

**edge-on spiral galaxies**

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We compare vertical profiles of the extraplanar H $\alpha$  emission to those of the UV emission for 38 nearby edge-on late-type galaxies. It is found that detection of the “diffuse” extraplanar dust (eDust), traced by the vertically extended, scattered UV starlight, always coincides with the presence of the extraplanar H $\alpha$  emission. A strong correlation between the scale heights of the extraplanar H $\alpha$  and UV emissions is also found: the scale height at H $\alpha$  is found to be  $\sim 0.74$  of the scale height at FUV. Our results may indicate the multiphase nature of the diffuse ionized gas and dust in the galactic halos. The existence of eDust in galaxies where the extraplanar H $\alpha$  emission is detected suggests that a larger portion of the extraplanar H $\alpha$  emission than that predicted in previous studies may be caused by H $\alpha$  photons that originate from H II regions in the galactic plane and are subsequently scattered by the eDust. This possibility raise an advantage in studying the extraplanar diffuse ionized gas. We also find that the scale heights of the extraplanar emissions normalized to the galaxy size correlate well with the star formation rate surface density of the galaxies. The properties of eDust in our galaxies is on a continuation line of that found through previous observations of the extraplanar polycyclic aromatic hydrocarbons emission in more active galaxies known to have galactic winds.

**[포 GC-03] SAMI Galaxy Survey Data Release 2: Absorption-line Physics**

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We present the second data release from the SAMI Galaxy Survey. The data release contains reduced spectral cubes for 1559 galaxies, about

50% of the full survey, having a redshift range  $0.004 < z < 0.113$  and a large stellar mass range  $7.5 < \log(M_{\star}/M_{\odot}) < 11.6$ . This release also includes stellar kinematic and stellar population value-added products derived from absorption line measurements, and all emission line value-added products from Data Release One. The data are provided online through Australian Astronomical Optics' Data Central. Our poster presents stellar/gas kinematics on the metallicity-mass plane and highlight several galaxies from the SAMI Galaxy Survey that have interesting stellar and gas kinematics. For more information about data release 2, please see:

<https://sami-survey.org/abdr>.

**[포 GC-04] Searching for Dwarf Galaxies in NGC 1291 obtained with KMTNet**

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We present newly discovered dwarf galaxy candidates in deep and wide-field images of NGC 1291 obtained with KMTNet. Through a visual inspection, we find  $\sim 13$  candidates, for which central surface brightness ranges from  $\mu_{0,R} \sim 22.5$  to  $26.5$  mag arcsec<sup>-1</sup>. Adopting the distance to NGC 1291, the candidate dwarfs are brighter than  $M_R = -12.5$  mag and their effective radii range from 350 pc to 1.4 kpc. Structural and photometric properties of dwarf candidates near NGC 1291 appears to be consistent with those of ordinary dwarf galaxies in nearby galaxies. We conduct the imaging simulation in order to find an optimal way to detect dwarf galaxies in KMTNet images and to test the completeness of our detection algorithm. We plan to apply this method to deep KMTNet images of other nearby galaxies obtained through KMTNet Nearby Galaxy Survey (KNGS).

**[포 GC-05] AT2018cow : Photometric Analysis of Fast-evolving, Luminous and Bluish Transient**

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On June 16 AT2018cow (ATLAS 18qqn) was discovered as a bright and fast-evolving transient in nearby universe  $z \sim 0.01$ . It brightened by more than 4 mag within a day, and its light curve was decayed rapidly and has a high luminous peak which is more luminous than most of core-collapse supernova. It also overall showed a blue color in an unprecedented case of transients.

There have been attempts to explain this behavior with existing models, but most of them have been insufficient except for one - tidal disruption by intermediate-mass black hole.

We began to monitor this transient from about 4 days after the discovery until August 21 in the optical bands with 1m-class telescopes over the world. Here, we present a light curve of AT2018cow in the B, V, R and I bands, and analyze its photometric properties and compare to other transients and models.

