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COMMITTEE

Scientific Program Committee

Siva Athreya (Chair)  
Indian Statistical Institute, India

Ellen Baake  
Bielefeld University, Germany

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Columbia University, USA
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Seoul National University

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Ewha Womans University

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Jongwoo Jeon
Seoul National University

Byeong Uk Park
President of the Korean Statistical Society

Young-Won Kim
past President of the Korean Statistical Society
## PROGRAM AT GLANCE _ JULY 19 (MON) 

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Plenary Talks | Invited Session | Organized Contributed Session | Contributed Session | Poster Session
# PROGRAM AT GLANCE  _ JULY 20 (TUE) 

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<td>OCS16 Non-Euclidean Statistical Inference</td>
<td>CS02 Financial Mathematics and Probabilistic Modeling</td>
<td>CS07 SDEs and Fractional Brownian Motions</td>
<td>CS28 Neural Networks and Deep Learning</td>
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<td>IS07 High-dimensional Robustness</td>
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| Plenary Talks | Invited Session | Organized Contributed Session | Contributed Session | Poster Session |
## PROGRAM AT GLANCE _ JULY 21 (WED) |

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<td>Recent Advances in Shape Constrained Inference</td>
<td>Optimization in Statistical Learning</td>
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<td>Advanced Learning Methods for Complex Data Analysis</td>
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<td>Statistics for Data with Geometric Structure</td>
<td>Random Graphs</td>
<td>Problems and Approaches in Multi-Armed Bandits</td>
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**PROGRAM AT GLANCE _ JULY 22 (THU)***

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| **11:30 - 12:00**   | IS38 | OCS11 | OCS19 | OCS25 | OCS31 | Poster Session III-1
|                     | IMS Lawrence D. Brown Ph. D Student Award | Recent Advances in Spatial Processes and Related Models | Recent Advances in Complex Data Analysis | Recent Advances in Biostatistics | IBK Contributed Session: Finance and Contemporary Issues |
| **1900 - 2000**     |   |   |   |   | **Blackwell Lecture** | Gabor Lugosi |   |   |   |   |
| **2000 - 2100**     |   |   |   |   | **Tukey Lecture** | Sara van de Geer |   |   |   |   |
| **21:30 - 22:00**   | IS09 | IS22 | IS29 | IS34 | IS37
|                     | Quantum Statistics | Random Trees | High Dimensional Data Inference | Random Walks on Random Media | Bernoulli Society New Researcher Award |
|                     | OCS08 | OCS21 | CS09 | CS21 | CS35
|                     | Rough Path Theory | Recent Advances in Statistics | Topics Related to RMT | Dimension Reduction and Model Selection | Financial Data Analysis |
| **22:30 - 23:00**   | IS11 | IS19 | IS23 | IS26
|                     | Analysis of Dependent Data | Randomized Algorithms | Stochastic Partial Differential Equations | Pathwise Stochastic Analysis |
|                     | OCS10 | OCS30 | CS04 | CS17 | CS32
|                     | Random Conformal Geometry and Related Fields | Stochastic Adaptive Optimization Algorithms and their Applications to Neural Networks | Stochastic Processes and Related Topics | Various Limit Theorems | Statistical Modeling and Prediction |

*Plenary Talks | Invited Session | Organized Contributed Session | Contributed Session | Poster Session*
## PROGRAM AT GLANCE — JULY 23 (FRI)

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<td>20:00 - 21:00</td>
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<td>Presentation of the Inaugural Willem van Zwet Medal and Closing Remarks</td>
<td>Claudia Küpperberg (Past President of the Bernoulli Society)</td>
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<td>Invitation to the Bernoulli-IMS 11th WC2024</td>
<td>Herold Dehling</td>
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VIRTUAL CONGRESS WEBSITE INFORMATION

Registration

>> Walk-in Registration: From July 19 (Mon) to 23 (Fri)

[ For Overseas ]
[ For Domestic ]
Click here to Register
Click here to Register

>> Walk-in Registration Fees

- Overseas

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- Reduced fees for permanent resident of the countries designated by the IMS Council

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* Please confirm the country list at https://imstat.org/designated-countries

- Domestic

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* During the congress, only credit card payment is allowed.
* Admission to the virtual site will only be permitted after administrator approval. (About 10 min.)
* Working Hours : July 19(Mon) - 23(Fri), 08:00 - 23:00 (KST / UTC +9)
VIRTUAL CONGRESS WEBSITE INFORMATION

How to Access the Virtual Website

https://wc2021.info

Click the “Sign Up” to create your own ID and PW

Activate your account on your “Profile”

* If you do not register previously, you cannot sign-up at virtual website, so please register first at the 10th World Congress in Probability and Statistics Website (www.wc2020.org).

* Please use the same ‘Name / ID / PW / Affiliation’ as the 10th World Congress website.

* Enter the registration ID (email address) you entered when registering for the 10th World Congress (wc2020.org)

How to use the Virtual Website

- All participants can see the session information by Date, by Type of the session, and by Time Zone.
- All abstracts, slides, and videos will be available On-Demand at the virtual website.
- All participants can leave the comments or vote to the sessions, abstracts and presentation videos.
- Live Q&A session will run according to the session time and participants can join through the ZOOM.

How to Participate the Live Zoom Q&A

- All participants can join the live Q&A time through the ZOOM by clicking the “Enter Zoom”.
- ZOOM will be only opened at the session time.
- All ZOOM Participants except chairs and speakers join the Zoom meeting room with both video and audio turned off, and if you have questions, you may participate by chat box or raise hand according to the chair’s instruction.
DAILY PROGRAM

July 19 (Monday)

July 20 (Tuesday)

July 21 (Wednesday)

July 22 (Thursday)

July 23 (Friday)
## IMS Presidential Address

**Chair**  
Siva Athreya (Indian Statistical Institute) / Hee-Seok Oh (Seoul National University)

IMS Presidential Address  
Regina Liu (Rutgers University), Susan Murphy (Harvard University)

## IS30. Functional Estimation, Testing and Clustering under Sparsity

**Organizer**  
Jiashun Jin (Carnegie Mellon University)

**Chair**  
Jiashun Jin (Carnegie Mellon University)

- Optimal network testing by the signed-polygon statistics  
  Tracy Ke (Harvard University)

- Statistical inference for linear mediation models with high-dimensional mediators  
  Runze Li (Penn State University)

- Perturbation bounds for tensors and their applications in high dimensional data analysis  
  Ming Yuan (Columbia University)

## IS39. KSS Invited Session: Interactive Particle Systems and Urn Models

**Organizer**  
Woncheol Jang (Seoul National University)

**Chair**  
Panki Kim (Seoul National University)

- Convergence of randomized urn models with irreducible and reducible replacement  
  Li-Xin Zhang (Zhejiang University)

- Condensation phenomenon and metastability in interacting particle systems  
  Insuk Seo (Seoul National University)

- Time correlation exponents in planar last passage percolation  
  Riddhipratim Basu (International Centre for Theoretical Sciences-TIFR)

## OCS02. Nonlocal Operators Related to Probability

**Organizer**  
Ildoo Kim (Korea University)

**Chair**  
Ildoo Kim (Korea University)

- A Sobolev space theory for time-fractional stochastic PDE driven by Levy processes  
  Daehan Park (Korea Advanced Institute of Science and Technology (KAIST))
A regularity theory for stochastic modified Burgers’ equation driven by multiplicative space-time white noise
Beom-Seok Han (Pohang University of Science and Technology)

General Law of iterated logarithm for Markov processes
Jaehun Lee (Korea Institute for Advanced Study)

Heat kernel estimates for subordinate Markov processes and their applications
Soobin Cho (Seoul National University)

A maximal $L^p$-regularity theory to initial value problems with time measurable nonlocal operators generated by additive processes
Jae-Hwan Choi (Korea University)

11:30 - 12:00
OCS15. Network-related Statistical Methods and Analysis
Organizer: Donghyeon Yu (Inha University)
Chair: Donghyeon Yu (Inha University)

Estimation of particulate levels using deep Dehazing network and temporal prior
SungHwan Kim (Konkuk University)

Graph-regularized contextual bandits with scalable Thompson sampling and semi-parametric reward models
Young-Geun Choi (Sookmyung Women's University)

INN: A stable method identifying clean-annotated samples via consistency effect in deep neural networks
Dongha Kim (Sungshin Women's University)

An efficient parallel block coordinate descent algorithm for large-scale precision matrix estimation using graphics processing units
Donghyeon Yu (Inha University)

11:30 - 12:00
OCS23. Recent Advances in Statistical Methods for Large Scale Complex Data
Organizer: Seyoung Park (Sungkyunkwan University)
Chair: Seyoung Park (Sungkyunkwan University)

Multivariate responses quantile regression for regional quantiles with applications to CCLE data
Seyoung Park (Sungkyunkwan University)

On sufficient graphical models
Kyongwon Kim (Ewha Womans University)

Principal component analysis in the wavelet domain
Yaeji Lim (Chung Ang University)
Bayesian inference of evolutionary models from genomic data  
Yujin Chung (Kyonggi University)

19:00 - 20:00  
Wald Lecture 1  
Chair: Takashi Kumagai (Kyoto University)  
Random walks and fractal graphs  
Martin Barlow (University of British Columbia)

20:00 - 21:00  
Bernoulli Lecture  
Chair: Ellen Baake (Bielefeld University)  
Some models of spatially distributed populations: the effect of crowding  
Alison Etheridge (University of Oxford)

21:30 - 22:00  
IS17. Approximate Bayesian Computation  
Organizer: Yanan Fan (University of New South Wales)  
Chair: Yanan Fan (University of New South Wales)  
Approximate inference for ordinal linear regression  
Jean-Luc Dortet-Bernadet (Université de Strasbourg)  
Generalized Bayesian likelihood-free inference using scoring rules estimators  
Ritabrata Dutta (University of Warwick)

21:30 - 22:00  
IS20. Heavy Tailed Phenomena  
Organizer: Stilian A. Stoev (University of Michigan, Ann Arbor)  
Chair: Stilian A. Stoev (University of Michigan, Ann Arbor)  
Random linear functions of regularly varying vectors  
Bikramjit Das (Singapore University of Technology and Design)  
Power laws and weak convergence of the Kingman coalescent  
Henrik Hult (KTH Royal Institute of Technology)
Limit theorems for topological invariants of extreme sample cloud
Takashi Owada (Purdue University)

