode in superconductors "

16:00-16:10

Closing

## Program of Poster Session

Date: 16:00-18:00 on December 4

1. Balasubramanian Prasanna Venkatesh (Asia Pacific Center for Theoretical Physics)  
" Backaction-driven transport of Bloch oscillating atoms in ring cavities "
2. Hiroshi Hashimoto (Tohoku University)  
" Photo-irradiation effect in frustrated charge ordered systems "
3. Shoichi Ichinose (University of Shizuoka)  
" Boltzmann's Transport Equation based on Velocity-Field Theory and Non-equilibrium Statistical Mechanics "
4. Yukihiro Kuwahara (Waseda University)  
" Quantum transport equation for cold atomic gas systems from nonequilibrium Thermo Field Dynamics "
5. Zala Lenarčič (Jozef Stefan Institute)  
" Relaxation and recombination of charge carriers in one-dimensional Mott insulators "
6. Fuyuki Matsuda (Kyoto University)  
" Effects of quasiperiodic modulation on a periodic Anderson model "
7. Yuta Murakami (The University of Tokyo)  
" Crossover in the thermalization process after an interaction quench in the Holstein model "
8. Masaya Nakagawa (Kyoto University)  
" Photo-induced Kondo effect in a two-orbital optical lattice "

9. Yuya Nakagawa (The University of Tokyo)  
" Flux quench in the  $S=1/2$  XXZ chain "
10. Jun'ichi Ozaki (Kyoto University)  
" Non-trivial resistance in cluster drag dynamics of 1D cold atom systems "
11. Masaru Sakaida (Kyoto University)  
" Systematic analysis of multicomponent Fermi systems with disorder "
12. Hugo Strand (University of Fribourg)  
" Real-time dynamics of lattice bosons from nonequilibrium dynamical mean-field theory "
13. Seiichiro Suga (University of Hyogo)  
" Superfluid and its pairing symmetry of three-component repulsive fermionic atoms in optical lattices "
14. Takafumi Suzuki (University of Hyogo)  
" Edge state of bosonic Mott state in trapped 2d bosonic Hubbard systems "
15. Sukjin Yoon (Asia Pacific Center for Theoretical Physics)  
" Quantum quench of a p-wave Fermi gas "
16. Tatsuro Yuge (Osaka University)  
" Perturbative analysis of nonequilibrium steady state in open quantum system "