

This flow of cool gas may fuel the supermassive black hole embedded in the brightest cluster galaxy, leading to the activation of the central AGN. Indeed, we find a parsec-scale bipolar jet feature in the center of A1644-S in our recent KaVA observation, which implies that its central AGN is likely to have been (re)powered quite recently. In order to verify the hypothesis that cooling gas flow in the cluster core can (re)activate the central AGN, we probe the cold gas properties of the central 1 kpc region of A1644-S using the archival VLA and ALMA data. Based on the spatially resolved morphology and kinematics of HI and CO gas, we challenge to identify inflow/outflow gas streams and clumps. We study the role of circumnuclear cool gas in fueling the centrally located cluster AGN in the cool-core environment. We also discuss how the feedback due to the (re)powered AGN affects the surrounding medium.

[ㄱ GC-05] Bar Formation and Enhancement of Star Formation in Disk Galaxies in Interacting Clusters

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A merger or interaction between galaxy clusters is one of the most violent events in the universe. Thus, an interacting cluster is an optimum laboratory to understand how galaxy properties are influenced by a drastic change of the large-scale environment. Here, we present the observational evidence that bars in disk galaxies can form by cluster-cluster interaction and the bar formation is associated with star-formation enhancement. We investigated 105 galaxy clusters at $0.015 < z < 0.060$ that are detected from the Sloan Digital Sky Survey data, and identified 16 interacting clusters. We find that the barred disk galaxy fraction is about 1.5 times higher in interacting clusters than in clusters with no obvious signs of interaction (42% versus 27%). For disk galaxies with $10.0 < \log M_{\text{star}} < 10.4$, the bar formation is accompanied by enhancement of star formation, so that the fraction of star-forming galaxies is about 1.2 times higher in interacting clusters than in non-interacting clusters. Our results indicate that cluster-cluster interaction is an important mechanism that can induce bars and star formation in disk galaxies.

[ㄱ GC-06] YZiCS: On the Mass Segregation

of Galaxies in Clusters

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Mass segregation, a tendency of more massive galaxies being distributed closer to the cluster center, is naturally expected from dynamical friction, but its presence is still controversial. Using deep optical observations of 14 Abell clusters (KYDISC) and a set of hydrodynamic simulations (YZiCS), we find in some cases a hint of mass segregation inside the virial radius. Segregation is visible more clearly when the massive galaxy fraction is used instead of mean stellar mass. The trend is more significant in the simulations than in the observations. To find out the mechanisms working on mass segregation, we look into the evolution of individual clusters simulated. We find that the degree of mass segregation is different for different clusters: the trend is visible only for low-mass clusters. We compare the masses of galaxies and their dark haloes at the time of infall and at the present epoch to quantify the amount of tidal stripping. We then conclude that satellites that get accreted at earlier epochs, or galaxies in more massive clusters go through more tidal stripping. These effects in combination result in a correlation between the host halo mass and the degree of stellar mass segregation. This is a work submitted to The Astrophysical Journal (under review).

[ㄱ GC-07] Surface Brightness Fluctuation of Normal and Helium-enhanced Simple Stellar Populations

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The surface brightness fluctuation (SBF) is one of the most crucial distance indicators for unresolved stellar systems at large distances. Here, we present an evolutionary population synthesis model of the surface brightness fluctuation (SBF) for normal and He-enriched simple stellar populations (SSPs). Our SBF model for the normal-He population agrees well with other existing models, but the He-rich populations bring about a substantial change in the SBF of SSPs. Our normal-He SBF model well reproduces the observed SBFs of the Milky Way globular clusters, but the SBFs of early-type galaxies in the Virgo Cluster are placed between the normal-He and He-rich SBF models. We show that the SBF-based distance estimation would be affected by up to a 10-20% level in I - and near-IR bands at given colors. Finally, we propose that when combined with independent metallicity and age indicators such as Mg2 and H β , the UV and optical SBFs can readily detect underlying He-rich populations in unresolved stellar systems. Given the degree of the SBF variation resulting from the population difference, we suggest that the distance measurement before the proper in-depth analysis of stellar populations should be done with great caution.

[7 GC-08] H0 Determination Using TRGB Distances to the Virgo Infalling Galaxies

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An independent determination of H0 is crucial given the growing tension of the Hubble constant (H0). In this work, we present a new determination of H0 using velocities and Tip of the Red Giant Branch (TRGB) distances to 33 galaxies in front of the Virgo Cluster. We model the infall pattern of the local Hubble flow modified by the Virgo mass, as a function of the H0, the radius of the zero-velocity surface R0, and the intrinsic velocity scatter. Fitting velocities and TRGB distances of 33 galaxies to the model, we obtain H0 = 65.6 +/- 3.4 (stat) +/- 1.0 (sys) km/s/Mpc and R0 = 6.96 +/- 0.35 Mpc. Our local H0 is consistent with the global H0 determined from cosmic microwave background radiation, showing no tension.

[7 GC-09] A Survey of Globular Cluster Systems of Massive Compact Elliptical Galaxies in the Local Universe

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Massive Compact Elliptical Galaxies (MCEGs) found in the local universe are as massive as normal galaxies but extremely compact ($M_* > 10^{11} M_{\text{sun}}$, $R_{\text{eff}} < 1.5$ kpc). They are considered to be the relics of red nugget galaxies found at high redshift. They are not likely to have undergone many mergers, keeping their original mass and size. Moreover, it is expected that they host a dominant population of red (metal-rich) globular clusters rather than blue (metal-poor) ones. Indeed, Beasley et al. (2018) found that the color distribution of the cluster system of NGC 1277 is unimodal, showing only a red population. However, NGC 1277 is the only case whose cluster system was studied among MCEGs. In this study, we investigate globular cluster systems of 14 nearby MCEGs with a homogeneous data set of HST/WFC3 F814W/F160W archive images. We detect tens to hundreds of globular clusters in each galaxy and examine their color distributions. Surprisingly, the fractions of red globular clusters are similar to those of normal galaxies, and are much lower than that of NGC 1277. We additionally obtain Gemini/GMOS-N g'r'i' images of PGC 70520, one of the 14 nearby MCEGs, to detect more globular clusters from deeper and wider images. We will discuss the results from the Gemini data combined with the results from the HST data in relation with the formation of MCEGs.

[7 GC-10] A GMOS/IFU Spectroscopic Mapping of Jellyfish Galaxies in Extremely Massive Galaxy Clusters

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Jellyfish galaxies show spectacular features such as star-forming knots and tails due to strong ram-pressure stripping in galaxy clusters. Thus, jellyfish galaxies are very useful targets to investigate the effects of ram-pressure stripping on the star formation activity in galaxies. Integral field spectroscopy (IFS) studies are the best way to study star formation in jellyfish galaxies, but they have been limited to those in low-mass galaxy clusters until now. In this study, we present a Gemini GMOS/IFU study of three jellyfish galaxies in very massive clusters ($M_{200} > 10^{15} M_{\odot}$). The host clusters (Abell 2744, MACSJ0916.1-0023, and MACSJ1752.0+4440) are X-ray luminous and dynamically unstable, suggesting that