Image credit: Illustris Collaboration

International Workshop KEK-Cosmo 2024

Statistical Analysis of Random Fields in Cosmology

4 (Mon) - 6 (Wed), March 2024
Seminar Hall, 1F Bldg. 4 (M02), Tsukuba Campus
KEK, Tsukuba, Japan

In recent years, physical cosmology has made unprecedented and significant progress based on abundant and sophisticated observational data, such as the large-scale structure of the Universe, the cosmic microwave background radiation, gravitational lensing, gravitational waves, etc. Large-scale observational projects using space telescopes such as Euclid, Roman, SPHEREx, LiteBird, and ground-based telescopes such as Rubin, SubaruHSC/PSF, etc. are steadily progressing around the world. The golden age of cosmology is now upon us. The main purpose of these observations is to reveal the origin and evolution of the Universe itself, as well as the overall picture of the Universe, including unknown components such as dark matter and dark energy, from the statistical properties of fluctuations in the Universe. This requires a variety of methods to derive physical insights from high-precision data of cosmological fluctuations.

The goal of this workshop is to explore new methods in the statistical analysis of cosmological fluctuations. In order to share mathematical perspectives on random fields with physicists, we also invite people from the fields of mathematical statistics and machine learning as well as cosmology as invited speakers, which will serve as a starting point for new collaborative research between physics and mathematics. We would like to explore new research directions for the coming new era in cosmology, with a view to constructing universal methods that can be used not only to solve problems that already exist today but also to solve unknown problems that will be newly discovered in the future as a result of advances in observational techniques.

The workshop will focus on invited talks, but general talks will also be accepted. This workshop is planned to be held in-person only.

Invited Speakers:

- Kazuyuki Akitsu (KEK)
- Dan Cheng (Arizona State University, U.S.)
- Yuji Chinone (QUP, KEK)
- Chiaki Hikage (Nomura Research Institute)
- Shiro Ikeda (The Institute of Statistical Mathematics)
- Jia Liu (Kavli IPMU)
- Yoh-ichi Mototake (Hitotsubashi University)
- Takahiro Nishimichi (Kyoto Sangyo University)
- Atsushi J. Nishizawa (Gifu Shotoku Gakuen University)
- Mihoko Nojiri (KEK)
- Masamune Oguri (Chiba University)
- Changbom Park (KIAS, Korea)
- Hayato Shimabukuro (Yunnan University, China)

- Gary Shiu (University of Wisconsin-Madison, U.S.)
- Masahiro Takada (Kavli IPMU)
- Tsutomu T. Takeuchi (Nagoya University)

Detailed program is (going to be uploaded) HERE.

Workshop fees

Banquet: TBD (Expected to be around 6,000 yen)

There is no conference registration fee other than the banquet fee, but attendees must register.

Deadline for the registration

January 31, 2024 (or as soon as the number of participants reaches the limit)

Registration form and application form for wifi

Procedures for Registration （日本語版あり）

Inquiries

Ms. Tomoko Numata, Secretary, Theory Center, IPNS, KEK
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Venue

Seminar Hall on the ground floor at Building 4 Seminar Hall, 1F Bldg. 4 (M02 Yon-Go-Kan Bldg.) on the KEK Tsukuba campus.

Come to KEK
アクセス

Banquet

To be announced

Other precautions

Please note that we are unable to assist in issuing visas for participants from outside Japan who require visas for this workshop.

SOC

- Takahiko Matsubara (KEK, Chair)
- Satoshi Kuriki (Institute of Statistical Mathematics, Vice chair)
- Kazunori Kohri (National Astronomical Observatory of Japan, and KEK)
- Tomo Takahashi (Saga U.)
- Volodymyr Takhistov (KEK,QUP)
- Yuko Urakawa (KEK)
- Daisuke Yamauchi (Okayama U. of Sci.)

LOC

- Takahiko Matsubara (KEK, Chair)
- Kazuyuki Akitsu (KEK)
- Asuka Ito (KEK)
- Pankaj Saha (KEK)
- Yuko Urakawa (KEK)

KEK Theory Center
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Sponsors

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