

Intracluster stars are believed to be gravitationally bound to a galaxy cluster, however, not to individual cluster galaxies. Their presence is observed as diffuse light typically in the central region extended from the brightest cluster galaxy. The diffuse light, often referred to as intracluster light (ICL), is difficult to quantify in distant high-redshift galaxy clusters because of the significant surface brightness dimming although ICL observations in high-redshift clusters provide powerful constraints on the origin of intracluster stars. In this poster, we present ICL study of the distant galaxy cluster SPT2106-5844 at $z=1.132$ with Hubble Space Telescope IR imaging data. With careful control of systematics, we successfully quantify the total amount of the ICL, measure the color profile, and obtain its two-dimensional distribution. Our measurement of the high abundance of the intracluster stars in this young cluster favors the ICL formation scenario, wherein production of intracluster stars are predominantly associated with the BCG formation.

[포 GC-15] The evolution of merger fraction for galaxies in NEP-Wide field

Eunbin Kim¹, Woong-Seob Jeong¹, Ho Seong Hwang¹, Seong Jin Kim², Tomotsugu Goto², NEP Team

¹*Korea Astronomy and Space Science Institute, Korea*

²*National Tsing Hua University, Taiwan*

We present the results of the merger fraction evolution for galaxies in NEP-Wide field depending on star formation mode and redshift. We select the galaxies which have AKARI 9 μm detections as a sample for large number of galaxies. We use multi-wavelength data from GALEX to Herschel, and Subaru HSC i-band images for analysis. We classify the merger galaxies with using Gini and M20, which are non-parametric calculated by statmorph code. We obtain the total infrared luminosity from the SED modeling with using one band, AKARI 9 μm . We find that the merger fractions of galaxies in all different star formation mode increase as the redshift increases. However, with fixed mass range of $10.5 < \log(M_*) < 11.5$, the merger fractions of starbursts significantly increase as the redshift increases compared to those of main sequence and quiescent galaxies. We discuss the implications of these results in this poster.

[포 GC-16] Supermassive Black Hole Masses of ~500k QSOs from the Sloan Digital Sky Survey

Yoon Chan Taak^{1,2}, Myungshin Im^{1,2}

¹*Center for the Exploration of the Origin of the Universe, ²Astronomy Program, Department of Physics and Astronomy, Seoul National University*

Measurements of supermassive black hole (SMBH) masses are crucial in studying the co-evolution of SMBHs and their host galaxies. Although reverberation mapping is the most accurate method known to date, this requires spectroscopic monitoring over long periods. Thus, the current sample barely reaches three digits. The virial method, on the other hand, uses emission-line and continuum properties from a single spectrum to estimate the SMBH mass; hence the name single-epoch method.

The Sloan Digital Sky Survey (SDSS) has observed spectra of almost all quasi-stellar objects (QSOs) discovered so far. Building on previous studies, using the single-epoch method, we estimate the SMBH masses of more than 500,000 QSOs from the SDSS DR14 Quasar Catalog. This increases the mass-estimated SMBH sample almost by a factor of two, and especially more for the low-mass regime, which was the main target of SDSS-IV (eBOSS).

[포 GC-17] The Formation of Compact Elliptical Galaxies: Nature or Nurture?

Suk Kim¹, Hyunjin Jeong², Soo-Chang Rey¹, Youngdae Lee¹, Seok-Joo Joo¹, Hak-Sub Kim²

¹*Department of Astronomy and Space Science, Chungnam National University (CNU), ²Korea Astronomy and Space Science Institute (KASI)*

We present an analysis of the stellar population of compact elliptical galaxies (cEs) in various environments. Following conventional selection criteria of cEs, we created a list of cE candidates in the redshift range of $z < 0.05$ using SDSS DR12 catalog. We finally selected cEs with low-luminosity ($M_g > 18.7$ mag), small effective radius ($R_e < 600$ pc), and high velocity dispersion (> 60 kms⁻¹). We divide our cE sample into those inside and outside of the one virial radius of the bright ($M_r < -21$ mag) nearby host galaxy which is then defined as cEs with (cEw) and without (cEw/o) host galaxy, respectively. We investigated the stellar population properties of cEs based on the H β , Mgb, Fe 5270, and Fe 5335 line strengths from the OSSY catalog. We found that cEw has a systematically higher metallicity than cEw/o. In the velocity dispersion-Mgb distribution, while cEw/o follows the relation of early-type galaxies, cEw are found to have a systematically higher metallicity than cEw/o at a given velocity dispersion. The different