

Decoding the Cosmic Acceleration through gigantic galaxy maps

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**Chemistry
Seminar on
*Dark energy and
cosmic acceleration***

**Monday
Feb 24 at 4
pm in 126
Schrenk**

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Abstract: More than one decade has passed since Nobel Prize Physics 2011 was featured for the discovery of the cosmic acceleration in 1998. The fact that dark energy, attributed to explain the cosmic acceleration, exists and is the most dominant energy budget of the current Universe leads to one of the most mysterious and fundamental questions in physics. What is dark energy and why does it become important only now? Given the lack of our solid theoretical prediction, there is a whole bunch of observational campaigns to reveal the nature of dark energy. In this talk, I will overview the Baryon Acoustic Oscillations (BAOs) as an extremely robust probe of dark energy. In particular, I would like to give my personal view on the recent claim of the evidence of dynamical dark energy by the Dark Energy Spectroscopic Instrument (DESI) collaboration. Then I will discuss how we are trying to improve upon the BAO result in the galaxy redshift surveys I am involved in, introducing the Hobby-Eberly Telescope Dark Energy Experiment, Subaru Prime Focus Spectrograph, and the Nancy Grace Roman Space Telescope.

About the speaker: Dr. Shun Saito joined faculty in physics department at Missouri S&T in 2019 after he obtained his Ph.D. in physics at the University of Tokyo in 2010 and completed postdoc positions at University of California at Berkeley, Kavli Institute for Physics and Mathematics of the Universe, and Max-Planck Institute for Astrophysics. Dr. Saito is a theoretical astrophysicist specialized on observational cosmology and galaxy evolution. In particular, his group is heavily involved in spectroscopic galaxy surveys such as the Hobby Eberly Telescope Dark Energy Experiment, the Dark Energy Spectroscopic Instrument, and the Nancy Grace Roman Space Telescope. His research has attracted about \$1.5M of external funding from NSF, NASA, and DOE, and was featured by Campus Faculty Research Award in 2023 and Campus Faculty Excellence Award in 2024.