RIMS Kôkyûroku Bessatsu B79

Stochastic Analysis on Large Scale Interacting Systems

edited by Ryoki Fukushima, Tadahisa Funaki, Yukio Nagahata, Hirofumi Osada and Kenkichi Tsunoda

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November 5 ～8, 2018

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Research Institute for Mathematical Sciences

Kyoto University, Kyoto, Japan

Preface

This volume of RIMS Kôkyûroku Bessatsu is the proceedings of the RIMS workshop "Stochastic Analysis on Large Scale Interacting Systems" (SALSIS) held at Research Institute for Mathematical Sciences, Kyoto University from November 5 to 8, 2018. The workshop was held in the framework of the RIMS Joint Research (open). The SALSIS is held continuously every year starting from 2002 at different sites and this was the 17th workshop.

The aim of the workshop was to overview recent progress in stochastic analysis on large scale interacting systems. The workshop program included 22 talks on the problems related to interacting particle systems, the random matrix theory, random geometry, stochastic PDEs, random walks in random environments, critical phenomena, the interface model and others. We had 41 participants during the workshop.

This volume edited by the five organizers listed below is a collection of articles contributed by speakers of the conference. Each paper has been carefully refereed and is in its final form.

February 2020

Ryoki Fukushima (Kyoto University)
Tadahisa Funaki (Waseda University)
Yukio Nagahata (Niigata University)
Hirofumi Osada (Kyushu University)
Kenkichi Tsunoda (Osaka University)

Stochastic Analysis on Large Scale Interacting Systems

Date:	November 5 (Mon)-November 8 (Thu), 2018
Place:	RIMS 420, Kyoto University
Organizers:	Ryoki Fukushima (Kyoto University)
	Tadahisa Funaki (Waseda University)
	Yukio Nagahata (Niigata University)
	Hirofumi Osada (Kyushu University)
	Kenkichi Tshunoda (Osaka University)

Program

November 5 (Mon)

10:10-10:50 **Tadahisa Funaki (Waseda University)**:
   Derivations of motion by mean curvature and Stefan problem from Glauber-Kawasaki dynamics

11:10-11:50 **Insuk Seo (Seoul National University)**:
   Scaling limit of metastable random processes

13:30-14:10 **Hideki Tanemura (Keio University)**:
   Infinite particle systems with hard core and long range interactions

14:20-14:50 **Yosuke Kawamoto (Kyushu University)**:
   Transitions between dynamics of infinite particle systems associated with universal random point fields related to random matrices

15:30-16:00 **Shota Osada (Kyushu University)**:
   Isomorphisms between determinantal point processes and Poisson point processes

16:10-16:50 **Akira Sakai (Hokkaido University)**:
   Critical two-point function for long-range models with power-law couplings: the marginal case for $d \geq d_c$

November 6 (Tue)

9:20-10:00 **Daisuke Shiraishi (Kyoto University)**:
   Natural parametrization for the scaling limit of loop-erased random walk in three dimensions

10:10-10:50 **David Croydon (Kyoto University)**:
   Dynamics of the box-ball system with random initial conditions via Pitman's transformation

11:10-11:50 **Alejandro Ramírez (Pontificia Universidad Catolica de Chile)**:
   Exponential decay for the exit probability from slabs of ballistic RWRE

11:50-13:30 **Lunch**

13:30-14:10 **Tomoyuki Shirai (Kyushu University)**:
   Universality of determinantal point processes on Riemannian manifolds

14:20-14:50 **Kazuki Okamura (Shinshu University)**
Bi-infinite geodesics of first passage percolation on some infinite graphs

15:30-16:00 **Naoki Kubota (Nihon University)**:
Continuity result for the rate function of the simple random walk on supercritical percolation clusters

16:10-16:50 **Kenkichi Tsunoda (Osaka University)**:
Incompressible limit for the WASEP

November 7 (Wed)

9:20-10:00 **Makiko Sasada (University of Tokyo)**:
Hydrodynamic limit for degenerate dynamics

10:10-10:50 **Sunder Sethuraman (University of Arizona)**:
Approximating geodesics via random points

11:00-11:40 **Van Hao Can (Vietnam Academy of Science and Technology)**:
Sublinearity for the variance of the passage time in frog models

11:50-12:20 **George Andriopoulos (University of Warwick)**
Invariance principles for random walks in random environment on trees

November 8 (Thu)

9:20-10:00 **Yuzuru Inahama (Kyushu University)**:
Paracontrolled quasi-geostrophic equation with space-time white noise

10:10-10:50 **Masato Hoshino (Kyushu University)**:
A relation between regularity structures and paracontrolled calculus

11:10-11:50 **Bin Xie (Shinshu University)**:
Dimension-free Harnack inequalities for the Markov semigroup generated by reflected SPDEs

11:50-13:30 **Lunch**

13:30-14:10 **Takashi Imamura (Chiba University)**:
q-Whittaker measures and Schur measures

14:20-14:50 **Trinh Khanh Duy (Tohoku University)**:
Limit theorems for Betti numbers of random geometric complexes built over binomial point processes

15:00-15:40 **Hirofumi Osada (Kyushu University)**:
IFC condition for infinite-dimensional stochastic differential equations

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