distribution with cometary tails and a megaparsec-sized radio relic stretching in the northeastern direction from the core of the northern cluster. Many observations have concluded that this cluster merger has a large impact parameter, but there has been no numerical analysis on the structure of Abell 115.

In this study, we simulate Abell 115 with Gadget2 N-body/SPH code to reproduce the X-ray and weak lensing features of Abell 115. We find a new plausible merger scenario of Abell 115, wherein the northern cluster is currently in an outgoing phase. The predicted X-ray emission has a similar morphology to the observed tail of the northern cluster. However, in order to reproduce the observed line-of-sight velocity and projected distance while maintaining the two systems gravitationally bound, the system should possess a large projection angle, which makes the shock look considerably more diffused than the observed radio relic.

[포GC-15] Determining the star formation rate of type 2 AGNs with multi-wavelength SED from UV to radio

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Outflows are common among local AGNs. Woo et al. (2017) suggested that AGN feedback through outflows is delayed by a dynamical time scale before the suppression of SFR is observationally detected. However, these SFR have large uncertainties because they were estimated by Artificial Neural Network (ANN) method (Ellison et al. 2016).

We measured the SFR of 21 far-IR matched sources ($z < 0.1$) with total IR luminosity from multi-wavelength SED fitting from UV to radio. 15 out of 21 sources were observed with JCMT SCUBA-2 450 and 850um and 4 and 2 sources were matched with archival data of JCMT SCUBA-2 and Herschel SPIRE, respectively. We compared the true SFR by SED fitting with ANN-based one. In addition, we confirmed that sub-mm data are important to determine the SFR with total IR luminosity from SED fitting. Finally, we discuss the significance of true SFR and further the AGN-SF link.

[포GC-16] Subaru Weak-lensing Analysis of the Merging Cluster ZwCL 1447.2+2619 at z=0.37

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ZwCL 1447.2+2619 is a merging galaxy cluster at z=0.37 with clear substructures in X-ray emission and galaxy distribution. In addition, the system possesses distinct radio relics. In order to constrain the merger scenario, it is necessary to measure both the distribution and mass of the cluster dark matter. We perform weak lensing analysis of ZwCL 1447.2+2619 using Subaru imaging data. We detect clear lensing signal from the cluster after carefully addressing instrumental systematics. In this poster, we present our preliminary results on our mass reconstruction and discuss the comparison with X-ray and radio results.

[포GC-17] Preprocessing of dark halos in hydrodynamic cluster zoom-in simulations

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To understand the assembly of the galaxy population in clusters today, it is important to first understand the impact of previous environments prior to cluster infall, namely preprocessing. We use 15 cluster samples from hydrodynamic zoom-in simulation YZiCS to determine the significance of preprocessing focusing primarily on the tidal mass loss of dark matter halos. We find ~48% of the cluster member halos were once satellites of another host. The preprocessed fraction is not a clear function of cluster mass. Instead, we find it is related to each individual cluster's recent mass growth history. We find that the total mass loss is a clear function of time spent in a host. However, two factors can considerably increase the mass loss rate. First, if the satellite mass is approaching the mass of its host. Second, when the halo suffers tidal mass loss at a higher redshift. The preprocessing provides an opportunity for halos to experience tidal mass loss for a more extended period of time than would be possible if they simply fell directly into the cluster, and at earlier epochs when hosts were more destructive to their satellites.

[포GC-18] Effects of galaxy-galaxy encounters on galactic spin and central mass distribution

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We use smoothed particle hydrodynamics (SPH) models to study the evolution of galactic spin and the distribution of gas and young stars in the inner region of the galaxies through galaxy encounters. Specifically, we perform numerical simulations of interactions of a late- or an early-type galaxy with either a late- or an early-type galaxy with and without a gas halo at the closest approach distances of 25 and 50 kpc. We find that an early-type galaxy encountering a late-type galaxy have a higher galactic spin and more gas and young stars in the central region of the galaxy after the collision. We are analyzing the role of a gas halo on the changes of galactic spin and central mass distribution during various galaxy-galaxy encounters.

[포GC-19] The impact of ram pressure on the multi-phase ISM probed by the TIGRESS simulation

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Galaxies in the cluster environment interact with the intracluster medium (ICM), losing the interstellar medium (ISM) and alternating their evolution. Observational evidences of the extraplanar ISM stripped by the ICM's ram pressure are prevalent in HI imaging studies of cluster galaxies. However, current theoretical understanding of the ram pressure stripping (or ICM-ISM interaction in general) is still limited mainly due to the lack of numerical resolution at ISM scales in large-scale simulations. Especially, self-consistent modeling of the turbulent, multiphase ISM is critical to understand star formation in galaxies interacting with the ICM. To achieve this goal, we utilize the TIGRESS simulation suite, simulating a local patch of galactic disks with high resolution to resolve key physical processes in the ISM, including cooling/heating, self-gravity, MHD, star formation, and supernova feedback. We then expose the ISM disk to ICM flows and investigate the evolution of star formation rate and the properties of the ISM. By exploring ICM parameter space, we discuss an implication of the simple ram pressure stripping condition (so called the Gunn-Gott condition) to the realistic ISM.

우주론 / 암흑물질,암흑에너지

[포GC-20] Testing Gravity with Cosmic Shear Data from the Deep Lens Survey

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From the gaussian, near scale-invariant density perturbations observed in the CMB to the late time clustering of galaxies, CDM provides a minimal theoretical explanation for a variety of cosmological data. However accepting this explanation, requires that we include within our cosmic ontology a vacuum energy that is ~122 orders of magnitude lower than QM predictions, or alternatively a new scalar field (dark energy) that has negative pressure.

Alternatively, modifications to Einstein's General Relativity have been proposed as a model for cosmic acceleration. Recently there have been many works attempting to test for modified gravity using the large scale clustering of galaxies, ISW, cluster abundance, RSD, 21cm observations, and weak lensing.

In this work, we compare various modified gravity models using cosmic shear data from the Deep Lens Survey as well as data from CMB, SNe Ia, and BAO. We use the Bayesian Evidence to quantify the comparison robustly, which naturally penalizes complex models with weak data support. In this poster we present our methodology and preliminary constraints on f(R) gravity.

[포GC-21] The Dependence of Type Ia Supernova Luminosities on the Global and Local Properties of Host Galaxies in the YONSEI Supernova Catalog

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Trends of Type Ia supernova (SN Ia) luminosities with the properties of host galaxies are important to study the underlying physics for an SN progenitor system and explosion mechanism. In the YONSEI SN catalog, we have a sample of ~600 SN and host data in the wider redshift range, and two independent light-curve models, SALT2 and MLCS2k2. From this catalog, here we present that SNe Ia in low-mass, globally and locally star-forming environments are fainter than those in high-mass, globally and locally passive