

# International Symposium on Theories and Methodologies for Large Complex Data

November 21-23, 2019

## Venue:

Conference Room 406, Tsukuba International Congress Center  
2-20-3 Takezono, Tsukuba, Ibaraki 305-0032, Japan

## Organizers:

Makoto Aoshima (University of Tsukuba)  
Mika Sato-Ilic (University of Tsukuba)  
Kazuyoshi Yata (University of Tsukuba)  
Aki Ishii (Tokyo University of Science)

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Grant-in-Aid for Scientific Research (A) 15H01678 (Project Period: 2015-2019)  
“Theories and methodologies for large complex data”  
(Principal Investigator: Makoto Aoshima)

Grant-in-Aid for Challenging Research (Exploratory) 19K22837 (Project Period: 2019-2021)  
“Tackling individualized modeling with ultra-high dimensional data”  
(Principal Investigator: Makoto Aoshima)

## Program

### November 21 (Thursday)

14:00~14:10 Opening

14:10~14:50 Aki Ishii<sup>\*,a</sup>, Kazuyoshi Yata<sup>b</sup> and Makoto Aoshima<sup>b</sup>

<sup>a</sup>(Department of Information Sciences, Tokyo University of Science)

<sup>b</sup>(Institute of Mathematics, University of Tsukuba)

#### **Tests for high-dimensional covariance structures under the SSE model**

15:00~15:40 Takahiro Nishiyama<sup>\*,a</sup>, Masashi Hyodo<sup>b</sup> and Tatjana Pavlenko<sup>c</sup>

<sup>a</sup>(Department of Business Administration, Senshu University)

<sup>b</sup>(Department of Mathematical Sciences, Osaka Prefecture University)

<sup>c</sup>(Department of Mathematics, KTH Royal Institute of Technology)

#### **On error bounds for high-dimensional asymptotic distribution of $L_2$ -type test statistic**

15:55~16:35 Hiroumi Misaki (Faculty of Engineering, Information and Systems, University of Tsukuba)

#### **Financial risk management with high-frequency data**

(\* Speaker)

16:45~17:25 Junichi Hirukawa<sup>\*,a</sup> and Kou Fujimori<sup>b</sup>

<sup>a</sup>(Faculty of Science, Niigata University)

<sup>b</sup>(School of Fundamental Science and Engineering, Waseda University)

**Weak convergence of the partial sum of  $I(d)$  process to a fractional Brownian motion in finite interval representation**

**November 22 (Friday)**

9:20~10:00 Kengo Kamatani (Graduate School of Engineering Science, Osaka University, and JST CREST)

**High-dimensional analysis of the piecewise deterministic Markov process for Bayesian inference**

10:10~10:50 Shogo Kato<sup>\*,a</sup> and Peter McCullagh<sup>b</sup>

<sup>a</sup>(The Institute of Statistical Mathematics)

<sup>b</sup>(Department of Statistics, University of Chicago)

**A Cauchy family derived by the Möbius transformations of the sphere**

11:00~17:35 **Special Invited and Keynote Sessions**

18:30~ Dinner

**November 23 (Saturday)**

9:20~10:00 Shota Katayama (Faculty of Economics, Keio University)

**Direct estimation of conditional averaging treatment effect in high dimensions**

10:10~10:50 Kei Hirose<sup>a,\*</sup> and Hiroki Masuda<sup>b</sup>

<sup>a</sup>(Institute of Mathematics for Industry, Kyushu University)

<sup>b</sup>(Faculty of Mathematics, Kyushu University)

**Statistical modeling for electricity load forecasting**

11:00~11:40 Takuma Bando<sup>a</sup>, Tomonari Sei<sup>\*,a</sup> and Kazuyoshi Yata<sup>b</sup>

<sup>a</sup>(Graduate School of Information Science and Technology, University of Tokyo)

<sup>b</sup>(Institute of Mathematics, University of Tsukuba)

**Consistency of the objective general index in high dimensional settings**

11:40~ 11:50 Closing

(\* Speaker)

## Special Invited Session

11:00~11:50 **Data beyond the euclidean space**

Speaker: Jörn Schulz

(Department of Electrical engineering and Computer science, University of Stavanger)

Chair: Shogo Kato (The Institute of Statistical Mathematics)

11:50~13:15 Lunch

13:15~14:05 **Change points detection and identification for high dimensional dependent data**

Speaker: Ping-Shou Zhong

(Department of Mathematics, Statistics, and Computer Science, University of Illinois at Chicago)

Chair: Fumiya Akashi (Graduate School of Economics, University of Tokyo)

14:15~15:05 **Towards a sparse, scalable, and stably positive definite (inverse) covariance estimator**

Speaker: Joong-Ho (Johann) Won

(Department of Statistics, Seoul National University)

Chair: Shota Katayama (Faculty of Economics, Keio University)

## Keynote Session

15:20~16:20 **A two-stage dimension reduction method and its applications on highly contaminated image sets**

Speaker: I-Ping Tu

(Institute of Statistical Science, Academia Sinica)

Discussion Leader: Yuan-Tsung Chang (Department of Social Information, Mejiro University)

16:35~17:35 **Sample covariance matrices from “bad populations”**

Speaker: Jeff Yao

(Department of Statistics and Actuarial Science, The University of Hong Kong )

Discussion Leader: Kazuyoshi Yata (Institute of Mathematics, University of Tsukuba)