

The 12th Mathematical Society of Japan, Seasonal Institute

## Stochastic Analysis, Random Fields and Integrable Probability

**Dates:** July 31 (Wed.) - August 9 (Fri.), 2019

**Place:** Shiiki Hall, Ito Campus, Kyushu University, Fukuoka, Japan

### Program

July 31	August 1	August 2
10:00-11:00 den Hollander	10:00-11:00 Corwin	10:00-11:00 den Hollander
11:20-12:20 Corwin	11:20-12:20 Corwin	11:20-12:20 den Hollander
Lunch		
13:40-14:20 Funaki	13:40-14:20 Imamura	13:40-14:20 Rodriguez
14:30-15:10 Zhu	14:30-15:10 Holden	14:30-15:10 Berestycki
15:20-15:40 Hoshino	15:20-15:40 Abe	15:20-15:40 Okada
Coffee Break		
16:10-16:50 Ghosh	16:10-16:50 Katori	16:10-16:50 Tsai
17:00-17:20 Tsunoda	17:00-17:20 Małeckı	17:00-17:20 Li
18:00-20:00 Welcome Party		

### July 31 (Wed.)

9:00- Registration

9:45- Opening Speech  
Tomohide Terasoma (President of MSJ)

10:00-11:00 Frank den Hollander (Universiteit Leiden)  
Complex Networks: Structure and Functionality. I. Spectra

- 11:20-12:20 Ivan Corwin (Columbia University)  
Stochastic Vertex Models I
- 13:40-14:20 Tadahisa Funaki (Waseda University)  
Large Deviation for Lozenge Tiling Dynamics
- 14:30-15:10 Rongchan Zhu (Beijing Institute of Technology)  
Stochastic Cahn-Hilliard Equation
- 15:20-15:40 Masato Hoshino (Kyushu University)  
Paracontrolled Calculus and Regularity Structures
- 16:10-16:50 Subhroshekhar Ghosh (National University of Singapore)  
Two Manifestations of Rigidity in Point Sets: Forbidden Regions and  
Maximal Degeneracy
- 17:00-17:20 Kenkichi Tsunoda (Osaka University)  
Derivation of Viscous Burgers Equations from Weakly Asymmetric  
Exclusion Processes
- 17:20-        *Group Photo*
- 18:00-20:00 Welcome Party (Big Orange)

**August 1 (Thu.)**

- 10:00-11:00 Ivan Corwin (Columbia University)  
Stochastic Vertex Models II
- 11:20-12:20 Ivan Corwin (Columbia University)  
Stochastic Vertex Models III
- 13:40-14:20 Takashi Imamura (Chiba University)  
Determinantal Structures in the  $q$ -Whittaker Measure
- 14:30-15:10 Nina Holden (ETH-ITS Zurich)  
Cardy Embedding of Random Planar Maps

- 15:20-15:40 Yoshihiro Abe (Chiba University)  
Exceptional Points of Two-Dimensional Random Walks at Multiples of the Cover Time
- 16:10-16:50 Makoto Katori (Chuo University)  
Gaussian Free Fields with Boundary Points, Multiple SLEs, and Log-Gases
- 17:00-17:20 Jacek Malecki (Wrocław University of Science and Technology)  
Universality Classes for General Random Matrix Flows

**August 2 (Fri.)**

- 10:00-11:00 Frank den Hollander (Universiteit Leiden)  
Complex Networks: Structure and Functionality. II. Equivalence
- 11:20-12:20 Frank den Hollander (Universiteit Leiden)  
Complex Networks: Structure and Functionality. III. Exploration
- 13:40-14:20 Pierre-François Rodriguez (Institut des Hautes Études Scientifiques)  
Isomorphism Theorems and the Sign Cluster Geometry of the Gaussian Free Field
- 14:30-15:10 Julien Berestycki (The University of Oxford)  
Branching Particle Systems with Selection and Free Boundary Problems
- 15:20-15:40 Izumi Okada (Kyushu University)  
Exponents for High Points of Simple Random Walks in Two Dimensions
- 16:10-16:50 Li-Cheng Tsai (Rutgers University)  
Lower-Tail Large Deviations of the KPZ Equation
- 17:00-17:20 Xinyi Li (The University of Chicago)  
Natural Parametrization for the Scaling Limit of Loop-Erased Random Walk in Three Dimensions

