October 2015, 69 AGNs have been monitored with BVR band photometry, using the MDM 1.3m & 2.4m and LOAO 1m telescopes, and long-slit spectroscopy, using the Lick 3m and MDM 2.4m telescopes. In this poster, we report the preliminary results of the variability study of a subsample of 9 AGNs, particularly with a few of tentative time rag measurements between B band magnitude and H beta luminosity based on the 1st year data set from February 2016 – January 2017.

[포 GC-18] Variability study of AGN in NGC 4395

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We present the preliminary results from our intensive monitoring campaign for measuring continuum and line variability of a low-mass Seyfert galaxy, NGC 4395, which host a smallest known AGN black hole in the reverberation mapping studies. We performed consecutive photometric observations during 5 nights in April 2017. Various telescopes in the world, including BOAO 1.8-m, NYSC 1-m, MDM 2.4-m, 1.3-m, etc, were dedicated for this campaign. Preliminary results show that the tentative time lag can be determined, which is approximately order of 1-2 hours.

[포 GC-19] A Comparative Study on Star Formation of Barred and Unbarred Disk Galaxies from SDSS-IV MaNGA IFU survey

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We investigate star formation activities of ~400 barred and unbarred faced-on late-type galaxies from the SDSS-IV MaNGA (Mapping Nearby Galaxies at APO) IFU survey. We find the star formation activities in gas-poor, barred galaxies are considerably suppressed than gas-rich, barred galaxies, while there is no difference among unbarred galaxies regardless of their HI gas content. The gas-poor and barred galaxies show the steeper difference of gradient in metallicity and age with respect to the stellar mass than gas-rich or unbarred galaxies, in that their centre is more metal-rich and younger. The results suggest that, combined with the gas contents available, the bar structure plays a significant role in quenching star formation in a galaxy by transporting/mixing gas via gas inflow.

[포 GC-20] Spectral Analysis of SN 2011fe in M101 and Implications for Explosion Mechanism

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We present some results of the spectral analysis for Type Ia supernova SN 2011fe in M101, which was discovered by the Palomar Transient Factory on August 24 2011 UT. We performed spectroscopic observations for SN 2011fe at Bohyunsan Optical Astronomy Observatory with the high resolution echelle spectrograph BOES attached to 1.8-m reflector. Spectra of 18 epochs are obtained from September 6 2011 to April 1 2012 UT. Spectral feature variations for several significant lines and explosion mechanism will be discussed.

[포 GC-21] Building the Milky Way bulge from globular clusters: Evidence from low-resolution spectroscopy for the red clump stars

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The presence of double red clump (RC; metal-rich counterpart of horizontal-branch) in high latitude field of the Milky Way (MW) bulge is widely interpreted as evidence for an X-shaped structure originated from the bar instability. However, Lee et al. (2015) recently suggested an alternative model, according to which the double RC is metal-rich manifestation of multiple stellar population phenomenon observed in globular clusters (GCs). Here we show that stars in bright

RC are enhanced in CN compared to those in faint RC from our low-resolution spectroscopy. CN traces N, and N-rich stars are also enhanced in Na and He in GCs. Since GCs are the only environment that produce second generation stars with enhanced N, Na, & He, this is a direct evidence that stars in the classical bulge component of the MW were mostly provided by proto-GCs.

[포 GC-22] Photometric Reverberation Mapping of Active Galactic Nuclei with Medium-band Filters and a Large FOV Telescope.

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We present a noble method to determine BH mass of many AGNs directly through reverberation mapping using a small telescope with wide-field of view.

In 2017 August we installed five medium-band filters to a 0.25m diameter 5 $\deg^2$ FOV telescope at the McDonald observatory. The width of these filters (FWHM ~ 50nm) are matched to the broad line width of type-1 AGNs at various redshifts. From recently obtained data, about r ~ 19 magnitude AGNs can be detected in line component with 150s exposure. With this magnitude limit, about 20~30 AGNs can be studied in one field. We plan to carry out at one day cadence observation over 20~30 fields, enabling us to monitor up to ~1000 AGNs over a wide range of variability. This poster presents out plan and early results from test observation.

[포 GC-23] The Environments of Post-Starburst Galaxies

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Post-starburst (E+A) galaxies are thought to be in the green valley transition phase between star-forming blue galaxies and quiescent red galaxies. They are identified by their unusual spectra characterized by strong Balmer absorption lines and weak emission lines, indicating a period of starburst followed by abrupt quenching. However, the underlying mechanism that drives the formation of E+A galaxies still remains contradictory or inconclusive. Thus, in order to differentiate between the different formation scenarios of E+A galaxies, we perform a statistical analysis of the environments of E+A galaxies. We spectroscopically identify a large sample of post-starburst galaxies from the Sloan Digital Sky Survey Data Release 7 (SDSS DR7) using a selection criteria based on Hδ equivalent width. We report our findings and discuss their implications in the context of post-starburst galaxy formation.

우주론/암흑물질에너지

[포 CO-01] Redshift Space Distortion on the Small Scale Clustering of Structure

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The positions of galaxies in comoving Cartesian space varies under different cosmological parameter choices, inducing a redshift-dependent scaling in the galaxy distribution. The shape of the two-point correlation of galaxies exhibits a significant redshift evolution when the galaxy sample is analyzed under a cosmology differing from the true, simulated one. In our previous works, we can made use of this geometrical distortion to constrain the values of cosmological parameters governing the expansion history of the universe. This current work is a continuation of our previous works as a strategy to constrain cosmological parameters using redshift-invariant physical quantities. We now aim to understand the redshift evolution of the full shape of the small scale, anisotropic galaxy clustering and give a firmer theoretical footing to our previous works.

[포 CO-02] Small-scale Features of Thermal Inflation: CMB Distortion, Substructure Abundance, and 21cm Power Spectrum

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