Call for Papers

Universality and Dynamics in High-Dimensional Learning and Inference Workshop @ IEEE International Symposium on Information Theory (ISIT) 2026 (Guangzhou, China, Friday, July 3, 2026)

Website: https://hds-workshop-isit.github.io/index.html
Confirmed In-person Speakers (in alphabetical order)**:**

- **Zhou Fan** (Yale University, http://www.stat.yale.edu/~zf59/)
- **Qiyang Han** (Rutgers University, https://statweb.rutgers.edu/qh85/)
- **Bruno Loureiro** (ENS & CNRS, https://brloureiro.github.io/)
- **Dirk Slock** (EURECOM, https://www.eurecom.fr/en/people/slock-dirk)

Workshop Overview

High-dimensional learning and inference have recently seen major theoretical advances showing that both learning performance and algorithmic dynamics obey universal mean-field laws. Dynamical mean-field theory provides exact asymptotic descriptions for algorithms such as (stochastic) gradient descent and Langevin dynamics, while Gaussian equivalence and random matrix techniques simplify complex nonlinear random-feature and kernel models into tractable Gaussian surrogates. At the same time, universality and state-evolution analyses for approximate message passing (AMP) and related iterative algorithms, together with new insights into prediction risk and data influence, demonstrate that many seemingly different procedures are governed by the same low-dimensional order parameters.

We invite participation in the ***Universality and Dynamics in High-Dimensional Learning and Inference Workshop*** at ISIT 2026. This workshop aims to bring together researchers from information theory, machine learning (ML), high-dimensional statistics, random matrix theory, and statistical physics, to *develop a unified view of these advances*. Topics include but are not limited to:

- Universality in high-dimensional learning and inference and
- Dynamical mean-field theory and learning dynamics of gradient descent, SGD, and Langevin dynamics
- Gaussian equivalence and random matrix methods
- Approximate message passing (AMP) and state evolution
- Statistical–computational gaps and algorithmic phase transitions
- Applications to signal processing, communications, and related fields

Submission Information

- Deadline for submission: **April 7, 2026** (**FIRM**)
- Notification of acceptance: April 21, 2026
- Final manuscripts: April 28, 2026
- Submission system: EDAS (ISIT 2026 workshop track)
- Paper format: Same as ISIT regular papers (**no more than 5 pages**, with a **6th page for references only**).

More information for authors: https://2026.ieee-isit.org/index.php/information-authors

Travel Grants and Prizes

Subject to available funding and approval by the ISIT Workshop Chairs, the workshop plans to offer **a limited number of travel grants**, primarily to support students, early-career researchers, and participants from adjacent communities who do not regularly attend ISIT. The workshop also plans to present **Best Paper and/or Best Poster Awards** to recognize outstanding contributions.

Contact us: majunjie@lsec.cc.ac.cn

Organizers:

- Rishabh Dudeja (University of Wisconsin-Madison, USA, https://www.columbia.edu/~rd2714/)
- Zhenyu Liao (Huazhong University of Science and Technology, China, https://zhenyu-liao.github.io/)
- Junjie Ma (Chinese Academy of Sciences, China, https://lsec.cc.ac.cn/~mjj/)
- Arian Maleki (Columbia University, USA, https://sites.google.com/site/malekiarian/)