[박GC-11] Probing Cosmic Near Infrared Background using AKARI Data

Hyun Jong Seo[1], Toshio Matsumoto[2,3], Woong-Seob Jeong[4], Hyung Mok Lee[1], Shuji Matsuura[2], Hideo Matsuhara[2], Shinki Oyabu[5], Jeonghyun Pyo[4], and Takehiko Wada[2]
[1]Seoul National University, [2]ISAS/JAXA, [3]ASIAA(Taiwan), [4]KASI, [5]Nagoya University

The first generation stars in the universe are not observed as discrete objects by using current observational facilities, but their contributions are redshifted to the near infrared wavelength bands at present universe. Therefore, investigation of background radiation at near infrared is important for the study of the first stars. In this study, we present new observations of spatial fluctuations in sky brightness toward the north ecliptic pole using data from AKARI. Among pointed observation program of AKARI, we used two pointing surveys named Monitor field and NEP wide field at three wavelength bands 2.4, 3.2, and 4.1 ㎛. To obtain spatial fluctuations from observed images, first of all, we exclude pixels affected by resolved foreground objects and then obtain diffuse map which consists of diffused radiation only. Because the diffuse map contains not only cosmological components but also various foreground components, in order to detect cosmological components, we estimate the contributions of foreground components separately. The results of this study show that there remains excess spatial fluctuation that cannot be explained by known foreground sources. This work is based on observations with AKARI, a JAXA project with the participation of ESA.

[구GC-12] Excursion model for the spin distribution of dark matter halos

Jieun Ahn[1], Juhan Kim[2], Jihye Shin[3], Sungsoo S. Kim[1,3], and Changbom Park[2]
[1]School of Space Research, Kyung Hee University
[2]School of Physics, Korea Institute for Advanced Study
[3]Department of Astronomy and Space Science, Kyung Hee University

Spin distribution of dark matter halos in a cosmological N-body simulation is well fitted by a log-normal distribution, but the origin of the log-normal like shape is still unknown. To understand the evolution of spin and the origin of spin distribution, we have studied the change of the angular momentum of simulated halos through their merging histories. First, we traced merging histories of the dark matter halos and measured the probability distribution of the angular momentum changes from a series of simulations. We were able to fit the angular momentum changes with the Gaussian distribution in spaces of M, spin, ΔM. Using the simulated merging trees and the distribution of angular momentum changes during the merging events, we can recover the spin distribution of halos over the various mass scales.