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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 Hβ, 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.

[구 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.

[구 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_{sun}, R_{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.

[구 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 Mo). The host clusters (Abell 2744, MACSJ0916.1-0023, and MACSJ1752.0+4440) are X-ray luminous and dynamically unstable, suggesting that