21:30 - 22:00  IS33. Integrable Probability
Organizer Tomohiro Sasamoto (Chiba University)
Chair Tomohiro Sasamoto (Chiba University)

Reversing nonequilibrium systems
Leonid Petrov (University of Virginia)

Mapping KPZ models to free fermions at positive temperature
Takashi Imamura (Chiba University)

Relaxation time limit of TASEP on a ring
Jinho Baik (University of Michigan)

21:30 - 22:00  OCS01. Coulomb Gases
Organizer Paul Jung (Korea Advanced Institute of Science and Technology (KAIST))
Chair Paul Jung (Korea Advanced Institute of Science and Technology (KAIST))

Outliers for Coulomb gases
David Garcia-Zelada (Aix-Marseille University)

Edge behaviors of 2D Coulomb gases with boundary confinements
Seong-Mi Seo (Korea Institute for Advanced Study)

Large deviations in the quantum quasi-1D jellium
Christian Hirsch (University of Groningen)

Lemniscate ensembles with spectral singularities
Sung-Soo Byun (Seoul National University)

21:30 - 22:00  OCS04. Interacting Particle Systems and Inclusion Process
Organizer Cristian Giardinà (University of Modena and Reggio Emilia)
Chair Cristian Giardinà (University of Modena and Reggio Emilia)

Metastability in the reversible inclusion process
Sander Dommers (University of Hull)
DAILY PROGRAM _ JULY 19 (MON)

Metastability in the reversible inclusion process II: Toward the characterization of the relaxation time
Alessandra Bianchi (Università di Padova)

Condensation and metastability of general inclusion processes
Seonwoo Kim (Seoul National University)

Condensation of SIP particles and sticky Brownian motion
Gioia Carinci (Università di Modena e Reggio Emilia)

Condensed phase structure in inclusion processes
Watthanan Jatuviriyapornchaisri (Faculty of Science, Mahidol University)

21:30 - 22:00  OCS22. Recent Progress of Statistical Inference for Economics and Social Science

Organizer Eun Ryung Lee (Sungkyunkwan University)
Chair Eun Ryung Lee (Sungkyunkwan University)

A spline-based modeling approach for time-indexed multilevel data
Eun Ryung Lee (Sungkyunkwan University)

Impulse response analysis for sparse high-dimensional time series
Carsten Trenkler (University of Mannheim)

Revealing cluster structures based on mixed sampling frequencies: with an application to the state-level labor markets
Yeonwoo Rho (Michigan Technological University)

Semiparametric efficient estimators in heteroscedastic error models
Mijeong Kim (Ewha Womans University)

21:30 - 22:00  CS01. Stochastic Partial Differential Equations

Chair Kunwoo Kim (Pohang University of Science and Technology)

A sobolev space theory for SPDEs with space-time nonlocal operators
Junhee Ryu (Korea University)

Improved stability for linear SPDEs using mixed boundary/internal controls
Dan Goreac (University Shandong Weihai, China and University Gustave Eiffel, France)

Law of the large numbers and central limit theorems for stochastic heat equations
Kunwoo Kim (Pohang University of Science and Technology)
### DAILY PROGRAM  _ JULY 19 (MON)

**The stochastic heat equation with Lévy noise: Existence, moments and intermittency**  
Carsten Chong (Columbia University)

21:30 - 22:00  
**CS06. Various Aspects of Diffusion Processes**  
Chair: Insuk Seo (Seoul National University)

- On nonlinear filtering of jump diffusions  
  Fabian Germ (University of Edinburgh)

- Uniqueness and superposition of the distribution-dependent Zakai equations  
  Huijie Qiao (Southeast University)

- Quadratic variation and quadratic roughness  
  Purba Das (University of Oxford)

- Eyring-Kramers formula for non-reversible metastable diffusion processes  
  Jungkyoung Lee (Seoul National University)

21:30 - 22:00  
**CS18. Inference on Dependence**  
Chair: Minsun Song (Sookmyung Women's University)

- Simultaneous confidence band for stationary covariance function of dense functional data  
  Jiangyan Wang (Nanjing Audit University)

- Covariance networks for functional data on multidimensional domains  
  Soham Sarkar (Ecole Polytechnique Federale de Lausanne)

- Large dimensional sample covariance matrices with independent columns and diagonalizable simultaneously population covariance matrices  
  Tianxing Mei (The University of Hong Kong)

- Random surface covariance estimation by shifted partial tracing  
  Tomas Masak (EPFL)

21:30 - 22:00  
**CS24. Time Series Analysis I**  
Chair: Kyongwon Kim (Ewha Womans University)

- Statistical modelling of rainfall time series using ensemble empirical mode decomposition and generalised extreme value distribution  
  Willard Zvarevashe (University of Zululand)
DAILY PROGRAM _ JULY 19 (MON)

Regularity of multifractional moving average processes with random Hurst exponent
Fabian Mies (RWTH Aachen University)

High-frequency instruments and identification-robust inference for stochastic volatility models
Md. Nazmul Ahsan (Concordia University)

21:30 - 22:00
CS30. Spatio-temporal Data Analysis
Chair: Seoncheol Park (Chungbuk National University)

Statistical inference for mean function of longitudinal imaging data over complicated domains
Jie Li (Tsinghua University)

Gaussian linear dynamic spatio-temporal models and time asymptotics
Suman Guha (Presidency University, Kolkata)

High-dimensional spectral analysis
Jonas Krampe (University of Mannheim)

Extreme value analysis for mixture models with heavy-tailed impurity
Ekaterina Morozova (HSE University)

21:30 - 22:00
CS34. Stochastic Process / Modeling
Chair: Jaehong Jeong (Hanyang University)

Ruin probabilities in the presence of risky investments and random switching
Konstantin Borovkov (The University of Melbourne)

Wasserstein convergence rates for random bit approximations of continuous Markov processes
Thomas Kruse (University of Giessen)

The discrete membrane model on trees
Biltu Dan (Indian Institute of Science)

On a two-server queue with consultation by main server with protected phases of service
Resmi Thekkiniyedath (KKTM Government College)
### IS13. Critical Phenomena in Statistical Mechanics Models

**Organizer:** Akira Sakai (Hokkaido University)
**Chair:** Akira Sakai (Hokkaido University)

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<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker</th>
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<tbody>
<tr>
<td>22:30 - 23:00</td>
<td>Recent results for critical lattice models in high dimensions</td>
<td>Mark Holmes (University of Melbourne)</td>
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<td>Near-critical avalanches in 2D frozen percolation and forest fires</td>
<td>Pierre Nolin (City University of Hong Kong)</td>
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<td>Quenched and annealed Ising models on random graphs</td>
<td>Cristian Giardinà (Modena &amp; Reggio Emilia University)</td>
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</table>

### IS15. Privacy

**Organizer:** Angelika Rohde (University of Freiburg)
**Chair:** Angelika Rohde (University of Freiburg)

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<th>Time</th>
<th>Title</th>
<th>Speaker</th>
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<tbody>
<tr>
<td>22:30 - 23:00</td>
<td>The right complexity measure in locally private estimation: It is not the Fisher information</td>
<td>John Duchi (Stanford University)</td>
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<td>Sequentially interactive versus non-interactive local differential privacy: estimating the quadratic functional</td>
<td>Lukas Steinberger (University of Vienna)</td>
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<td>Gaussian differential privacy</td>
<td>Weijie Su (University of Pennsylvania)</td>
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### IS24. Random Planar Geometries

**Organizer:** Nina Holden (ETH Zurich)
**Chair:** Nina Holden (ETH Zurich)

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<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker</th>
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<tr>
<td>22:30 - 23:00</td>
<td>Markovian infinite triangulations</td>
<td>Thomas Budzinski (ENS Lyon)</td>
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<td>Rotational invariance in planar FK-percolation</td>
<td>Ioan Manolescu (Université de Fribourg)</td>
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<td>Brownian half-plane excursions, CLE, and critical Liouville quantum gravity</td>
<td>Ellen Powell (Durham University)</td>
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</table>
22:30 - 23:00  OCS14. Multivariate and Object-Oriented Data Analysis
Organizer  Cheolwoo Park (Korea Advanced Institute of Science and Technology (KAIST))
Chair  Cheolwoo Park (Korea Advanced Institute of Science and Technology (KAIST))

Bayesian spatial binary regression for label fusion in structural neuroimaging
Andrew Brown (Clemson University)

Convex clustering analysis for histogram-valued data
Cheolwoo Park (Korea Advanced Institute of Science and Technology (KAIST))

A geometric mean for multivariate functional data
Juhyun Park (ENSIIE)

A confidence region for the elastic shape mean of planar curves
Justin Strait (University of Georgia)

22:30 - 23:00  OCS26. Recent Advances in Network Learning: Theory and Practice
Organizer  Kyoungjae Lee (Inha University)
Chair  Kyoungjae Lee (Inha University)

Scalable Bayesian high-dimensional local dependence learning
Kyoungjae Lee (Inha University)

Fast and flexible estimation of effective migration surfaces
Wooseok Ha (UC Berkeley)

Statistical inference for cluster trees
Jisu Kim (Inria)

Autologistic network model on binary data for disease progression study
Yei Eun Shin (National Cancer Institute)

22:30 - 23:00  CS05. Potential Theory in Probability Theory
Chair  Panki Kim (Seoul National University)

Heat contents for time-changed killed Brownian motions
Hyunchul Park (SUNY New Paltz)

Heat kernel bounds for nonlocal operators with singular kernels
Kyung-Youn Kim (National Chengchi University)
DAILY PROGRAM _ JULY 19 (MON)

The full characterization of the expected supremum of infinitely divisible processes
Rafal Martynek (University of Warsaw)

The e-property of asymptotically stable Markov-Feller operators
Hanna Wojewódka-Ściążko (Institute of Mathematics, University of Silesia in Katowice)

22:30 - 23:00  CS15. Advanced Stochastic Processes
Chair: Jaehun Lee (Korea Institute of Advanced Study)