August 5	August 6	August 7	August 8	August 9
10:00-11:00 Lawler	10:00-11:00 Addario-Berry	10:00-11:00 Miermont	10:00-11:00 Bufetov	10:00-11:00 Bufetov
11:20-12:20 Addario-Berry	11:20-12:20 Lawler	11:20-12:20 Addario-Berry	11:20-12:20 Miermont	11:20-12:20 Bufetov
Lunch		Excursion	Lunch	
13:40-14:40 Lawler	13:40-14:20 Sasada		13:40-14:40 Miermont	13:40-14:20 Kajino
14:50-15:30 Shiraishi	14:30-15:10 Basu		14:50-15:30 Sakai	14:30-15:10 Fukushima
15:40- Poster Presentations	15:20-15:40 Nakajima Coffee Break		Coffee Break	
16:40- Poster Session	16:10-16:50 Seo		16:00-16:40 Kusuoka	
	18:30-20:30 Banquet		16:50-17:30 Qiu	

### August 5 (Mon.)

10:00-11:00 Gregory F. Lawler (The University of Chicago)  
Loop Measures and Loop-Erased Random Walk I

11:20-12:20 Louigi Addario-Berry (McGill University)  
Algorithms and Random Trees I

12:20- *Group Photo*

13:40-14:40 Gregory F. Lawler (The University of Chicago)  
Loop Measures and Loop-Erased Random Walk II

14:50-15:30 Daisuke Shiraishi (Kyoto University)  
Scaling Limit of Uniform Spanning Tree in Three Dimensions

15:40- Poster (Short Presentations Followed by the Poster Session)

### August 6 (Tue.)

10:00-11:00 Louigi Addario-Berry (McGill University)  
Algorithms and Random Trees II

11:20-12:20 Gregory F. Lawler (The University of Chicago)  
Loop Measures and Loop-Erased Random Walk III

13:40-14:20 Makiko Sasada (The University of Tokyo)  
Generalized Pitman's Transform and Discrete Integrable Systems

14:30-15:10 Riddhipratim Basu (Tata Institute of Fundamental Research)  
Bi-geodesics and Polymer Watermelons in Last Passage Percolation

15:20-15:40 Shuta Nakajima (Nagoya University)  
Divergence of Non-Random Fluctuation in First-Passage Percolation

16:10-16:50 Insuk Seo (Seoul National University)  
The Cut-Off Phenomenon for the Random-Cluster Model

18:30-20:30 Banquet (Hyakunen-Gura)

**August 7 (Wed.)**

10:00-11:00 Grégory Miermont (École Normale Supérieure de Lyon)  
Brownian Surfaces I

11:20-12:20 Louigi Addario-Berry (McGill University)  
Algorithms and Random Trees III

Excursion (Karatsu)

**August 8 (Thu.)**

10:00-11:00 Alexander I. Bufetov (Aix-Marseille Université)  
Determinantal Point Processes and Extrapolation I

11:20-12:20 Grégory Miermont (École Normale Supérieure de Lyon)  
Brownian Surfaces II

13:40-14:40 Grégory Miermont (École Normale Supérieure de Lyon)  
Brownian Surfaces III

14:50-15:30 Akira Sakai (Hokkaido University)

Critical Two-Point Function for Long-Range Models with Power-Law  
Couplings: The Marginal Case for  $d \geq d_c$

16:00-16:40 Seiichiro Kusuoka (Kyoto University)

Approach to the Quantum Field with Exponential Interactions by Singular  
SPDEs

16:50-17:30 Yanqi Qiu (Chinese Academy of Sciences)

A Class of Positive Functions on the Circle and Their Applications on  
Hankel Operators

**August 9 (Fri.)**

10:00-11:00 Alexander I. Bufetov (Aix-Marseille Université)

Determinantal Point Processes and Extrapolation II

11:20-12:20 Alexander I. Bufetov (Aix-Marseille Université)

Determinantal Point Processes and Extrapolation III

13:40-14:20 Naotaka Kajino (Kobe University)

The Laplacian on Some Self-Conformal Fractals and Weyl's Asymptotics  
for Its Eigenvalues

14:30-15:10 Ryoki Fukushima (Kyoto University)

Zero Temperature Limits for Directed Polymers in Random Environment

15:15- Closing Speech

Hirofumi Osada (Chair of the Scientific Committee)