



千葉大学大学院理学研究院附属

ハドロン宇宙国際研究センター

International Center for Hadron Astrophysics

November ICEHAP Seminar

Date Nov. 12 Tuesday 14:00~16:00

Location ICEHAP Office (Engineering Research Bldg.1 Room609-1)

By Hironao Miyatake (Graduate School of Science Nagoya University)

Title

**『Weak Lensing Cosmology from the Subaru Hyper Suprime-Cam Survey
First Year Data』**

Abstract

The accelerating expansion of the universe is one of the most mysterious phenomena. The cosmic acceleration implies existence of dark energy or breakdown of Einstein's general relativity. Either way, revealing the source of cosmic acceleration can result in a paradigm shift in the field of modern physics. Weak gravitational lensing is small, coherent distortion of distant galaxy images due to gravitational potential, which allows the direct measurement of dark matter spatial distributions. Weak lensing is one of the most powerful cosmological probes because of its capability to measure the nature of cosmic acceleration through the evolution of large-scale structure of the universe. Hyper Suprime-Cam (HSC), a newly developed prime focus camera at Subaru Telescope, started a wide, deep galaxy imaging survey in 2014, which covers 1,400 sq. degree of the sky with the limiting magnitude of $i \sim 26$. The wide-field of view, light-gathering power, and superb image quality of HSC make it possible to measure the small weak lensing distortion with unprecedented precision. In this talk, I will present weak lensing cosmology results from the Subaru Hyper Suprime-Cam Survey first year data, including the overview of the HSC instrument, construction of galaxy shape catalog for weak lensing measurement, and cosmological constraints from weak lensing analysis. I will also present the prospect of HSC survey and upcoming galaxy imaging surveys in 2020s.

Location: Neutrino Astrophysics Department

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