A multi-species Ehrenfest process and its diffusion approximation
Serena Spina (University of Salerno)

Limit theorems for the realised semicovariances of multivariate Brownian semistationary processes
Yuan Li (Imperial College London)

A Yaglom type asymptotic result for subcritical branching Brownian motion with absorption
Jiaqi Liu (University of California, San Diego)

22:30 - 23:00  CS22. Bayesian Inference
Chair: Seongil Jo (Inha University)

Bayesian and stochastic modeling of polysomnography data from children using pacifiers for improved estimation of the apnea-hypopnea index
Sujay Datta (University of Akron (Ohio))

Asymmetric prior in wavelet shrinkage
Alex Rodrigo dos Santos Sousa (University of São Paulo)

Semiparametric Bayesian regression analysis of multi-typed matrix-variate responses
Inkoo Lee (Florida State University)

Bayesian phylogenetic inference of stochastic block models on infinite trees
Wenjian Liu (Queensborough Community College, CUNY)

Order-restricted Bayesian inference for the simple step-stress accelerated life tests
David Han (The University of Texas at San Antonio)
CS33. Novel Statistical Approaches in Genetic Association Analyses

Chair: Saurabh Ghosh (Indian Statistical Institute)

An extended model for phylogenetic maximum likelihood based on discrete morphological characters
David Spade (University of Wisconsin–Milwaukee)

Combined linkage and association mapping integrating population-based and family-based designs using multinomial regression
Saurabh Ghosh (Indian Statistical Institute)

An alternative to intersection-union test for the composite null hypothesis used to identify shared genetic risk of disease outcomes
Debashree Ray (Johns Hopkins University)

Efficient SNP-based heritability estimation using Gaussian predictive process in large-scale cohort studies
Saonli Basu (University of Minnesota)

Data-adaptive groupwise test for genomic studies via the Yanai's generalized coefficient of determination
Masao Ueki (Nagasaki University)

CS36. Statistical Inference

Chair: Mijeong Kim (Ewha Womans University)

Efficient estimation of population mean for scrambled responses using auxiliary information in the presence of measurement error and non-response
Muhammad Nouman Qureshi (National College of Business Administration and Economics)

Density deconvolution with non-standard error distributions: Rates of convergence and adaptive estimation
Taeho Kim (University of Haifa)

Moments of the doubly truncated selection elliptical distributions: recurrence, existence and applications
Christian Galarza Morales (Escuela Superior Politécnica del Litoral)

Characterization of probability distributions by a generalized notion of sufficiency and Fisher information
Atin Gayen (Indian Institute of Technology Palakkad, India)
## DAILY PROGRAM _ JULY 20 (TUE)

*All times are KST (UTC+9)*

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<th>Session</th>
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<tr>
<td>09:00 - 10:00</td>
<td><strong>IMS Medallion Lecture</strong></td>
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<td>Qi-Man Shao (Chinese U. of Hong Kong)</td>
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<td>Gambler’s ruin problems</td>
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<td>Laurent Saloff-Coste (Cornell U.)</td>
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<td>10:00 - 11:00</td>
<td><strong>IMS Medallion Lecture</strong></td>
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<td>Krzysztof Burdzy (U. of Washington)</td>
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<td>Simplicity and complexity of belief-propagation</td>
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<td>Elchanan Mossel (MIT)</td>
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<td>11:30 - 12:00</td>
<td><strong>IS04. Mathematical Population Genetics and Computational Statistics</strong></td>
<td>Paul Jenkins (U. of Warwick)</td>
<td>Paul Jenkins (U. of Warwick)</td>
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<td>Mapping genetic ancestors</td>
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<td>Graham Coop (U. of California at Davis)</td>
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<td>Cellular point processes: quantifying cell signaling</td>
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<td>Barbara Engelhardt (Princeton U.)</td>
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<td>Fitting stochastic epidemic models to gene genealogies using linear noise approximation</td>
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<td>Vladimir Minin (U. of California, Irvine)</td>
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<td>11:30 - 12:00</td>
<td><strong>IS18. Deep Learning</strong></td>
<td>Johannes Schmidt-Hieber (U. of Twente)</td>
<td>Johannes Schmidt-Hieber (U. of Twente)</td>
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<td>Dynamics and phase transitions in deep neural networks</td>
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<td>Yasaman Bahri (Google Research)</td>
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<td>Theoretical understanding of adding noises to deep generative models</td>
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<td>Yongdai Kim (Seoul National U.)</td>
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<td>Adversarial examples in random deep networks</td>
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<td>Peter Bartlett (U. of California at Berkeley)</td>
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</tbody>
</table>
### DAILY PROGRAM _ JULY 20 (TUE) 

#### OCS07. Anomalous Diffusions and Related Topics  
**Organizer:** Zhen-Qing Chen (University of Washington)  
**Chair:** Zhen-Qing Chen (University of Washington)  

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<tr>
<th>Time</th>
<th>Session Title</th>
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</table>
| 11:30 - 12:00| **L^p-Kato class measures for symmetric Markov processes under heat kernel estimates**  
Kazuhiro Kuwae (Fukuoka University) |                                       |
|              | **Green function estimates and boundary Harnack principles for non-local operators whose kernels degenerate at the boundary**  
Panki Kim (Seoul National University) |                                       |
|              | **Heat kernel upper bounds for symmetric Markov semigroups**  
Jian Wang (Fujian Normal University) |                                       |
|              | **Inverse local time of one-dimensional diffusions and its comparison theorem**  
Lidan Wang (Nankai University) |                                       |
|              | **Archimedes’ principle for ideal gas**  
Krzysztof Burdzy (University of Washington) |                                       |

#### OCS17. The Advances in Time Series and Spatial Statistics  
**Organizer:** Wei-Ying Wu (National Dong Hwa University)  
**Chair:** Wei-Ying Wu (National Dong Hwa University)  

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<tr>
<th>Time</th>
<th>Session Title</th>
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| 11:30 - 12:00| **Interpretable, predictive spatio-temporal models via enhanced pairwise directions estimation**  
ShengLi Tzeng (National Sun Yat-sen University) |                                       |
|              | **Model selection with a nested spatial correlation structure kernels degenerate at the boundary**  
Chun-Shu Chen (National Central University) |                                       |
|              | **Consistent order selection for ARFIMA models**  
Kun Chen (Southwestern University of Finance and Economics) |                                       |
|              | **Whittle likelihood for irregularly spaced spatial data**  
Soutir Bandyopadhyay (Colorado School of Mines) |                                       |

#### OCS24. Advanced Statistical Methods for Complex Data  
**Organizer:** Jongho Im (Yonsei University)  
**Chair:** Seung Hwan Park (Kangwon National University)  

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<tr>
<th>Time</th>
<th>Session Title</th>
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| 11:30 - 12:00| **On the verifiable identification condition in NMAR missing data analysis**  
Kosuke Morikawa (Osaka University and The University of Tokyo) |                                       |
Bayesian hierarchical spatial model for small-area estimation with non-ignorable nonresponses and its application to the NHANES dental caries data
Ick Hoon Jin (Yonsei University)

Raking-based relabeling classification method for highly imbalanced data
Seunghwan Park (Kangwon National University)

Imputation approach for outcome dependent sampling design
Jongho Im (Yonsei University)

11:30 - 12:00
CS25. Time Series Analysis II
Chair
Joungyoun Kim (Yonsei University)

Robust Bayesian analysis of multivariate time series
Yixuan Liu (The University of Auckland)

Posterior consistency for the spectral density of non-Gaussian stationary time series
Yifu Tang (The University of Auckland)

ARMA models for zero inflated count time series
Vurukonda Sathish

Time-series data clustering via thick pen transformation
Minji Kim (Seoul National University)

11:30 - 12:00
Poster I-1

GMOTE: Gaussian-based minority oversampling technique for imbalanced classification adapting tail probability of outliers
Seung Jee Yang (Hanyang University)

Exact inference for an exponential parameter under generalized progressive type II hybrid censored competing risk data
Subin Cho (Daegu University)

Meta-analysis methods for multiple related markers: Applications to microbiome studies with the results on multiple α-diversity indices
Hyonwook Koh (The State University of New York, Korea)

Estimation for a nonlinear regression model with non-zero mean errors and an application to a biomechanical model
Hojun You (Seoul National University)
Neural network-based clustering for ischemic stroke patients  
Su Hoon Choi (Chonnam National University)

Principal component analysis of amplitude and phase variation in multivariate functional data  
Soobin Kim (Seoul National University)

Clustering non-stationary advanced metering infrastructure data  
Donghyun Kang (Chung-Ang University)

19:00 - 20:00  
**Levy Lecture**  
Chair: Martin Hairer (Imperial College London)  
A variational method for Euclidean quantum fields  
Massimiliano Gubinelli (University of Bonn)

20:00 - 21:00  
**Doob Lecture**  
Chair: Wendelin Werner (ETH Zurich)  
Parking on Cayley trees and Frozen Erdös-Rényi  
Nicolas Curien (Paris-Saclay University)

21:30 - 22:00  
**IS16. Bootstrap for High-dimensional Data**  
Organizer: Kengo Kato (Cornell University)  
Chair: Kengo Kato (Cornell University)  
Inference for nonlinear inverse problems  
Vladimir Spokoinyi (WIAS and HU Berlin)

Change point analysis for high-dimensional data  
Xiaohui Chen (University of Illinois at Urbana-Champaign)

Bootstrap test for multi-scale lead-lag relationships in high-frequency data  
Yuta Koike (University of Tokyo)
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Organizer</th>
<th>Chair</th>
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<tbody>
<tr>
<td>21:30</td>
<td>IS27. Random Matrices and Related Fields</td>
<td>Manjunath Krishnapur (Indian Institute of Science)</td>
<td>Ji Oon Lee (Korea Advanced Institute of Science and Technology (KAIST))</td>
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<td>The scaling limit of the characteristic polynomial of a random matrix at the spectral edge</td>
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<td>Strong asymptotics of planar orthogonal polynomials: Gaussian weight perturbed by finite number of point charges</td>
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<td>Secular coefficients and the holomorphic multiplicative chaos</td>
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<td>21:30</td>
<td>IS28. Statistical Inference for Graphs and Networks</td>
<td>Betsy Ogburn (Johns Hopkins University)</td>
<td>Betsy Ogburn (Johns Hopkins University)</td>
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<td>A goodness-of-fit test for exponential random graphs</td>
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<td>Networks in the presence of informative community structure</td>
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<td>Motif estimation via subgraph sampling: The fourth-moment phenomenon</td>
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<tr>
<td>21:30</td>
<td>IS31. Information Theory and Concentration Inequalities</td>
<td>Chandra Nair (Chinese University of Hong Kong)</td>
<td>Chandra Nair (Chinese University of Hong Kong)</td>
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<td>Algorithmic optimal transport in Euclidean spaces</td>
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<td>Entropy bounds for discrete log-concave distributions</td>
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<td>Entropy and convex geometry</td>
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</tbody>
</table>
DAILY PROGRAM _ JULY 20 (TUE)

