We explore the role of various environments in triggering star formation (SF) and narrow-line active galactic nucleus (AGN) in SDSS spiral galaxies and the SF-AGN connection, using a volume-limited sample with $M_r < -19.5$ and $0.02 < z < 0.055$ selected from the SDSS Release 7. To avoid the dependency of AGN activity on bulge mass, the central velocity dispersion of the sample galaxies is limited to have a narrow range of $130 \leq \sigma \leq 200$km s^{-1}. We note that in gas sufficient galaxies, AGN feeding lags behind starburst, whereas as the gas exhausts, the SF slows down and AGN seems to even prevent the SF, and thus divide the high-σ sample into two subsamples according to their cold gas content at central region traced by fiber star formation rate, $\mathrm{SFR_{fib}}$. We find that a high density (cluster) environment causes a significant increase in AGN activity as well as gas depletion in host galaxies. However, the finding is only noticeable in the high-σ and low $\mathrm{SFR_{fib}}$ sample. It seems that a galaxy interaction with the nearest neighbor directly affects the SF of the central region. However, it is unclear whether it directly affects AGN activity.

[포GC-05] Properties of BzK Galaxies Selected in DLS F1 Field

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The redshift range 1.4 ≲ z ≲ 2.5 is often called the 'redshift desert' because of the difficulties in measuring spectroscopic redshifts due to the shifting of the major spectroscopic features into near-infrared wavelength (Steidel et al. 2004). One of the most efficient and fast way to select galaxies at this redshift range is the BzK technique designed by Daddi et al. (2004). Combining deep BVRz data from Deep Lens Survey with the wide-field (~4.08 deg2) K-band image, we select 1200 star-forming BzKs (sBzKs) and 120 passive BzKs (pBzKs) at K < 21.25. We discuss about the photometric redshifts, star formation rates, and stellar mass of the selected BzKs. Possible large scale structure at 1.4 ≲ z < 1.6 based on the spatial distribution of the BzKs is also introduced.

[포GC-06] Abell 2261: a fossil galaxy cluster in a transition phase

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Fossil groups of galaxies have characteristic features of a dominant central elliptical galaxy ($\triangle M_{12} > 2$ in $0.5R_{vir}$) embedded in highly relaxed X-ray halo, which indicates dynamically stable and evolved systems. These are thought as a final stage of the evolution of galaxy groups in the hierarchical structure formation scenario. However, the formation and evolution of fossil clusters are still unclear due to lack of detailed studies. Therefore, we perform a kinematic research of a known fossil cluster Abell 2261 (A2261 hereafter) using spectroscopic data of 589 galaxies in the A2261 field. Even though A2261 is known as a fossil cluster, previous studies found several unusual features such as quite high X-ray entropy for a stable cluster, and an elongated shape, which are not expected in standard fossil clusters. Using the caustic method, we identify cluster member galaxies and discover a second bright galaxy ($\triangle M_{12} = 1.68$) at ~$1.5R_{vir}$. The presence of such a bright galaxy can break the current fossil state of cluster in the near future. In addition, with two independent substructure finding methods, we confirm that the previously detected elongated galaxy distribution of the cluster is a real feature. These findings indicate that A2261 is not in a fully stable state, unlike the existing fossil definition diagnostic. We require a more stringent criterion for the fossil definition to represent a genuinely final stage of cluster evolution.

[포GC-07] Analysis of SN 2014J Early Phase Spectra

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We present the results of high resolution spectral analysis for Type Ia supernova SN 2014J in M82, which was discovered on 21 January 2014 UT. We performed spectroscopic observations for SN 2014J in its early phase at Bohyunsan Optical Astronomy Observatory with the high resolution echelle spectrograph BOES attached to 1.8-m reflector. Spectra of 26 epochs in 6 nights were obtained from 22 January 2014 to 23 February 2014 UT. Spectral feature variations for several

significant lines including Si II and Ca II lines will be shown and discussed.

[포GC-08] The optical afterglow of GRB 180205A

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On 2018 February 5 a gamma ray burst with trigger time 04:25:29.3 UT was detected by Swift BAT and this event was named GRB 180205A. We observed the optical afterglow of GRB 180205A starting from about 1 hour after the burst until February 22 in the optical bands with the 1m telescope of Deokheung Optical Astronomy Observatory (DOAO), the 1m telescope at Mt. Lemmon Optical Astronomy Observatory(LOAO) and the 0.8m and 0.25m telescopes at McDonald Observatory.

According to the fireball model, which is a well-accepted and conventional model for the afterglow of the GRB, the mechanism of the afterglow is that the expanding external blast wave of the GRB successively collides with the ambient medium and loses its energy, and as a result emits radiation at wavelengths longer than gamma rays.

Here we present optical photometry and light curve of the afterglow in the R band and analyze it to characterize GRB 180205A.

[포GC-09] Identifying Cluster Candidates in CFHTLS W2 Field

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Recent studies of galaxy clusters have shown that the galaxy clusters in dense environment tend to have lower star formation rate in local universe with $z < 1$. However, this correlation is not significant in galaxy clusters with $z > 1$. The study of galaxy clusters around z=1 can yield insight into cosmological galaxy evolution. Nevertheless, the identification of galaxy clusters beyond the scope of immediate local universe requires wide field data in optical and near-infrared bands. By incorporating data from Canada-France-Hawaii Telescope Legacy Survey(CFHTLS) and Infrared Medium-Deep Survey(IMS), the photometric redshifts of galaxies in CFHTLS W2 field were calculated. Using spatial distribution and photometric redshifts, the galaxies in the field were divided into redshift bins. The image of each redshift bin was analyzed by measuring the number density within proper distance of 1Mpc. By comparing high density regions in consecutive redshift bins, we identified the cluster candidates and mapped the large-scale structure within the CFHTLS W2 field.

[포GC-10] Lyman-alpha radiative transfer through outflowing halo models to understand both the observed spectra and surface brightness profiles of Lyman-alpha halos around high-z star-forming galaxies

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With a recent observational study of extended Lyman-alpha halos around individual high-z star-forming galaxies by Leclercq et al. (2017) using MUSE, we perform radiative transfer calculations to see if Lyman-alpha scattering can explain the spatial extents of the halos together with their spectra. We adopt a spherically-symmetric halo model in which Lyman-alpha sources and neutral hydrogen (HI) medium have exponential density distributions. The HI medium is set to have outflowing motion based on a momentum-driven wind scenario in a gravitational potential well. We run our Lyman-alpha radiative transfer code, LaRT, upon this halo model for various sets of parameters regarding the HI medium such as temperature, optical depth, density scale radius, outflow velocities, and dust content. We analyze simulation results to see the impact of each parameter on Lyman-alpha spectra and surface brightness profiles, and degeneracies between the parameters. We also find a parameter set that best reproduces simultaneously the observed spectra and surface brightness profiles of the MUSE Lyman-alpha halos.

[포GC-11] Survey of Faint Quasar candidates at $4.7 \leq z \leq 5.2$

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