Previous studies of GCSs in Coma mainly utilized data obtained using Hubble Space Telescope (HST) with high spatial resolution. However, most of the data were based on narrow-field pointing observations. In this study we present the widest survey of GCSs in the Coma cluster using the archival Subaru/Hyper Suprime-Cam (HSC) *g* and *r* images, supplemented with the archival HST images.

The Coma GCSs are largely extended in E-W and SW direction, along the general direction of Coma-Abell 1367 filament. This global structure of the GCSs is consistent with the spatial distribution of the intracluster light (ICL).

ICGC spatial distribution is largely extended to almost ~50% of the virial radius. Most of these ICGCs are blue and metal-poor, which supports the scenario that ICGCs are mainly originated from dwarf galaxies and some proportion from brighter galaxies. Implications of the results will be discussed.

[구 GC-09] Galaxy identification with the 6D friends-of-friend algorithm for high resolution simulations of galaxy formation

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Galaxy/Halo finding based on the friends-of-friend (FoF) algorithm has been widely adopted for its simplicity and expandability to the phase-space. However, cosmological simulations have been progressively bigger in size and more accurate in resolutions, resulting in that galaxy/halo finding gets computationally expensive more and more. In fact, we confirm this issue through our exercise of applying the 6-dimensional (6D) FoF galaxy finder code, VELOCIraptor (Elahi et al.2019) on the NewHorizon simulation (Dubois et al. 2021), in which typical galaxies with about 1e11 M_{sun} (10^7 particles) are identified with very low speed (longer than a day). We have applied several improvements to the original VELOCIraptor code that solve the low-performance problem of galaxy finding on a simulation with high resolutions. Our modifications find the exact same FoF group and can be readily applied to any tree-based FoF code, achieving a 2700 (12) times speedup in the 3D (6D) FoF search compared to the original execution. We applied the updated version of VELOCIraptor on the entire NewHorizon simulation (834 snapshots) and identified its galaxies and halos. We present several quick comparisons of galaxy properties with those with GALAXYMaker data.

[구 GC-10] Probing Intracluster Light of 10 Galaxy Clustersat z >1 with Deep HST WFC3/IR Imaging Data

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Intraclusterlight (ICL) is diffuse light from stars that are bound to the clusterpotential, not to individual member galaxies. Understanding the formationmechanism of ICL provides critical information on the assembly and evolution ofthe galaxy cluster. Although there exist several competing models, the dominantproduction mechanism is still in dispute. The ICL measurement between z=1 and 2strongly constrains the formation scenario of the ICL because the epoch is whenthe first mature clusters begin to appear. However, the number of high-redshiftICL studies is small mainly because of observational challenges. In this study,based on deep HST WFC3/IR data, we measured ICL of 10 galaxy clusters atredshift beyond unity, which nearly doubles the sample size in this redshiftregime. With careful handling of systematics including object masking, skyestimation, flatfielding, dwarf galaxy contamination, etc., we quantified thetotal amount of ICL, measured the color profile, and examined the transitionbetween BCG and ICL.

[구 GC-11] A tale of two cities: Two galaxy clusters at cosmic noon

Seong-Kook Lee[1], Myungshin Im[1], Bomi Park[1], Minhee Hyun[2], Insu Paek[1] et al.
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At high redshift, unlike local, many galaxy clusters are still at their stages of building. Likewise, they show a wide range in their star formation properties: some are still forming stars actively unlike their local counterparts, while others have very low level of star formation already. Here we report the two high-redshift (z~1) galaxy clusters, confirmed via Magellan MOS observation. While existing at similar redshift and having similar mass, these two clusters show very

different quiescent galaxy fraction. The origin of this difference is investigated, and will be presented in the presentation.

[구 GC-12] Measuring the Environmental Quenching Timescales of Galaxy Clusters in the COSMOS field

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Using 74 galaxy clusters in the COSMOS field at 0.1 < z < 1.2, we calculate the environmental quenching timescale, defined as the time required after a galaxy is accreted by a cluster for it to stop star formation. Cluster candidates are selected as the overdensities with the surface number density exceeding the 4-σ. With the "delayed-then-rapid" quenching model, we can successfully reproduce the separation of the galaxies(star-forming, intermediate, and quiescent) on the NUV-R - R-J color plane comparing with the BC03 evolutionary track. With the mass growth rate of halo mass and the ratio of categorized galaxies, we can constratin the environmental quenching timescale ~ 2Gyr at z ~ 1. We will present the result as a function of redshift and compare them with dynamical timescale and gas depletion timescale.

[구 GC-13] Mapping the Star Formation Activity of Five Jellyfish Galaxies in Massive Galaxy Clusters with GMOS/IFU

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Ram-pressure stripping (RPS) is known as the main driver of quenching the star formation (SF) activity in cluster galaxies. However, galaxies undergoing RPS in galaxy clusters often show blue star-forming knots in their disturbed disks and tails. The existence of these “jellyfish galaxies” implies that RPS can temporarily boost the SF activity of cluster galaxies. Thus, jellyfish galaxies are very unique and interesting targets to study the influence of RPS on their SF activity, in particular with integral field spectroscopy (IFS). While there have been many IFS studies of jellyfish galaxies in low-mass clusters (e.g., the GASP survey), IFS studies of those in massive clusters have been lacking. We present an IFS study of five jellyfish galaxies in massive clusters at intermediate redshifts using the Gemini GMOS/IFU. Their star formation rates (SFRs) are estimated to be up to 15 Mo/yr in the tails and 50 Mo/yr in the disks. These SFRs are by a factor of 10 higher than those of star-forming galaxies on the main sequence in the M∗-SFR relation at similar redshifts. Our results suggest that the SF activity of jellyfish galaxies tends to be more enhanced in massive clusters than in low-mass clusters. This implies that strong RPS in massive clusters can trigger strong starbursts.

[구 GC-14] The Kaiser Rocket Effect in Cosmology

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The peculiar motion of the observer, if not (or only imperfectly) accounted for, is bound to induce a well-defined clustering signal in the distribution of galaxies. This spurious signal is related to the Kaiser rocket effect. We examined the amplitude of this effect and discuss possible implications for analysis and interpretation of future cosmological surveys. We found that it can in principle bias very significantly the inference of cosmological parameters, especially for primordial non-Gaussianity.

[구 GC-15] The DESI peculiar velocity survey

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One of the most promising secondary target programmes of DESI is the peculiar velocity survey, which will notably improve the measurements of cosmology parameters in the low-redshift universe. We use the Fundamental plane and Tully-Fisher relation as distance indicators to calculate peculiar velocities for DESI. This required additional observations to obtain spectra with sufficient quality to measure the velocity dispersions in the case of the fundamental plane, and to get off-centre redshift measurements to reconstruct the rotation curve in the case of the Tully-Fisher relation. However, we devised a clever strategy for suitable target galaxies, that takes advantage of the spare fibres of DESI to gather the required additional data without causing conflicts with the main survey programmes. We provide a brief overview of the preliminary results and success rate based on the first measurements obtained during survey validation as well as an outlook on expected improvements in the $f\sigma_8$ measurements once the survey has been completed.

[구 GC-16] Cosmology with peculiar velocity