21:30 - 22:00  OCS12. Recent Developments for Dependent Data
Organizer
Mikyoung Jun (University of Houston)
Chair
Mikyoung Jun (University of Houston)

DeepKriging: Spatially dependent deep neural networks for spatial prediction
Ying Sun (KAUST)

A model-free subsampling method based on minimum energy criterion
Wenlin Dai (Renmin University of China)

Global wind modeling with transformed Gaussian processes
Jaehong Jeong (Hanyang University)

Threshold estimation for continuous three-phase polynomial regression models with constant mean in the middle regime
Chih-Hao Chang (National University of Kaohsiung)

21:30 - 22:00  OCS16. Non-Euclidean Statistical Inference
Organizer
Young Kyung Lee (Kangwon National University)
Chair
Young Kyung Lee (Kangwon National University)

Functional linear regression model with randomly censored data: predicting conversion time to Alzheimer’s disease
Seong Jun Yang (Jeonbuk National University)

Deconvolution estimation on hyperspheres
Jeong Min Jeon (KU Leuven)

Confidence band for persistent homology of KDEs
Jisu Kim (Inria)

Analysis of chemical-gene bipartite network via a user-based collaborative filtering method incorporating chemical structure information
Namgil Lee (Kangwon National University)

21:30 - 22:00  CS02. Financial Mathematics and Probabilistic Modeling
Chair
Hyungbin Park (Seoul National University)

How to detect a salami slicer: a stochastic controller-stopper game with unknown competition
Kristoffer Lindensjö (Stockholm University)
Solving the selection-recombination equation: Ancestral lines and duality  
Frederic Alberti (Bielefeld University)

Short time asymptotics for modulated rough stochastic volatility models  
Barbara Pacchiarotti (Università degli studi di Roma “Tor Vergata”)

21:30 - 22:00  
CS07. SDEs and Fractional Brownian Motions  
Chair: Ildoo Kim (Korea University)

Averaging principles for mixed fast-slow systems driven by fractional Brownian motion  
Bin Pei (Fudan University and Kyushu University)

Weak rough-path type solutions for singular Lévy SDEs  
Helena Katharina Kremp (Freie Universität Berlin)

Functional limit theorems for approximating irregular SDEs, general diffusions and their exit times  
Mikhail Urusov (University of Duisburg-Essen)

21:30 - 22:00  
CS28. Neural Networks and Deep Learning  
Chair: Jong-June Jeon (University of Seoul)

Simulated annealing-backpropagation algorithm on parallel trained maxout networks (SABPMAX) in detecting credit card fraud  
Sheila Mae Golingay (University of the Philippines-Diliman)

The smoking gun: Statistical theory improves neural network estimates  
Sophie Langer (Technische Universität Darmstadt)

Stochastic block model for multiple networks  
Tabea Rebafka (Sorbonne Université)

Deep neural networks for faster nonparametric regression models  
Mehmet Ali Kaygusuz (The Middle East Technical University)

Generative model for fbm with deep ReLU neural networks  
Michael Allouche (Ecole Polytechnique)
DAILY PROGRAM _ JULY 20 (TUE)

21:30 - 22:00

**Poster I-2**

- Geometrically adapted Langevin algorithm (GALA) for Markov Chain Monte Carlo (MCMC) simulations
  Mariya Mamajiwala (University College London)

- Bayes estimation for the Weibull distribution under generalized adaptive hybrid progressive censored competing risks data
  Yeongjae Seong (Daegu University)

- Large deviations of mean-field interacting particle systems in a fast varying environment
  Sarath Yasodharan (Indian Institute of Science)

- Stochastic homogenisation of Gaussian fields
  Leandro Chiarini (Utrecht University)

- Concentration inequality for U-statistics for uniformly ergodic Markov chains, and applications
  Quentin Duchemin (LAMA, Univ Gustave Eiffel, CNRS, Marne-la-Vallée, France)

- A Bayesian illness-death model to approach the incidence of recurrent hip fracture and death in elderly patients
  Fran Llopis-Cardona (Foundation for the Promotion of Health and Biomedical Research of Valencia Region (FISABIO))

- The contact process with two types of particles and priority: metastability and convergence in infinite volume
  Mariela Pentón Machado (Instituto de Matemática e Estatística, Universidade de São Paulo)

- A nonparametric instrumental approach to endogeneity in competing risks models
  Jad Beyhum (ORSTAT, KU Leuven)

22:30 - 23:00

**IS02. Scaling Limits of Disordered Systems and Disorder Relevance**

- Organizer: Rongfeng Sun (National University of Singapore)
- Chair: Rongfeng Sun (National University of Singapore)

- Exceptional geodesic pairs in the directed landscape
  Erik Bates (University of Wisconsin-Madison)

- Disorder relevance and the continuum random field Ising model
  Adam Bowditch (University College Dublin)

- A CLT for KPZ on torus
  Yu Gu (Carnegie Mellon University)
## DAILY PROGRAM _ JULY 20 (TUE)_

### IS07. High-dimensional Robustness

- **Organizer:** Stanislav Minsker (University of Southern California)
- **Chair:** Stanislav Minsker (University of Southern California)

**Distribution-free robust linear regression**
Nikita Zhivotovskiy (ETH Zurich)

**Algorithmic high-dimensional robust statistics**
Ilias Diaconicolas (University of Wisconsin-Madison)

**Robust estimation of a mean vector with respect to any norm: a minimax MOM and a Stahel-Donoho Median of means estimators**
Guillaume Lecué (Laboratoire de statistiques at CREST)

### IS08. Functional Data Analysis

- **Organizer:** Aurore Delaigle (University of Melbourne)
- **Chair:** Yunjin Choi (University of Seoul)

**Partially specified covariance operators and intrinsically functional graphical models**
Victor Panaretos (EPFL)

**Domain selection for functional linear models: a dynamic RKHS approach**
Jane Ling Wang (University of California at Davis)

**Simultaneous Inference for function-valued parameters: A fast and fair approach**
Dominik Liebl (University of Bonn)

### IS32. Statistical Learning

- **Organizer:** Yichao Wu (University of Illinois at Chicago)
- **Chair:** Yichao Wu (University of Illinois at Chicago)

**Equivariant variance estimation for multiple change-point model**
Ning Hao (University of Arizona)

**A forward approach for sufficient dimension reduction in binary classification**
Seung Jun Shin (Korea University)

**Variable selection for global Fréchet regression**
Dani Tucker (University of Illinois at Chicago)
DAILY PROGRAM _ JULY 20 (TUE)

22:30 - 23:00  **IS41. Bernoulli Paper Prize Session**

Organizer: Bernoulli Society  
Chair: Ofer Zeitouni (Weizmann Institute of Science) / Richard Samworth (University of Cambridge)

- **Bernoulli Prize for an outstanding survey article in Probability: From infinite random matrices over finite fields to square ice**
  Leonid Petrov (University of Virginia)

- **Bernoulli Journal Read Paper Award: A general frequency domain method for assessing spatial covariance structures**
  Soutir Bandyopadhyay (Colorado School of Mines)

22:30 - 23:00  **OCS06. Theoretical Analysis of Random Walks, Random Graphs and Clustering**

Organizer: Ji Oon Lee (Korea Advanced Institute of Science and Technology (KAIST))  
Chair: Ji Oon Lee (Korea Advanced Institute of Science and Technology (KAIST))

- **Spectral large deviations for sparse random matrices**
  Kyeongsik Nam (University of California, Los Angeles)

- **Robust hypergraph clustering via convex relaxation of truncated MLE**
  Hye Won Chung (Korea Advanced Institute of Science and Technology (KAIST))

- **Convergence rate to the Tracy-Widom laws for the largest eigenvalue of Wigner matrices**
  Kevin Schnelli (KTH Royal Institute of Technology)

- **Attributed graph alignment**
  Lele Wang (University of British Columbia)

- **Minkowski content for the scaling limit of loop-erased random walk in three dimensions**
  Xinyi Li (Peking University)

22:30 - 23:00  **OCS13. Recent Advances in Complex Time Series Analysis**

Organizer: Haeran Cho (University of Bristol)  
Chair: Haeran Cho (University of Bristol)

- **Change points detection for high dimensional time series**
  Likai Chen (Washington University in Saint Louis)

- **Asymptotics of large autocovariance matrices**
  Monika Bhattacharjee (Indian Institute of Technology Bombay)
Factor models for matrix-valued high-dimensional time series  
Xialu Liu (San Diego State University)

Multi-level changepoint inference for periodic data sequences  
Anastasia Ushakova (Lancaster University)

### 22:30 - 23:00

**CS10. Reflecting Diffusion Processes Stochastic Networks and Their Applications**

Organizer  
Amber Puha (California State University, San Marcos)

Chair  
Ruth J. Williams (University of California at San Diego)

Measure valued processes characterized by a field of reflecting Brownian motions arising from certain queuing problems  
Amarjit Budhiraja (University of North Carolina)

Asymptotic behavior of a critical fluid model for bandwidth sharing with general file size distributions  
Yingjia Fu (University of California San Diego)

Error bounds for the one-dimensional constrained langevin approximation for density dependent Markov chains  
Felipe Campos (University of California, San Diego)

Obliquely reflecting diffusions in nonsmooth domains: Some new uniqueness results  
Cristina Costantini (University of Chieti-Pescara)

### 22:30 - 23:00

**CS16. Probability Theory and Statistical Mechanics**

Chair  
HyunJae Yoo (Hankyong National University)

