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To investigate the impact of the high-redshift quasars on cosmic reionization, the faint end slope of the quasars luminosity function has to be determined precisely. More quasars with low luminosity are needed to constrain the contribution to reionization in the early universe. However, finding these quasars has been regarded as tough process owing to the improper shallow depth of imaging data. In recent days, the release data of Subaru Hyper Suprime-Cam (HSC) Strategic Program survey which provide the deep images reaching ~ 25 mag facilitates searching the faint quasars candidates. To find faint quasar candidates in ELAIS-N1 field, along with the HSC data, two near-infrared (NIR) data sets also be used : The Infrared Medium-deep Survey (IMS) and The UKIRT Infrared Deep Sky Survey (UKIDSS) – Deep Extragalactic Survey (DXS). Quasar candidates selected from the multi-band color cut were observed by the SED camera for QUasars in EArly uNiverse (SQUEAN) instrument. To trace the redshifted Lyman break efficiently, appropriate medium bands comparable to targeted redshift range are chosen. The most reliable quasar candidates are finally determined through SED fitting. Using this less luminous quasars candidates, we can speculate the relation between the quasar growth and the host galaxy unbiasedly and estimate the contribution to the cosmic reionization.

[포GC-12] Specific star formation rate of the MIR-selected galaxies in AKARI NEP-Wide

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We investigate the SFR-$M_\star$ relation of the infrared luminous galaxies selected in either $11\,\mu m$ and $15\,\mu m$ from the $5.6\,\deg^2$ of the AKARI NEP-Wide field. From the constructed multi-wavelength catalog spanning $0.3\,\mu m$ to $24\,\mu m$, we select 3,408 S11 > $50\,\mu Jy$ galaxies and 1,896 L15 > $20\,\mu Jy$ galaxies which corresponds to L_{IR} ~ $10^{11}\,L_\odot$ at z ~ 0.5 and 0.7 respectively. Photometric redshifts of the selected galaxies were derived using LePHARE and Coleman Extended templates. ~98% S11 selected galaxies are galaxies with $\langle z \rangle$(median redshift) ~ 0.4, and ~96% L15 selected galaxies are galaxies with $\langle z \rangle$ ~ 0.6. Star formation rates and stellar mass of these galaxies were calculated using MAGPHYS which derives physical parameters with SED fitting. In the SFR-$M_\star$ diagram, $11\,\mu m/15\,\mu m$ selected galaxies are located in the main sequence of star-forming galaxies at z ~ 1.

[포GC-13] Photometric Properties and Spatial Distribution of RSGs of Nearby Galaxy System: Leo Triplet

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We present the near infrared JHK photometric properties and the spatial distribution of red supergiants(RSGs) of NGC 3623, NGC 3627 and NGC 3628 in the Leo Triplet system using the data obtained with 3.8m UKIRT(United Kingdom Infra-Red Telescope) at Hawaii. We checked interaction between the three galaxies by making a spatial density map of RSGs. From (J-K,K)0 Color-Magnitude Diagram which include resolved stars in three galaxy and control field with PARSEC isochrone, we figured out the RSG candidates of the Leo triplet are at 0.9<(J-K)0<1.2, mK<17.5 and separated them from background and foreground sources. Using gaussian kernel density estimation, we drew spatial density map of RSGs in the Leo triplet with an assumption that all RSGs are an identical population. The density map shows extended features of NGC 3628 to NGC 3627 along the declination direction. The asymmetries between NGC 3627 and NGC 3628 might be evidence for that the distribution of actual star components(RSGs) follows the neutral hydrogen distribution and also for interaction between two galaxies. And the extended features along the right ascension direction might be a supporting evidence for the existence of a TDG(Tidal Dwarf Galaxy). In case of NGC 3623, we could not see any sign of interaction in density map.

[포GC-14] Hydrodynamics Simulation of the Off-Axis Cluster Merger Abell 115

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Abell 115 is a renowned cluster merger at z=0.197. It exhibits an asymmetric X-ray

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