

## [구GC-19] Mid-Infrared Luminosity Function of Local Galaxies in the North Ecliptic Pole Region

김성진, 이형목, et al.  
*Seoul National University,*

We present observational estimation of the infrared (IR) luminosity function (LF) of local ( $z < 0.3$ ) star-forming (SF) galaxies derived from the AKARI NEP-Wide samples. We made an analysis of the NEP-Wide data with optical spectroscopic information allowing an accurate determination of luminosity function. Spectroscopic redshifts for about 1650 objects were obtained with MMT/Hectospec and WIYN/Hydra, and the median redshifts is about 0.22. To measure the contribution of SF galaxies to the luminosity function, we excluded AGN sample by comparing their SEDs with various model template. Spectroscopic redshifts and the AKARI's continuous filter coverage in the mid-IR (MIR) wavelength (2 ~ 25 micron) enable us to avoid large uncertainties from the mid-IR SED of galaxies and corresponding k-corrections.

The 8-micron luminosity function shows a good agreement with the previous works in the bright-end, whereas it seems not easy to constrain the faint-end slope. The comparison with the results of the NEP-Deep data (Goto et al. 2010) suggests the luminosity evolution to the higher redshifts, which is consistent with the down-sizing evolutionary pattern of galaxies.

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## [구GC-20] High redshift clusters in ELAIS N1 fields

Minhee Hyun, Myungshin Im, Jae-Woo Kim  
*CEO/Dept. of Physics & Astronomy, Seoul National University*

Galaxy clusters, the largest gravitationally bound systems, are an important means to place constraints on cosmological models and study the evolution and formation of galaxies and their large scale distribution. We report results from our study of galaxy clusters in the European Large Area ISO Survey North1(ELAIS-N1) field, covering a sky area of  $8.75 \text{ deg}^2$ . We combine multi-wavelength data from the UKIRT Infrared Deep Sky Survey Deep Extragalactic Survey (UKIDSS DXS, JK bands), Spitzer Wide-area InfraRed Extragalactic survey (SWIRE, Optical-Infrared bands), and CFHT ( $z$  band). The photometric redshifts are derived from these datasets and are used to search for high redshift galaxy cluster candidates. Finally, we provide new candidates of galaxy clusters at redshifts  $1.0 < z < 1.5$ .