Coexistence of localized Gibbs measures and delocalized gradient Gibbs measures on trees  
Florian Henning (Ruhr-University Bochum)

Inhomogeneous gradient Gibbs measures on regular trees with homogeneous interactions  
Christof Kuelske (Ruhr-University Bochum)

Statistical mechanical model of adsorption at the surface interface contacting with an ideal gas  
Changho Kim (University of California, Merced)
## DAILY PROGRAM _ JULY 20 (TUE)

### 22:30 - 23:00  
**CS19. Detection and Segmentation**

**Chair**  
Myung Hee Lee (Weil Cornell Medicine)

**Detection of outliers in compositional data on disabled people in the São Paulo State**  
Paulo Oliveira (University of São Paulo)

**Change detection through sequential testing in point processes controlled by data-dependent intensities**  
Moinak Bhaduri (Bentley University)

**Multiscale quantile segmentation**  
Laura Jula Vanegas (University of Göttingen)

**Consistent change-point detection for general distributions**  
Florencia Leonardi (University of São Paulo)

**Change point detection under linear model: Use of MOSUM approach**  
Joonpyo Kim (Seoul National University)

**Interval-censored least-squares regressions**  
Taehwa Choi (Korea University)

### 22:30 - 23:00  
**CS23. Bayesian Nonparametric Inference**

**Chair**  
Kyoungjae Lee (Inha University)

**Bernstein - von Mises type theorem for a scale hyperparameter in Bayesian nonparametric inference**  
Natalia Bochkina (University of Edinburgh)

**Convergence of unadjusted Hamiltonian Monte Carlo for mean-field models**  
Katharina Schuh (University Bonn)

**Nonparametric Bayesian volatility estimation for gamma-driven stochastic differential equations**  
Peter Spreij (University of Amsterdam)

**Hamiltonian Monte Carlo in high dimensions**  
Andreas Eberle (University of Bonn)
DAILY PROGRAM _ JULY 21 (WED)

09:00 - 10:00  Laplace Lecture
Chair  Runze Li (Pennsylvania State University)

Transfer learning: optimality and adaptive algorithms
Tony Cai (University of Pennsylvania)

10:00 - 11:00  Public Lecture
Chair  Joong-Ho Won (Seoul National University)

Structure and randomness in data
Young-Han Kim (UCSD and Gauss Labs Inc.)

11:30 - 12:00  IS05. Recent Advances in Shape Constrained Inference
Organizer  Bodhisatva Sen (Columbia University)
Chair  Bodhisatva Sen (Columbia University)

Global rates of convergence in mixture density estimation
Arlene Kyoung Hee Kim (Korea University)

Convex regression in multidimensions
Adityanand Guntuboyina (University of California Berkeley)

Multiple isotonic regression: limit distribution theory and confidence intervals
Qiyang Han (Rutgers University)

11:30 - 12:00  IS06. Optimization in Statistical Learning
Organizer  Garvesh Raskutti (University of Wisconsin-Madison)
Chair  Garvesh Raskutti (University of Wisconsin-Madison)

Statistical inference on latent network growth processes using the PAPER model
Min Xu (Rutgers University)

Adversarial classification, optimal transport, and geometric flows
Nicolas Garcia Trillos (University of Wisconsin-Madison)

Capturing network effect via fused lasso penalty with application on shared-bike data
Yunjin Choi (University of Seoul)

*All times are KST (UTC+9)
## DAILY PROGRAM _ JULY 21 (WED)

### 11:30 - 12:00

#### OCS09. Random Matrices and Infinite Particle Systems

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<thead>
<tr>
<th>Organizer</th>
<th>Hirofumi Osada (Kyushu University)</th>
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<td>Chair</td>
<td>Hirofumi Osada (Kyushu University)</td>
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</table>

**Dynamical universality for random matrices**
Hirofumi Osada (Kyushu University)

**Signal processing via the stochastic geometry of spectrogram level sets**
Subhroshekhar Ghosh (National University of Singapore)

**Logarithmic derivatives and local densities of point processes arising from random matrices**
Shota Osada (Kyushu University)

**Stochastic differential equations for infinite particle systems of jump type with long range interactions**
Hideki Tanemura (Keio University)

### 11:30 - 12:00

#### OCS18. Advanced Learning Methods for Complex Data Analysis

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<tr>
<th>Organizer</th>
<th>Xinlei Wang (Southern Methodist University)</th>
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<td>Xinlei Wang (Southern Methodist University)</td>
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</table>

**Peel learning for pathway-related outcome prediction**
Rui Feng (University of Pennsylvania)

**Principal boundary for data on manifolds**
Zhigang Yao (National University of Singapore)

**Probabilistic semi-supervised learning via sparse graph structure learning**
Li Wang (University of Texas at Arlington)

**Bayesian modeling for paired data in genome-wide association studies with application to breast cancer**
Min Chen (University of Texas at Dallas)

### 11:30 - 12:00

#### OCS27. Bayesian Inference for Complex Models

<table>
<thead>
<tr>
<th>Organizer</th>
<th>Joungyoun Kim (Yonsei University)</th>
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<td>Joungyoun Kim (Yonsei University)</td>
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</table>

**Nonparametric Bayesian latent factor model for multivariate functional data with covariate dependency**
Yeonseung Chung (Korea Advanced Institute of Science and Technology (KAIST))

**Bayesian model selection for ultrahigh-dimensional doubly-intractable distributions**
Jaewoo Park (Yonsei University)
DAILY PROGRAM _ JULY 21 (WED)

Post-processed posteriors for banded covariances
Kwangmin Lee (Seoul National University)

Adaptive Bayesian inference for current status data on a grid
Minwoo Chae (Pohang University of Science and Technology)

11:30 - 12:00
OCS28. Recent Advances in Time Series Analysis
Organizer: Changryong Baek (Sungkyunkwan University)
Chair: Changryong Baek (Sungkyunkwan University)

Resampling long-range dependent time series
Shuyang Bai (University of Georgia)

Robust test for structural instability in dynamic factor models
Changryong Baek (Sungkyunkwan University)

On scaling in high dimensions
Gustavo Didier (Tulane University)

Thresholding and graphical local Whittle estimation
Marie Duker (Cornell University)

Cotrending: testing for common deterministic trends in varying means model
Vladas Pipiras (University of North Carolina at Chapel Hill)

11:30 - 12:00
CS29. Spatial Data Analysis
Chair: Yaeji Lim (Chung-Ang University)

Extremal kriging for extremal quantile metamodeling
Hee lang Ryu (Korea Advanced Institute of Science and Technology (KAIST))

Wild bootstrap for high-dimensional spatial data
Daisuke Kurisu (Tokyo Institute of Technology)

Lifting scheme for streamflow data in river networks
Seoncheol Park (Chungbuk National University)

Optimal designs for some bivariate cokriging models
Subhadra Dasgupta (IITB-Monash Research Academy)
11:30 - 12:00  Poster II-1

Nonconstant error variance in generalized propensity score model
Doyoung Kim (Sungkyunkwan University)

Causal mediation analysis with multiple mediators of general structures
Youngho Bae (Sungkyunkwan University)

A fuzzy clustering ensemble based Mapper algorithm
SungJin Kang (Chung-Ang University)

Analysis of the association between suicide attempts and meteorological factors
Seunghyeon Kim (Chonnam National University)

Spectral clustering with the Wasserstein distance and its application
SangHun Jeong (Pusan National University)

Robust covariance estimation for partially observed functional data
Hyunsung Kim (Chung-Ang University)

Fast Bayesian functional regression for non-Gaussian spatial data
Yeo Jin Jung (Yonsei University)

19:00 - 20:00  Wald Lecture 2

Chair: Takashi Kumagai (Kyoto University)

Low dimensional random fractals
Martin Barlow (University of British Columbia)

20:00 - 21:00  IMS Medallion Lecture

Chair: Arup Bose (Indian Statistical Institute)

Random determinants and the elastic manifold
Gerard Ben Arous (New York University)
## DAILY PROGRAM _ JULY 21 (WED)

### IS01. Conformal Invariance and Related Topics

**Organizer**
Hao Wu (Yau Mathematical Sciences Center, Tsinghua University)

**Chair**
Hao Wu (Yau Mathematical Sciences Center, Tsinghua University)

- **Asymptotics of determinants of discrete Laplacians**
  Konstantin Izyurov (University of Helsinki)

- **On Loewner evolutions with jumps**
  Eveliina Peltola (Rheinische Friedrich-Wilhelms-Universität Bonn)

- **Extremal distance and conformal radius of a CLE$_4$ loop**
  Titus Lupu (CNRS / Sorbonne Université)

### IS14. Optimal Transport

**Organizer**
Philippe Rigollet (Massachusetts Institute of Technology)

**Chair**
Panki Kim (Seoul National University)

- **Density estimation and conditional simulation using triangular transport**
  Youssef Marzouk (Massachusetts Institute of Technology)

- **Estimation of Wasserstein distances in the spiked transport model**
  Jonathan Niles-Weed (Courant Institute of Mathematical Sciences, New York University)

- **Statistical estimation of barycenters in metric spaces and the space of probability measures**
  Quentin Paris (Higher School of Economics)

### IS21. Probabilistic Theory of Mean Field Games

**Organizer**
Xin Guo (University of California, Berkeley)

**Chair**
Xin Guo (University of California, Berkeley)

- **Portfolio liquidation games with self-exciting order flow**
  Ulrich Horst (Humboldt University Berlin)

- **A mean-field game approach to equilibrium pricing in renewable energy certificate markets**
  Sebastian Jaimungal (University of Toronto)

- **Entropic optimal transport**
  Marcel Nutz (Columbia University)
DAILY PROGRAM _ JULY 21 (WED)

21:30 - 22:00  IS35. Stochastic Analysis in Mathematical Finance and Insurance

Organizer  Marie Kratz (ESSEC)
Chair  Marie Kratz (ESSEC)

From signature based models in finance to affine and polynomial processes and back
Christa Cuchiero (University of Vienna)

Optimal dividends with capital injections at a level-dependent cost
Ronnie Loeffen (University of Manchester)

Exponential Lévy-type change-point models in mathematical finance
Lioudmila Vostrikova (University of Angers)

