an optimal number of Gaussian components in a quantitative manner. We classify the decomposed H I gas components of NGC 6822 into bulk-narrow, bulk-broad, and non_bulk with respect to their velocity and velocity dispersion. We correlate their gas surface densities with the surface star formation rates derived using both GALEX far-ultraviolet and WISE 22 micron data to examine the impact of gas turbulence caused by stellar feedback on the Kennicutt-Schmidt (K-S) law. The bulk-narrow component that resides within r25 is likely to follow the linear extension of the Kennicutt-Schmidt (K-S) law for molecular hydrogen (H2) at the low gas surface density regime where H I is not saturated.

[구 GC-17] Galaxy Group Assembly Histories and the Missing Satellites Problem: A Case for the NGC 4437 Group

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The overprediction of the number of satellite galaxies in the LCDM paradigm compared to that of the Milky Way (MW) and M31 (the "missing satellites" problem) has been a long-standing issue. Recently, a large host-to-host scatter of satellite populations has been recognized both from an observational perspective with a larger sample and from a theoretical perspective including baryons, and it is crucial to collect diverse and complete samples with a large survey coverage to investigate underlying factors contributing to the diversity. In this study, we discuss the diversity in terms of galaxy assembly history, using satellite populations of both observed systems and simulated systems from IllustrisTNG. In addition to previously studied satellite systems, we identify satellite candidates from 25deg2 of Hyper Suprime-Cam Subaru Strategic Program (HSC-SSP) Wide layer around NGC 4437, a spiral galaxy of about one-fourth of the MW mass, paired with a ~2 magnitude fainter dwarf spiral galaxy NGC 4592. Using the surface brightness fluctuations (SBF) method, we confirm five dwarf galaxies as members of the NGC 4437 group, resulting in a total of seven members. The group consists of two distinct subgroups, the NGC 4437 subgroup and the NGC 4592 subgroup, which resembles the relationship between the MW and M31. The number of satellites is larger than that of other observed and simulated galaxy groups in the same host stellar mass range. However, the discrepancy decreases if compared with galaxy groups with similar magnitude gaps (V12 ~ 2), defined as the V-band magnitude difference between the two brightest galaxies in the group. Using simulated galaxy groups in IllustrisTNG, we find that groups with smaller V12 have richer satellite systems, host more massive dark matter halos, and have assembled more recently. These results show that the host-to-host scatter of satellite populations can be attributed to the diversity in galaxy assembly history and be probed by V12 to some degree and that NGC 4437 group is likely a recently assembled galaxy group with a large halo mass compared to galaxy groups of similar luminosity.

[구 GC-18] Searching for MgII absorbers in and around galaxy clusters

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To study environmental effects on the circumgalactic medium (CGM), we use the samples of redMaPPer galaxy clusters, background quasars and cluster galaxies from the SDSS. With 82,000 quasar spectra, we detect 197 MgII absorbers in and around the clusters. The detection rate per quasar is 2.70 times higher inside the clusters than outside the clusters, indicating that MgII absorbers are relatively abundant in clusters. However, when considering the galaxy number density, the absorber-to-galaxy ratio is rather low inside the clusters. If we assume that MgII absorbers are mainly contributed by the CGM of massive star-forming galaxies, a typical halo size of cluster galaxies is smaller than that of field galaxies by 30 per cent. This finding supports that galaxy haloes can be truncated by interaction with the host cluster.

[구 GC-19] Catching a growing giant: Discovery of a galaxy cluster in formation

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In LCDM universe, large, massive structures, like galaxy clusters, grow through the successive accretion/mergers of smaller structures. Therefore, at high redshift, unlike local, it is expected that there would be plenty of galaxy clusters which are still growing. Here, we report the discovery of a high-redshift (z~1) galaxy cluster which is in its active formation stage. This cluster is well connected to the large scale overdense environment and contains high fraction of star-forming galaxies, providing a good example supporting our previously suggested 'Web-feedin