

sets helps to trace the major galaxy population contributing to the CIB. Here, we introduce the extragalactic survey with the NISS and report the current status of the multi-wavelength extragalactic studies in the ADF-S.

[구 GC-03] A New Extensive Census of Warped Disk Galaxies in Nearby Universe

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The galactic warp is almost ubiquitous among disk galaxies and suspected to be an imprint of recent interactions with other galaxies. The detailed evolutionary course, however, is still uncertain due to the lack of observational evidence. To address this issue, we construct a new extensive catalog of 412 conspicuously warped disks at $z = 0.01 \sim 0.05$, based on SDSS DR7. We classify the warp morphology through a visual inspection from the Zooniverse Project and our new automated scheme for the warp measurement. We find an interesting color difference between S- and U-shaped warps. The U-type warp galaxies exhibits considerable color offset towards blue compared to both the S-type warps and the control sample of un-warped galaxies. The effect is even more pronounced for galaxies (a) with the greater warp amplitude and (b) with lower luminosity. This is the first piece of observational evidence that the S- and U-shaped warps are on different evolutionary phases in terms of not only dynamics but stellar populations as well. We discuss the implications in the context of the warp evolution theory.

[구 GC-04] Towards the Understanding of the Growth and Evolution of Supermassive Black Holes at Galaxy Centers

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As computational resolution of modern cosmological simulations reach ever so close to resolve individual star-forming clumps in a galaxy, a need for "resolution-appropriate" physics for a galaxy-scale simulation has never been greater. To this end, we introduce a self-consistent numerical framework that includes explicit

treatments of feedback from star-forming molecular clouds and massive black holes. We perform a state-of-the-art cosmological simulation of a quasar-host galaxy at $z \sim 7.5$, and demonstrate that previously undiscussed types of interplay between galactic components may hold important clues about the growth and impact of quasar-host galaxies.

[구 GC-05] Horizon-AGN virtual observatory: SED-fitting performance and forecasts for future imaging surveys

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We use the synthetic light-cone from the cosmological hydrodynamical simulation Horizon-AGN to produce a mock photometric galaxy catalogue on the redshift range $0 < z < 4$ using the 30 COSMOS, LSST, DES and Euclid filter passbands. The virtual photometry consistently includes complex star formation histories and metallicities, dust, IGM attenuation on each sightline and realistic flux errors. These latter are calibrated to mimic COSMOS2015, a LSST-like and an Euclid-like surveys. Redshifts and physical properties are then computed through SED-fitting with the same configuration as those routinely used for observed datasets, and compared with the properties directly extracted from the simulation. From this comparison we quantify uncertainties and systematics related to the depth of the survey, the choice of photometric filters and simple assumptions at the SED-fitting stage on star-formation histories, metallicity enrichment and dust attenuation. Using a dust-free virtual photometry, the specific role of dust in driving part of the systematics is isolated. The impact of IMF, stellar evolution prescriptions, and flux errors is discussed. The expected performance of future imaging surveys at completion are also investigated.

[구 GC-06] The BAT AGN Spectroscopic Survey: concept, status, and future perspectives

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We present the BAT AGN Spectroscopic Survey (BASS) which is an optical/NIR spectroscopic survey of the least biased sample of hard X-ray selected local AGN. For more than a thousand AGN that identified through Swift-BAT hard X-ray all-sky survey, we are conducting dedicated spectroscopic observing runs using world-class telescopes such as ESO-VLT, Magellan, and Palomar. The goal of the project is measuring black hole mass, investigating supermassive blackhole growth and its structure, and providing a baseline for future X-ray missions that will perform deeper observations of more distant AGN. In this presentation, we briefly introduce the concept of the project, past and the current status, and future work.

[7 GC-07] The impact of ram pressure on the multi-phase ism probed by the TIGRESS simulation

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Ram pressure stripping by intracluster medium (ICM) can play a crucial role in galaxy evolution in the high-density environment as seen by many examples of cluster galaxies. Although much progress has been made by direct numerical simulations of galaxies (or a galaxy) as a whole in a cluster environment, the interstellar medium (ISM) in galactic disks is not well resolved to understand responses of the ISM in details. In order to overcome this, we utilize the TIGRESS simulation suite that focuses on a local region of galactic disks and resolves key physical processes in the ISM with uniformly high resolution. In this talk, we present the results from the solar neighborhood TIGRESS model facing the ICM winds with a range of ram pressures. When ram pressure is weaker than and comparable to the ISM weight, the ICM winds simply reshape the ISM to the one-sided disk, but star formation rates remain unchanged. Although there exist low-density channels in the multiphase ISM that allow the ICM winds to penetrate through, the ISM turbulence quickly closes the channels and prevents efficient

stripping. When ram pressure is stronger than the ISM weight, a significant amount of the ISM can be stripped away rapidly, and star formation is quickly quenched. While the low-density gas is stripped rapidly, star formation still occurs in the extraplanar dense ISM (1-2kpc away from the stellar disk). Finally, we quantify the momentum transfer from the ICM to the ISM using the mass-and momentum-weighted velocity distribution functions of each gas phase.

[7 GC-08] Abell 2261: a fossil galaxy cluster in a transition phase

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Fossil galaxy cluster has a dominant central elliptical galaxy ($\Delta M_{12} > 2$ in $0.5R_{\text{vir}}$) embedded in highly relaxed X-ray halo, which indicates dynamically stable and passively evolved system. These features are expected as a final stage of the cluster evolution in the hierarchical structure formation paradigm. It is known that Abell 2261 (A2261 hereafter) is classified as a fossil cluster, but has unusual features such as a high central X-ray entropy (i.e., non-cool core system), which is not expected in normal fossil clusters. We perform a kinematic study with a spectroscopic data of 589 galaxies in the A2261 field. We define cluster member galaxies using the caustic method and discover a new second bright galaxy at $\sim 1.5 R_{\text{vir}}$ (nearly the splash-back region). It implies the current fossil state of the cluster can break in the near future. In addition, with three independent substructure finding methods, we find that A2261 has many substructures within 3 Mpc from the center of the cluster. These findings support that A2261 is not in a dynamically stable state. We argue that A2261 is in a transitional phase of dynamical evolution of the galaxy cluster and maybe previously defined fossil cluster does not mean the final stage of the evolution of galaxy clusters.

[7 GC-09] Constraining the ICL formation mechanism using fossil clusters at $z \sim 0.47$

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