21:30 - 22:00  IS40. KSS Invited Session: Nonparametric and Semi-parametric Approaches in Survival Analysis

Organizer  Woncheol Jang (Seoul National University)
Chair  Woncheol Jang (Seoul National University)

Smoothed quantile regression for censored residual lifetime
Sangwook Kang (Yonsei University)

Superefficient estimation of future conditional hazards based on marker information
Enno Mammen (Heidelberg University)

On a semiparametric estimation method for AFT mixture cure models
Ingrid Van Keilegom (KU Leuven)

21:30 - 22:00  OCS03. Gaussian Processes

Organizer  Naomi Feldheim (Bar-Ilan University)
Chair  Naomi Feldheim (Bar-Ilan University)

Gaussian determinantal processes: A new model for directionality in data
Subhro Ghosh (National University of Singapore)

Persistence exponents of Gaussian stationary functions
Ohad Noy Feldheim (Hebrew University of Jerusalem)

Connectivity of the excursion sets of Gaussian fields with long-range correlations
Stephen Muirhead (University of Melbourne)

Overcrowding estimates for the nodal volume of stationary Gaussian processes on \( \mathbb{R}^d \)
Lakshmi Priya (Indian Institute of Science)
### 21:30 - 22:00  
**OCS20. Theories and Applications for Complex Data Analysis**  
**Organizer**  
Arlene K.H. Kim (Korea University)  
**Chair**  
Arlene K.H. Kim (Korea University)  

*Partly interval-censored rank regression*  
Sangbum Choi (Korea University)  

*Two-sample testing of high-dimensional linear regression coefficients via complementary sketching*  
Tengyao Wang (University College London)  

*Optimal rates for independence testing via U-statistic permutation tests*  
Tom Berrett (University of Warwick)  

*Empirical Bayes PCA in high dimensions*  
Zhou Fan (Yale University)  

### 21:30 - 22:00  
**CS13. Random Structures**  
**Chair**  
Namgyu Kang (Korea Institute of Advanced Study)  

*Universal phenomena for random constrained permutations*  
Jacopo Borga (University of Zurich)  

*The scaling limit of the strongly connected components of a uniform directed graph with an i.i.d. degree sequence*  
Serte Donderwinkel (University of Oxford)  

*Spherical principal curves*  
Jongmin Lee (Seoul National University)  

### 21:30 - 22:00  
**CS20. Copula Modeling**  
**Chair**  
Daewoo Pak (Yonsei University)  

*Estimation of multivariate generalized gamma convolutions through Laguerre expansions*  
Oskar Laverny (Université Lyon 1 - SCOR SE)  

*Copula-based Markov zero-inflated count time series models*  
Mohammed Alqawba (Qassim University)  

*Forecasting risk measure for energy commodity and its assessment of accuracy*  
Khreshna Syuhada (Institut Teknologi Bandung)  

*Bi-factor and second-order copula models for item response data*  
Sayed H. Kadhem (University of East Anglia)
DAILY PROGRAM _ JULY 21 (WED)

21:30 - 22:00
CS26. Multivariate Data Analysis
Chair: Yunjin Choi (University of Seoul)

- Multiple comparisons on generalized treatment effects in parallel trials with multiple diagnostic responses
  Shu-Hui Lin (Taichung University of Science and Technology)

- A nonparametric test for paired data
  Grzegorz Wyłupek (Institute of Mathematics, University of Wrocław)

- Inference for Generalized Multivariate Analysis of Variance (GMANOVA) models, under Multivariate Skew t distribution for modelling skewed and heavy-tailed data
  Sayantee Jana (Indian Institute of Management Nagpur)

- Multiscale representation of directional scattered data: Use of anisotropic radial basis functions
  Junhyeon Kwon (Seoul National University)

21:30 - 22:00
CS31. Statistical Prediction
Chair: Changwon Lim (Chung-Ang University)

- Robust geodesic regression
  Ha-Young Shin (Seoul National University)

- A multi-sigmoidal logistic model: statistical analysis and first-passage-time application
  Paola Paraggio (Università degli Studi di Salerno (UNISA))

- Statistical inference for functional linear problems
  Tim Kutta (Ruhr University Bochum)

22:30 - 23:00
IS03. Potential Theory for Non-local Operators and Jump Processes
Organizer: Panki Kim (Seoul National University)
Chair: Panki Kim (Seoul National University)

- SDEs driven by multiplicative stable-like Levy processes
  Zhen-Qing Chen (University of Washington)

- Periodic homogenization of non-symmetric Lévy-type processes
  Takashi Kumagai (Kyoto University)

- Optimal Hardy identities and inequalities for the fractional Laplacian on $L^p$
  Krzysztof Bogdan (Wroclaw University of Science and Technology)
## DAILY PROGRAM _ JULY 21 (WED)

### IS10. Change-point Problems for Complex Data

- **Organizer**: Claudia Kirch (Otto von Guericke University Magdeburg)
- **Chair**: Claudia Kirch (Otto von Guericke University Magdeburg)

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<tr>
<th>Session</th>
<th>Title</th>
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<tr>
<td>22:30 - 23:00</td>
<td>Two-sample tests for relevant differences in the eigenfunctions of covariance operators</td>
<td>Alexander Aue (UC Davis)</td>
</tr>
<tr>
<td>22:30 - 23:00</td>
<td>Multiple change point detection under serial dependence</td>
<td>Haeran Cho (University of Bristol)</td>
</tr>
<tr>
<td>22:30 - 23:00</td>
<td>An asymptotic test for constancy of the variance in a time series</td>
<td>Herold Dehling (Ruhr-University Bochum)</td>
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### IS12. Statistics for Data with Geometric Structure

- **Organizer**: Sungkyu Jung (Seoul National University)
- **Chair**: Sungkyu Jung (Seoul National University)

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<tr>
<td>22:30 - 23:00</td>
<td>Wasserstein regression</td>
<td>Hans-Georg Müller (University of California, Davis)</td>
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<tr>
<td>22:30 - 23:00</td>
<td>Finite sample smeariness for Fréchet means</td>
<td>Stephan Huckemann (Georg-August-Universitaet Goettingen)</td>
</tr>
<tr>
<td>22:30 - 23:00</td>
<td>Score matching for microbiome compositional data</td>
<td>Janice Scealy (Australian National University)</td>
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</tbody>
</table>

### IS25. Random Graphs

- **Organizer**: Christina Goldschmidt (University of Oxford)
- **Chair**: Christina Goldschmidt (University of Oxford)

<table>
<thead>
<tr>
<th>Session</th>
<th>Title</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>22:30 - 23:00</td>
<td>An unexpected phase transition for percolation on scale-free networks</td>
<td>Souvik Dhara (Massachusetts Institute of Technology)</td>
</tr>
<tr>
<td>22:30 - 23:00</td>
<td>Recent results for the graph alignment problem</td>
<td>Marc Lelarge (INRIA)</td>
</tr>
<tr>
<td>22:30 - 23:00</td>
<td>Local law and Tracy-Widom limit for sparse stochastic block models</td>
<td>Ji Oon Lee (Korea Advanced Institute of Science and Technology (KAIST))</td>
</tr>
</tbody>
</table>
DAILY PROGRAM _ JULY 21 (WED)

22:30 - 23:00  **IS36. Problems and Approaches in Multi-Armed Bandits**

*Organizer*  
Vanney Perchet (ENSAE)

*Chair*  
Vanney Perchet (ENSAE)

- Dynamic pricing and learning under the Bass model  
  Shipra Agrawal (Columbia University)

- TensorPlan: A new, flexible, scalable and provably efficient local planner for huge MDPs  
  Csaba Szepesvari (Deepmind & University of Alberta)

- On the importance of (linear) structure in contextual multi-armed bandit  
  Alessandro Lazaric (Facebook AI Research)

22:30 - 23:00  **OCS29. Sequential Analysis and Applications**

*Organizer*  
Alexander Tartakovsky (Moscow Institute of Physics and Technology)

*Chair*  
Alexander Tartakovsky (Moscow Institute of Physics and Technology)

- Asymptotically optimal control of FDR and related metrics for sequential multiple testing  
  Jay Bartroff (University of Southern California)

- Nearly optimal sequential detection of signals in correlated Gaussian noise  
  Grigory Sokolov (Xavier University)

- A unified approach for solving sequential selection problems  
  Yaakov Malinovsky (University of Maryland)

- Sequential change detection by optimal weighted $l_2$ divergence  
  Yao Xie (Georgia Institute of Technology)

- Detection of temporary disorders  
  Michael Baron (American University)

22:30 - 23:00  **CS03. Numerical Study of Stochastic Processes / Stochastic Interacting Systems**

*Chair*  
Kyung-Youn Kim (National Chengchi University)

- Splitting methods for SDEs with locally Lipschitz drift. An illustration on the FitzHugh-Nagumo model  
  Massimiliano Tamborrino (University of Warwick)

- Simulation methods for trawl processes  
  Dan Leonte (Imperial College London)
Stochastic optimal control of SDEs and importance sampling  
Han Cheng Lie (University of Potsdam)

Opinion dynamics with Lotka-Volterra type interactions  
Michele Aleandri (LUISS University)

22:30 - 23:00

**CS08. Study of Various Distributions**
Chair: Gunwoong Park (University of Seoul)

Some modifications to Weibull class survival distributions  
Kabiru Abidemi Awopeju (Nnamdi Azikiwe University)

The alpha power Marshall-Olkin-G distribution: properties, and applications  
Joseph Thomas Eghwerido (Federal University of Petroleum Resources, Effurun)

Orlicz norm and concentration inequalities for beta-heavy tailed distributions  
Emmanuel Gobet (Ecole Polytechnique)

The Dickman-Goncharov distribution  
Vladimir Panov (HSE University)

Continuous scaled phase-type distributions  
Jorge Yslas (University of Bern)

22:30 - 23:00

**CS12. Optimal Transport**
Chair: Yeonwoo Rho (Michigan Technology University)

Stochastic-uniform-approximations of Wasserstein barycenters  
Florian Heinemann (Georg-August-University Göttingen)

Measuring dependence between random vectors via optimal transport  
Johan Segers (UCLouvain)

