

$z = 0.0004$. While the formation history of stars older than $\sim 1010\text{yr}$ depends mainly on the luminosity of galaxies, the formation history of stars younger than $\sim 108\text{yr}$ is mainly affected by their environment. However, luminosity and environment are equally important for the star formation history if there is no star formation at the early phase of galaxy formation.

[포 GC-10] On the origin of low escape fractions in LBGs at $z \sim 3$

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Theoretical models of reionization require that approximately 10% of the Lyman Continuum (LyC) photons escape from their host dark matter haloes and re-ionize neutral hydrogen in the Universe. However, observations of Lyman break galaxies (LBGs) at $z \sim 3$ report much lower escape fractions of $f_{esc} \sim 1\%$. In an attempt to understand the discrepancy, we perform radiation-hydrodynamics simulations of isolated disk galaxies using RAMSES-RT with high resolution (maximum ~ 9 pc). We find that f_{esc} is $\sim 6\%$ on average for the reference run ($Z = 0.1Z_{\odot}$), whereas the fraction decreases to $\sim 1\%$ in the case of metal-rich disk ($Z = 1Z_{\odot}$). This happens because dense metal-poor gas clumps are disrupted early due to strong Ly α pressure and supernova explosions, while star particles are trapped for a longer period of time in the metal-rich environments. We also find that f_{esc} is still significant ($\sim 4\%$) even when the amount of metal-poor gas is increased by a factor of 5. Our preliminary results suggest that the low escape fractions in LBGs may be better explained by (locally) metal-enriched gas near young stars than high gas fractions in galaxies.

[포 GC-11] Ionized gas outflows in $z \sim 2$ WISE-selected Hot Dust Obscured Galaxies

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The Wide-field Infrared Survey Explorer (WISE) mission enabled efficient selection of Active Galactic Nuclei (AGN) with high luminosities and large obscuration. According to the merger driven AGN powering scenarios, luminous and obscured AGN are in a stage where they go through feeding of gas accretion into the central black hole, and feedback to the host galaxy through outflows. We

report the rest-frame UV-optical spectra of Hot Dust Obscured Galaxies (Hot DOGs) at $z \sim 2$, WISE color-selected to be extremely reddened AGN. Most of the targets show blueshifted and broadened [OIII] line profiles indicative of ionized gas outflows. We present the occurrence and strength of the outflows, and discuss the impact of luminous, obscured AGN activity on their hosts.

우주론/암흑물질,에너지

[포 CO-01] Analytical halo model of galactic conformity

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Galactic conformity is an observation that satellite galaxies in groups whose central galaxy is red are preferentially red, even when the groups are restricted to reside in dark matter halos of the same mass. In this talk, I will present a fully analytical halo model of colour dependent clustering which incorporates the effects of galactic conformity in a halo occupation distribution (HOD) framework. This model describes conformity through a correlation between the colour of a galaxy and the concentration of its parent halo, leading to a correlation between central and satellite galaxy colours at fixed halo mass. The strength of the correlation is set by a tunable 'group quenching efficiency'. I will show that our model can separately describe the group-level correlations between galaxy colour (1-halo conformity) and large scale correlations induced by assembly bias (2-halo conformity). Further, I will talk about our analytical clustering results and compare them with that of mock galaxy catalogs, showing that this model is accurate at the 10-20 percent level for a wide range of luminosities and length scales.

천문우주관측기술

[포 AT-01] Mirrors and Optomechanical Structures Design and Analysis for Linear Astigmatism Free Three Mirror System (LAF-TMS)

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Linear Astigmatism Free - Three Mirror System (LAF-TMS) is the linear astigmatism free off-axis wide field telescope with $D = 150$ mm, $F/3.3$, and $FOV = 5.51^\circ \times 4.13^\circ$. We report the design and analysis results of its mirrors and optomechanical structures. Tolerance allowance has been analyzed to the minimum mechanical tolerance of ± 0.05 mm that is reasonable tolerance for fabrication and optical alignment. The aluminum mirrors are designed with mounting flexure features for the strain-free mounting. From Finite Element Analysis (FEA) results of mounting torque and self-weight, we expect 33 - 80 nm RMS mirror surface deformations. Shims and the L-bracket are mounted between mirrors and the mirror mount for optical alignment. The mirror mount is designed with four light-weighted mechanical parts. It can stably and accurately fix mirrors, and it also suppresses some of stray light.

[포 AT-02] SNU Astronomical Observatory 1-m Telescope: Overview and 2018A Operation

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Astronomy education and research can benefit from a high performance telescope that is easily accessible in campus. Such a facility allows hands-on education of observations, small research projects, test of new instruments, and time-domain study of astronomical phenomena. Recently, SNU reconstructed a 40-year old observatory (also known as 구천문대), and established the new SNU Astronomical Observatory (SAO) on that site. On 2018 March 27, the 1-m optical telescope was successfully installed at SAO.

Since then, this telescope has been producing wonderful images, with the best seeing value recorded being as small as 0.85 arcsec. This poster will give an overview of the 1-m telescope, and its performance based on test observations during the 2018A semester.

[포 AT-03] Imaging System Wavefront Analysis Using Ronchi Test

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Ronchi test is an optical test to check the quality of an imaging system. Wavefront of the optical system can be obtained from the Ronchi patterns. In this poster, we present the Ronchi test module and the optical quality evaluation results. The test module consists of a light source, a pinhole, a beam splitter, a Ronchi ruling and a flat mirror. The test module can be simply adapted to any optical systems. We compare measured surface data for both aluminum and glass parabolic mirrors by analyzing the Ronchi patterns.

[포 AT-04] Software Modeling for Flexure Compensation System (FCS) prototype of the Giant Magellan Telescope Multi-object Astronomical and Cosmological Spectrograph (GMACS)

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We proceed to develop the control software of GMACS, which is a wide-field, multi-object, moderate-resolution optical spectrograph for the Giant Magellan Telescope (GMT). Flexure Compensation System (FCS) prototype is one of the electronics and mechanical prototypes for GMACS. In this poster, we present the software design for the FCS prototype by using the software system modeling language, SysML. We also show two development tools to control the prototype that communicates via EtherCAT: using TwinCAT and Visual C++ on Windows 10, and GMT Software Development Kit (SDK) and C++ on Linux. We discuss the way to design the GMACS control software, which would not depend on the development tools.