



UNIVERSITÀ
DI TRENTO

Dipartimento di
Fisica

PHD PROGRAM IN SPACE SCIENCE AND TECHNOLOGY - SST

Our Universe in Simulation

April 29, 2026, 11.00 a.m.

Speaker:

Prof. Jia Liu - Institute for the Physics and Mathematics of the Universe, Kavli IPMU

Abstract:

Ongoing and upcoming cosmological surveys—including the Simons Observatory, LiteBIRD, Rubin LSST, Euclid, DESI, PSF, SPHEREx, and the Roman Space Telescope—will deliver observations of unprecedented precision. Joint analyses across these surveys will be essential for uncovering fundamental physics, including the nature of inflation, dark energy, dark matter, neutrino mass, and more. In this talk, I will discuss the opportunities, challenges, and strategies for simulating our universe across multiple wavelengths to realize these goals.

Bio:

Jia Liu (<https://liu479.github.io/>) is a computational and observational cosmologist. Liu is an Associate Professor at Kavli IPMU at the University of Tokyo and the Director of the Center for Data-Driven Discovery (CD3) at Kavli IPMU. Liu leads the design of the Science Ground Segment for the JAXA-led space mission LiteBIRD, the next-generation CMB mission. Liu received her PhD from Columbia University in 2016, was an NSF postdoctoral fellow at Princeton (2016–2019), and a BCCP postdoctoral fellow at UC Berkeley (2019–2021).

Online attendance:

Information on remote participation can be requested by sending an e-mail to dn_sst@unitn.it