Transportation duality and reverse functional inequalities for Markov kernels  
Nathaniel Eldredge (University of Northern Colorado)
DAILY PROGRAM _ JULY 21 (WED)

22:30 - 23:00  CS27. Machine Learning / Structural Equation
Chair: Yoonsuh Jung (Korea University)

- Replicability of statistical findings under distributional shift
  Suyash Gupta (Stanford University)

- Selection of graphical continuous Lyapunov models with Lasso
  Philipp Dettling (Technical University of Munich)

- Identifiability of linear structural equation models with homoscedastic errors using algebraic matroids
  Jun Wu (Technical University of Munich)

- Convergence of stochastic gradient descent for Lojasiewicz-landscapes
  Sebastian Kassing (Westfälische Wilhelms-Universität Münster)

22:30 - 23:00  Poster II-2

- A Bayesian nonparametric approach to super-resolution single-molecule localization
  Mariano Gabitto (Simons Foundation)

- A Bayesian multivariate microeconometric model for estimation of price elasticity of demand
  Juan Padilla (Grupodot)

- A Bayesian stochastic diffusion process approach for modeling the behavior of CD4+ T cell count
  Istoni Da Luz Sant’Ana (University of Puerto Rico)

- Busemann process and semi-infinite geodesics in Brownian last-passage percolation
  Evan Sorensen (University of Wisconsin-Madison)

- Application of kernel mean embeddings to functional data
  George Wynne (Imperial College London)

- SIR-based examination of the policy effects on the COVID-19 spread in U.S.
  David Han (The University of Texas at San Antonio)

- Cross-validation confidence intervals for test error
  Alexandre Bayle (Harvard University)

- Comparison of quantile regression curves under different settings with censored data
  Lorenzo Tedesco (KU Leuven)
DAILY PROGRAM _ JULY 22 (THU)

09:00 - 10:00  IMS Medallion Lecture
Chair: Ja-Yong Koo (Korea University)

Selective inference for trees
Daniela Witten (University of Washington)

10:00 - 11:00  IMS Medallion Lecture
Chair: Myunghee Cho Paik (Seoul National University)

High-dimensional interpolators: From linear regression to neural tangent models
Andrea Montanari (Stanford University)

11:30 - 12:00  IS38. IMS Lawrence D. Brown Ph.D. Student Award Session
Organizer: Institute of Mathematical Statistics
Chair: Tracy Ke (Harvard University)

Efficient manifold approximation with Spherelets
Didong Li (Princeton University / University of California)

Toward instance-optimal reinforcement learning
Ashwin Pananjady (Georgia Institute of Technology)

Bayesian pyramids: Identifying interpretable discrete latent structures from discrete data
Yuqi Gu (Columbia University)

11:30 - 12:00  OCS11. Random Growth, Spatial Processes and Related Models
Organizer: Erik Bates (University of California Berkeley)
Chair: Erik Bates (University of California Berkeley)

Holes in first-passage percolation
Wai-Kit Lam (University of Minnesota)

Coalescence estimates for the corner growth model with exponential weights
Xiao Shen (University of Wisconsin-Madison)

Scaling limits of sandpiles
Ahmed Bou-Rabee (University of Chicago)
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<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Organizer</th>
<th>Chair</th>
<th>Presenters (Institution)</th>
</tr>
</thead>
</table>
| 11:30 - 12:00| **OCS19. Recent Advances in Complex Data Analysis**    | Seung Jun Shin (Korea University)            | Seung Jun Shin (Korea University) | **Kernel density estimation and deconvolution under radial symmetry**  
Kwan-Young Bak (Korea University)  
**Penalized poly gram regression for bivariate smoothing**  
Jae-Hwan Jhong (Chungbuk National University)  
**Penalized logistic regression using functional connectivity as covariates with an application to mild cognitive impairment**  
Eunjee Lee (Chungnam National University)  
**Resmax: Detecting voice spoofing attacks with residual network and max filter map**  
Il-Youp Kwak (Chung-Ang University)  
**Weighted validation of heteroscedastic regression models for better selection**  
Yoonsuh Jung (Korea University) |
| 11:30 - 12:00| **OCS25. Recent Advances in Biostatistics**            | Sangwook Kang (Yonsei University)            | Sangwook Kang (Yonsei University) | **Bayesian nonparametric adjustment of confounding**  
Chanmin Kim (Sungkyunkwan University)  
**Multivariate point process models for microbiome image analysis**  
Kyu Ha Lee (Harvard University)  
**Look before you leap: systematic evaluation of tree-based statistical methods in subgroup identification**  
Xiaojing Wang (University of Connecticut) |
| 11:30 - 12:00| **OCS31. BOK Contributed Session: Finance and Contemporary Issues** | BOK Economic Statistics Department            | Changryong Baek (Sungkyunkwan University) | **Multi-step reflection principle and barrier options**  
Seongjoo Song (Korea University) |
DAILY PROGRAM _ JULY 22 (THU)

Change point analysis in Bitcoin return series: a robust approach
Junmo Song (Kyungpook National University)

A self-normalization test for correlation matrix change
Ji Eun Choi (Pukyong National University)

Volatility as a risk measure of financial time series: high frequency and realized volatility
Sun Young Hwang (Sookmyung Women’s University)

11:30 - 12:00 Poster III-1

A penalized matrix normal mixture model for clustering matrix data
Jinwon Heo (Chonnam National University)

Univariate and multivariate normality tests using an entropy-based transformation
Shahzad Munir (Xiamen University)

Geum river network data analysis via weighted PCA
Seeun Park (Seoul National University)

Cauchy combination test with thresholding under arbitrary dependency structures
Junsik Kim (Seoul National University)

Control charts for monitoring linear profiles in the detection of network intrusion
Daeun Kim (Dankook University)

Benefits of international agreements as switching diffusions
Sheikh Shahnawaz (California State University)

Estimation of Hilbertian varying coefficient models
Hyerim Hong (Seoul National University)

Duality for a class of continuous-time reversible Markov models
Freddy Palma (Fundación Universidad de las Américas Puebla)

Statistical analysis of mini-batch gradient descent estimators
Haobo Qi (Peking University, China)
### DAILY PROGRAM _ JULY 22 (THU)

#### 19:00 - 20:00  
**Blackwell Lecture**

Chair: Byeong Uk Park (Seoul National University)

**Estimating the mean of a random vector**  
Gabor Lugosi (ICREA & Pompeu Fabra University)

#### 20:00 - 21:00  
**Tukey Lecture**

Chair: Adam Jakubowski (Nicolaus Copernicus University)

**Max-margin classification and other interpolation methods**  
Sara van de Geer (ETH Zurich)

#### 21:30 - 22:00  
**IS09. Quantum Statistics**

Organizer: Cristina Butucea (ENSAE)

Chair: Cristina Butucea (ENSAE)

**Estimation of quantum state and quantum channel**  
Masahito Hayashi (Southern University of Science and Technology)

**Information geometry and local asymptotic normality for quantum Markov processes**  
Madalin Guta (University of Nottingham)

**Optimal adaptive strategies for sequential quantum hypothesis testing**  
Marco Tomamichel (National University of Singapore)

#### 21:30 - 22:00  
**IS22. Random Trees**

Organizer: Anita Winter (University of Duisburg-Essen)

Chair: Anita Winter (University of Duisburg-Essen)

**1d Brownian loop soup, Fleming-Viot processes and Bass-Burdzy flow**  
Elie Aidekon (Fudan University)

**A new state space of algebraic measure trees for stochastic processes**  
Wolfgang Löhr (University of Duisburg-Essen)

**Scaling limits of critical rank-1 inhomogeneous random graphs**  
Minmin Wang (University of Sussex)
# DAILY PROGRAM _ JULY 22 (THU)

## IS29. High Dimensional Data Inference

**Organizer**  
Florentina Bunea (Cornell University)

**Chair**  
Florentina Bunea (Cornell University)

<table>
<thead>
<tr>
<th>Title</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimax rates for derivative-free stochastic optimization with higher order smooth objectives</td>
<td>Alexandre Tsybakov (CREST, ENSAE, IP Paris)</td>
</tr>
<tr>
<td>High-dimensional, multiscale online changepoint detection</td>
<td>Richard Samworth (University of Cambridge)</td>
</tr>
<tr>
<td>Optimal transport and inference for stationary processes</td>
<td>Andrew Nobel (The University of North Carolina at Chapel Hill)</td>
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</table>

## IS34. Random Walks on Random Media

**Organizer**  
Alexander Drewitz (Universität zu Köln)

**Chair**  
Alexander Drewitz (Universität zu Köln)

<table>
<thead>
<tr>
<th>Title</th>
<th>Speaker</th>
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<tr>
<td>Random walk on a barely supercritical branching random walk</td>
<td>Jan Nagel (TU Dortmund)</td>
</tr>
<tr>
<td>Universality of cutoff for graphs with an added random matching</td>
<td>Perla Sousi (Cambridge University)</td>
</tr>
<tr>
<td>Invariance principle for a random walk among a Poisson field of moving traps</td>
<td>Rongfeng Sun (National University of Singapore)</td>
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</table>

## IS37. Bernoulli Society New Researcher Award Session

**Organizer**  
Bernoulli Society

**Chair**  
Imma Curato (Ulm University)

<table>
<thead>
<tr>
<th>Title</th>
<th>Speaker</th>
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<tbody>
<tr>
<td>Hydrodynamic large deviations of strongly asymmetric interacting particle systems</td>
<td>Li-Cheng Tsai (Rutgers University)</td>
</tr>
<tr>
<td>Conformal loop ensembles on Liouville quantum gravity with marked points</td>
<td>Nina Holden (ETH Zurich)</td>
</tr>
<tr>
<td>Integrability of Schramm-Loewner evolution and Liouville quantum gravity</td>
<td>Xin Sun (University of Pennsylvania)</td>
</tr>
</tbody>
</table>
21:30 - 22:00 OCS08. Rough Path Theory
Organizer: Ilya Chevyrev (University of Oxford)
Chair: Ilya Chevyrev (University of Oxford)

Rough path theory and the stochastic Loewner equation
Vlad Margarint (NYU Shanghai)

Rough path with jumps and its application in homogenization
Huilin Zhang (Fudan University)

