

[초GC-01] Sloan Digital Sky Survey: Environmental Effect on Galaxies

Yun-young Choi
Kyung Hee University

Sloan Digital Sky Survey (SDSS)는 2000년 관측자료를 수집한 이후로 현재까지 하늘의 35%에 포함된 9억개 가량의 천체들의 측광관측과 그 중 240만여개의 분광관측을 수행 하였다. 이로서 우리로부터 수백 Mpc이나 떨어진 은하들의 분포까지도 정확히 그 모습을 드러내게 되었고 180만여개에 이르는 은하들의 다양한 물리량들과 거리에 관한 막대한 정보를 얻게 되었다. 그 결과 은하들의 성질들과 주변 환경간의 다양한 관계를 매우 정확히 측정할 수 있게 되었고 이 노력을 통하여 은하의 형성을 이해하는 데 매우 큰 진보와 발전을 가져왔다. 본 강연에서는 이와 관련하여 본연구자가 연구한 그간의 결과들을 소개하고자한다.

[발표취소] The Relationship Between Bright Galaxies and Their Faint Companions in Galaxy Clusters

Hye-Ran Lee^{1,2}, Joon Hyeop Lee^{1,2}, Minjin Kim^{1,2,3}, Seulhee Oh⁴, Chang Hee Ree¹,
 Hyunjin Jeong^{1,2}, Jaemann Kyeong¹, Sang Chul Kim^{1,2}, Jong Chul Lee¹, Jongwan Ko¹,
 Byeong-Gon Park^{1,2}, Yun-Kyeong Sheen⁵

¹*Korea Astronomy and Space Science Institute*, ²*University of Science and Technology*,
³*Carnegie observatories*, ⁴*Yonsei University*, ⁵*University of Concepcion, Chile*

Today, it is widely accepted that dense environments tend to accelerate galaxy evolution. However, according to recent studies, the environments where galaxies evolve most considerably are galaxy groups rather than galaxy clusters. In an isolated group, the central host galaxy and its satellites co-evolve and interact with each other; as a result, they tend to have similar properties. Such conformity between host and satellite galaxies are relatively well known in galaxy groups, but it is hardly studied what happens after such galaxy groups merge into a galaxy cluster. Recently, J. H. Lee et al. (2014) have found that the colors of bright galaxies in WHL J085910.0+294957, a galaxy cluster at $z = 0.3$, show a measurable correlation with the mean colors of faint companions around them, which may be the vestige of infallen groups in the cluster. As a follow-up study, we explore more galaxy clusters, Abell 3659 and Abell 1146 at $z \sim 0.1$, using deep images obtained from the Magellan (Baade) 6.5-m telescope. Cluster members are selected based on the distributions of color, size and concentration along magnitude and spatial distribution. We investigate the dependence of the mean colors of faint companion galaxies on local environments and the properties of adjacent bright galaxies. After comparing the results with those in J. H. Lee et al. (2014), we discuss the origin of the relationships between bright galaxies and their faint companions based on their dependence on cluster properties.