

International Symposium on New Developments of Theories, Methodologies and Applications for Large Complex Data

October 21-23, 2026

Venue:

iias Hall (located in iias Tsukuba <https://tsukuba.iias.jp/iiashall>)
5-19 Kenkyugakuen, Tsukuba, Ibaraki 305-0817, Japan

Organizers:

Makoto Aoshima (University of Tsukuba)
Kazuyoshi Yata (University of Tsukuba)
Kento Egashira (Tokyo University of Science)

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Grant-in-Aid for Scientific Research (A) 25H01107 (Project Period: 2025-2030)
“Advancement and Expansion of Theories and Methodologies for Large-Scale Complex Data”
(Principal Investigator: Makoto Aoshima)

Grant-in-Aid for Challenging Research (Exploratory) 26K23798 (Project Period: 2026-2029)
“Building an Innovative Platform for Real-Time Streaming Data Based on High-Dimensional,
Low-Sample-Size Theory”
(Principal Investigator: Makoto Aoshima)

Program (UTC+9)

October 21 (Wednesday)

14:00~14:10 Opening

14:10~14:50 Kento Egashira^{*,a}, Kazuyoshi Yata^b, and Makoto Aoshima^b

^a(Department of Information Science and Technology, Tokyo University of Science)

^b(Institute of Mathematics, University of Tsukuba)

Enhanced Gaussian kernel k-means for high-dimensional, low-sample-size data

15:00~15:40 Yoshikazu Terada

(Graduate School of Engineering Science, The Osaka University / RIKEN AIP)

A theory of nonparametric covariance function estimation for discretely observed data

15:50~16:30 Tsutomu T. Takeuchi

(Division of Particle and Astrophysical Science, Nagoya University)

Applications of the high-dimensional statistics to astrophysics and related fields

16:50~17:30 Shao-Hsuan Wang

(Graduate Institute of Statistics, National Central University)

A statistical framework for contrastive principal component analysis

17:40~18:20 Yuan-Tsung Chang^{*,a} and Nobuo Shinozaki^b

^a(Institute of Statistical Mathematics / Mejiro University)

^b(Faculty of Science and Technology, Keio University)

A note on estimation of restricted (ordered, upper (lower)-bounded) scale parameter of Gamma distribution

October 22 (Thursday)

10:40~11:50 **Young Researchers Session I**

1. Tetsuya Umino^{*,a}, Kazuyoshi Yata^b, and Makoto Aoshima^b

^a(Graduate School of Science and Technology, University of Tsukuba)

^b(Institute of Mathematics, University of Tsukuba)

Data transformation for high-dimension, strongly spiked eigenvalue models using automatic sparse estimation

2. Giheon Seong^{*,a}, Seungki Hong^b, and Sungkyu Jung^c

^a(Department of Statistics, Seoul National University)

^b(Meritz Fire & Marine Insurance Co., Ltd.)

^c(Department of Statistics and Institute for Data Innovation in Science,
Seoul National University)

Augmented James-Stein estimation for leading eigenvectors and eigenspaces in high dimensions

3. Atsutomo Yara^{*,a} and Yoshikazu Terada^b

^a(Graduate School of Engineering Science, The Osaka University)

^b(Graduate School of Engineering Science, The Osaka University / RIKEN AIP)

Nonparametric maximum likelihood estimation of intensities for covariate-driven Poisson processes

12:00~12:30 Bilol Banerjee^{*,a} and Anil K. Ghosh^b

^a(Department of Statistics and Data Science, National University of Singapore)

^b(Theoretical Statistics and Mathematics Unit, Indian Statistical Institute, Kolkata)

A nonparametric test of spherical symmetry applicable to high dimensional data

12:30~14:00 Lunch

14:00~18:15 **Special Invited and Keynote Sessions**

19:30~ Dinner

October 23 (Friday)

10:40~11:50 **Young Researchers Session II**

1. Masaki Hoshino^{*,a}, Kento Egashira^b, and Hikaru Yamaguchi^b

^a(Graduate School of Science and Technology, Tokyo University of Science)

^b(Department of Information Science and Technology, Tokyo University of Science)

Group sequential one-sample location testing for high dimensions

2. Kyoowon Kim^{*,a} and Sungkyu Jung^b

^a(Department of Statistics, Seoul National University)

^b(Department of Statistics and Institute for Data Innovation in Science,
Seoul National University)

**Testing and segmentation of joint and individual components
in integrative multi-source factor models**

3. Shuntaro Suzuki^{*,a} and Yoshikazu Terada^b

^a(Graduate School of Engineering Science, The Osaka University)

^b(Graduate School of Engineering Science, The Osaka University / RIKEN AIP)

Operator learning for functional autoregressive models

12:00~12:40 Shogo Nakakita

(Graduate School of Engineering Science, The Osaka University)

**Generalization error analysis for linear binary classification
under Lipschitz loss functions**

12:40~14:10 Lunch

14:10~14:50 Koji Tsukuda^{*,a} and Kou Fujimori^b

^a(Faculty of Mathematics, Kyushu University)

^b(Faculty of Economics and Law, Shinshu University)

Asymptotically normal estimators in high-dimensional linear regression

15:00~15:40 Takahiro Nishiyama^{*,a}, Masashi Hyodo^b, Shoma Yamashita^c, and Nobumichi Shutoh^d

^a(Faculty of Science, Tokyo University of Science)

^b(Faculty of Economics, Kanagawa University)

^c(Graduate School of Science, Kobe University)

^d(Laboratory of Medical Data Sciences, Kobe Pharmaceutical University
/ Graduate School of Science, Kobe University)

**Testing homogeneity of high-dimensional covariance matrices
under a low-dimensional factor structure**

15:40~15:45 Closing

(* Speaker)

October 22 (Thursday)

Special Invited Session

14:00~14:50 High-dimensional precision matrix quadratic forms:

Estimation framework for $p > n$

Speaker: Weiming Li

(School of Statistics and Data Science, Shanghai University of Finance and Economics)

Discussion Leader: Kento Egashira (Department of Information Science and Technology,
Tokyo University of Science)

**15:05~15:55 Joint estimation of high-dimensional spiked covariance matrices
via a partially shared subspace**

Speaker: Sungkyu Jung

(Department of Statistics and Institute for Data Innovation in Science,
Seoul National University)

Joint work with: Changwon Yoon^a, Minwoo Kim^b, and Jeongyoun Ahn^a

^a(Department of Industrial and Systems Engineering, KAIST)

^b(Department of Statistics, Seoul National University)

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

16:10~17:00 From high-dimensional classification to clustering:

High-impact feature selection via ggCGA and UL-MLR

Speaker: Shih-Feng Huang

(Graduate Institute of Statistics, National Central University)

Discussion Leader: Yuan-Tsung Chang (Institute of Statistical Mathematics / Mejiro University)

Keynote Session

17:15~18:15 Approaching the frontier in large risky-asset universes:

Direct portfolio estimation via CORE

Speaker: Xinghua Zheng

(Department of ISOM, Hong Kong University of Science and Technology)

Discussion Leader: Shogo Nakakita (Graduate School of Engineering Science, The Osaka University)