Probabilistic rough paths
William Salkeld (Universite Cote d’Azur)

Transport and continuity equations with (very) rough noise
Nikolas Tapia (Weierstrass Institute / TU Berlin)

Rough walks in random environment
Tal Orenshtein (TU Berlin, WIAS Berlin)

21:30 - 22:00 OCS21. Recent Advances in Statistics
Organizer: Yunjin Choi (University of Seoul)
Chair: Yunjin Choi (University of Seoul)

Identifiability of additive noise models using conditional variances
Gunwoong Park (University of Seoul)

Multivariate functional group sparse regression: functional predictor selection
Jun Song (University of North Carolina at Charlotte)

Causal foundations for fair and responsible machine learning
Joshua Loftus (London School of Economics)

Network change point detection
Yi Yu (University of Warwick)
## DAILY PROGRAM _ JULY 22 (THU)

### 21:30 - 22:00  
**CS09. Topics Related to RMT**  
Chair: Kyeongsik Nam (UCLA)

- **On eigenvalue distributions of large auto-covariance matrices**  
  Wangjun Yuan (The University of Hong Kong)

- **Linear spectral statistics of sequential sample covariance matrices**  
  Nina Dörnemann (Ruhr University Bochum)

- **Couplings for Andersen dynamics and related piecewise deterministic Markov processes**  
  Nawaf Bou-Rabee (Rutgers University Camden)

### 21:30 - 22:00  
**CS11. Topics Related to KPZ Universality**  
Chair: Jaehoon Kang (KAIST)

- **Upper tail decay of KPZ models with Brownian initial conditions**  
  Balint Veto (Budapest University of Technology and Economics)

- **Bijective matching between q-Whittaker and periodic Schur measures**  
  Matteo Mucciconi (Tokyo Institute of Technology)

- **A new approach to KPZ models by determinantal and Pfaffian measures**  
  Tomohiro Sasamoto (Tokyo Institute of Technology)

### 21:30 - 22:00  
**CS21. Dimension Reduction and Model Selection**  
Chair: Jisu Kim (India Saclay)

- **Dynamical system approach to sparse factor analysis with MCP likelihood estimation**  
  Jeanifer Bingco (University of the Philippines)

- **Probabilistic principal curves on Riemannian manifolds**  
  Seungwoo Kang (Seoul National University)

- **The elastic information criterion for multicollinearity detection**  
  Kimon Ntotsis (University of the Aegean)

- **A bidimensional shock model driven by the space-fractional Poisson process**  
  Alessandra Meoli (Università degli Studi di Salerno)
DAILY PROGRAM _ JULY 22 (THU)

21:30 - 22:00  
**CS35. Financial Data Analysis**  
Chair: Jae Youn Ahn (Ewha Womans University)

- **Hedging portfolio for a degenerate market model**  
  Ihsan Demirel (Koç University)

- **An optimal combination of proportional - excess of loss reinsurance with random premiums**  
  Suci Sari (Statistics Research Division, Faculty of Mathematics and Natural Sciences, Institut Teknologi Bandung)

- **A novel inventory policy for imperfect items with stock dependent demand rate**  
  Praveen V P

22:30 - 23:00  
**IS11. Analysis of Dependent Data**  
Organizer: Chae Young Lim (Seoul National University)  
Chair: Chae Young Lim (Seoul National University)

- **Statistical learning with spatially dependent high-dimensional data**  
  Taps Maiti (Michigan State University)

- **Large-scale spatial data science with ExaGeoStat**  
  Marc Genton (King Abdullah University of Science and Technology (KAUST))

- **Multivariate spatio-temporal Hawkes process models of terrorism**  
  Mikyoung Jun (University of Houston)

22:30 - 23:00  
**IS19. Randomized Algorithms**  
Organizer: Devdatt Dubhashi (Chalmers University)  
Chair: Devdatt Dubhashi (Chalmers University)

- **Is your distribution in shape?**  
  Ronitt Rubinfeld (Massachusetts Institute of Technology)

- **Beyond independent rounding: Strongly Rayleigh distributions and traveling salesperson problem**  
  Shayan Oveis Gharan (University of Washington)

- **A survey of dependent randomized rounding**  
  Aravind Srinivasan (University of Maryland, College Park)
## DAILY PROGRAM _ JULY 22 (THU) 

### IS23. Stochastic Partial Differential Equations

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<tr>
<th>Organizer</th>
<th>Leonid Mytnik (Israel Institute of Technology)</th>
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<tbody>
<tr>
<td>Chair</td>
<td>Leonid Mytnik (Israel Institute of Technology)</td>
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</table>

**Phase analysis for a family of stochastic reaction-diffusion equations**
Carl Mueller (University of Rochester)

**Regularization by noise for SPDEs and SDEs: a stochastic sewing approach**
Oleg Butkovsky (Weierstrass Institute)

**Stochastic quantization, Large N, and mean field limit**
Hao Shen (University of Wisconsin-Madison)

### IS26. Pathwise Stochastic Analysis

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<tr>
<th>Organizer</th>
<th>Hendrik Weber (University of Bath)</th>
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<td>Chair</td>
<td>Hendrik Weber (University of Bath)</td>
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</table>

**Sig-Wasserstein Generative models to generate realistic synthetic time series**
Hao Ni (University College London)

**State space for the 3D stochastic quantisation equation of Yang-Mills**
Ilya Chevyrev (University of Edinburgh)

**A priori bounds for quasi-linear parabolic equations in the full sub-critical regime**
Scott Smith (Chinese Academy of Science)

### OCS10. Random Conformal Geometry and Related Fields

<table>
<thead>
<tr>
<th>Organizer</th>
<th>Nam-Gyu Kang (Korea Institute of Advanced Study)</th>
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<tbody>
<tr>
<td>Chair</td>
<td>Nam-Gyu Kang (Korea Institute of Advanced Study)</td>
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</tbody>
</table>

**Loewner dynamics for the multiple SLE(0) process**
Tom Alberts (The University of Utah)

**Conformal field theory for annulus SLE**
Sung-Soo Byun (Seoul National University)

**Convergence of martingale observables in the massive FK-Ising model**
S. C. Park (Korea Institute of Advanced Study)

**Boundary Minkowski content of multi-force-point SLE_κ(ρ) curves**
Dapeng Zhan (Michigan State University)
DAILY PROGRAM _ JULY 22 (THU)

22:30 - 23:00  
**OCS30. Stochastic Adaptive Optimization Algorithms and their Applications to Neural Networks**

*Organizer*
Miklos Rasonyi (Alfréd Rényi Institute) & Sotirios Sabanis (University of Edinburgh)

*Chair*
Sotirios Sabanis (University of Edinburgh)

- **An adaptive strong order 1 method for SDEs with discontinuous drift coefficient**
  Larisa Yaroslavtseva (University of Passau)

- **Nonconvex optimization via TUSLA with discontinuous updating**
  Ying ZHANG (Nanyang Technological University)

- **Approximation of stochastic equations with irregular drifts**
  Konstantinos Dareiotis (University of Leeds)

- **Neural SDEs: Deep generative models in the diffusion limit**
  Maxim Raginsky (University of Illinois at Urbana-Champaign)

- **Diffusion approximations and control variates for MCMC**
  Eric Moulines (Ecole Polytechnique)

22:30 - 23:00  
**CS04. Stochastic processes and Related Topics**

*Chair*
Yeonwoo Rho (Michigan Technology University)

- **Exact pathwise simulation of multi-dimensional Ornstein-Uhlenbeck processes**
  Hugo de la Cruz (FGV-Fundação Getulio Vargas)

- **Parameter estimation for weakly interacting particle systems and stochastic McKean-Vlasov processes**
  Louis Sharrock (Imperial College London)

- **CLT for cyclic long-memory processes**
  Andriy Olenko (La Trobe University)

22:30 - 23:00  
**CS17. Various Limit Theorems**

*Chair*
Chi Tim Ng (Hang Seng University of Hong Kong)

- **Limit theorems for non-stationary strongly mixing random fields**
  Cristina Tone (University of Louisville)

- **On the law of the iterated logarithm and strong invariance principles in stochastic geometry**
  Johannes Krebs (Heidelberg University)
DAILY PROGRAM _ JULY 22 (THU)

Functional limit theorems for U-statistics
Mikolaj Kasprzak (University of Luxembourg)

Proving Liggett’s FCLT via Stein’s method
Wasamon Jantai (Oregon State University)

22:30 - 23:00

**CS32. Statistical Modeling and Prediction**

**Chair**
Eun Jeong Min (Catholic University)

A multistate joint model for interval-censored event-history data subject to within-unit clustering and informative missingness, with application to neurocysticercosis research
Hongbin Zhang (The City University of New York)

An evolution of the beta regression for non-monotone relations
Gloria Gheno (Ronin Institute)

Robust censored regression with l1-norm regularization
Jad Beyhum (ORSTAT, KU Leuven)

SPLVC modal regression with error-prone linear covariate
Tao Wang (University of California, Riverside)

Regularized double machine learning in partially linear models with unobserved confounding
Corinne Emmenegger (ETH Zurich)
## DAILY PROGRAM _ JULY 23 (FRI)

**09:00 - 10:00**  
**Schramm Lecture**  
Chair: Maria Eulália Vares (Federal University of Rio de Janeiro)  
**Balloons in space(s)**  
Omer Angel (University of British Columbia)

**10:00 - 11:00**  
**Kolmogorov Lecture**  
Chair: Steve Evans (University of California, Berkeley)  
**From algorithm to theorem**  
Persi Diaconis (Stanford University)

**19:00 - 20:00**  
**Wald Lecture 3**  
Chair: Takashi Kumagai (Kyoto University)  
**Higher dimensional spaces**  
Martin Barlow (University of British Columbia)

**20:00 - 21:00**  
**Presentation of the Inaugural Willem van Zwet Medal and Closing Remarks**  
Chair: Siva Athreya (Indian Statistical Institute) / Hee-Seok Oh (Seoul National University)  
**Presentation of the Inaugural Willem van Zwet Medal. Closing Remarks**  
Claudia Klüppelberg (Past President of the Bernoulli Society)  
**Invitation to the Bernoulli-IMS 11th WC2024**  
Herold Dehling

*All times are KST (UTC+9)*