#### [포 GC-06] Radiation-hydrodynamic simulations of ram pressure stripping on star-forming galaxies

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Recent observational studies suggest that the environmental effects can shape the evolution of galaxies in clusters. In an attempt to better understand this process, we perform idealized radiation-hydrodynamic simulations of RAM pressure stripping on star-forming galaxies using RAMSES-RT. We find that extended HI disks are easily stripped by moderate ICM winds, while there is no significant decrease in the total mass of molecular gas. RAM pressure tends to compress the molecular gas, leading to enhanced star formation especially when the gaseous disk is hit by edge-on winds. On the other hand, strong ICM winds that are expected to operate at the centre of clusters strip both HI and molecular gas from the galaxy. Interestingly, we find that the strong ICM winds can induce the formation of relatively dense ( $\sim 1\text{H/cc}$ ) HI gas clouds at a distance from the disk.

#### [포 GC-07] Secondary bars in barred galaxies

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나선 은하의 60%의 은하들은 그 중심에 막대를 가지고 있다고 알려져 있다. 그리고 막대 은하들 중 다시 30%의 은하들이 그 중심에 두 번째 막대를 가지고 있다는 보고들이 있었다. 우리는 SDSS/DR7을 기반으로  $z < 0.01$  안에 은하들을 눈으로 분류한 Ann et al. (2015) 카탈로그 중 Lee et al. (2018, submitted)에서 사용된  $M_r = -15.2$  보다 밝고,  $60^\circ$  이하로 기울어진 막대 은하 553개를 이용하여 막대 안에 있는 두 번째 막대를 찾고자 했다. 우리는 ellipse fitting profile을 조사하여 58개의 은하들에서 그 중심에 기존 막대의 형태를 따르지 않고 장축이 어긋나 있으며, 타원율에 변화를 보이는 두 번째 막대의 흔적을 찾았다. 그 중 9개의 은하에서 색지도, 등광도 그리고 unsharp image 등에서 두 번째 막대를 확인했다.

이것은 이전의 30개 내외의 은하들을 대상으로 했던 연구들에서 확인된 것에 비해 매우 적은 비율이라 할 수 있다. 9개의 두 번째 막대들 중 5개는 강한 막대 (SB) 안에서 발달해 있고, 4개는 약한 막대 (SAB) 안에 발달해 있어, 수치적으로는 두 번째 막대의 강한 막대와 약한 막대 사이의 선호도 차이는 없어 보인다. 하지만, 약한 막대 안에 발달해 있는 두 번째 막대들은 막대와 서로 다른 방향의 타원 구조만 보이는 반면, 강한 막대 안에 발달해 있는 두 번째 막대들은 nuclear ring, nuclear arm 등과 함께 더욱 발달된 모습을 보인다. 또한 두 번째 막대를 가지고 있는 8개의 은하 모두에서 주 막대를 따라 중심부로 길게 늘어져 먼지 띠가 뚜렷하게 보이고, 허블 분류에서는 Sab (T=3), Sb (T=4)에 주로 분포해 있다.

#### [포 GC-08] Star formation history of dwarf elliptical-like galaxies

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We present the physical and environmental properties of nearby dwarf elliptical-like galaxies. The present sample consists of  $\sim 1,100$  dwarf elliptical-like galaxies within redshifts 0.01. The morphological types of the present study were determined by Ann, Seo, and Ha (2015) who classified the dwarf elliptical-like galaxies by the five subtypes of dS0, dE, dSph, dEbc, and dEblue. We examine their star formation history using STARLIGHT. The star formation history of dwarf elliptical-like galaxies depends on their subtypes. The luminosities of dS0, dE, and dSph galaxies are dominated by the extremely old stars ( $\geq 10^{10}\text{yr}$ ) with  $z \approx 0.0004$  while those of dEbc and dEblue galaxies are mainly due to the young ( $\sim 10^7\text{yr}$ ) stars together with the nearly equal contribution by extremely young stars ( $\sim 10^6\text{yr}$ ) and old ( $\sim 10^9\text{yr}$ ) stars. Young populations have a variety of metallicity, from  $z = 0.0001$  to  $z = 0.04$ , while old populations have metallicity of  $z = 0.0001$  and