東北大学 宇宙創成物理学国際共同大学院プログラム



**GPPU** Seminar

## 2) "The Milky Way Tomography with Subaru Hyper Suprime-Cam: Global halo structure"

## by Yoshihisa Suzuki (Tohoku University) Time and Date: 15:00-17:00, Nov 29, 2024 Place: Room 745, Science Complex B (H-03) (hybrid)

Registration: "https://us02web.zoom.us/meeting/register/tZ0tf--tqzlpHtcKU8RJPYv2AledACBolai6"

The current benchmark model based on cold dark matter suggests that galaxies have grown through repeated mergers and accretions of smaller galaxies via gravitational interactions. The results from galaxy formation simulations show that the accretion history is imprinted in the stellar halo, the region surrounding a galactic disk. Our galaxy, the Milky Way, has long been the focus of understanding the structure of galaxies based on stars. Currently, the halo structure within 30 kpc from the Galactic center has been well studied using chemo-dynamical information of stars. However, the halo structure beyond 30 kpc has not yet been clarified. Due to its extremely long relaxation timescale of about 1 billion years, it provides valuable clues about the past orbits of accreted galaxies. In this study, we have revealed the halo structure within 100 kpc using photometry of abundant main sequence turn-off stars obtained with Hyper Suprime-Cam mounted on the Subaru Telescope. We have derived density profiles for different lines of sight and have found that the halo structure is anisotropic beyond 30 kpc. In this talk, I will carefully introduce the basic concepts of our study. Then, we will discuss the origin of the anisotropy with special attention to the past orbit of the Large Magellanic Cloud.

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