

candidates using KASINICS.

**[GC-21] Demography of SDSS Early-type galaxies from the perspective of radial colour gradients**

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Most early-type galaxies are centrally red mainly due to metallicity gradients but centrally blue galaxies do exist, called blue core galaxy. We investigate the radial (g-r) colour gradient of early-type galaxies at  $0.0 < z < 0.06$  in the 5th Data Release of the Sloan Digital Sky Survey. We first estimate the (g-r) colour gradient of early-type galaxies using the least-square fit method. We find that roughly 30 percent of the sample shows positive gradients (centrally blue), which are mostly blue in terms of (u-r) colours and show emission and strong H $\beta$  absorption lines. The galaxies tend to have small velocity dispersions and are located in the star-forming region in BPT diagram. On the other hand, galaxies with negative gradients (centrally red), which are relatively massive, are located in the LINER region in BPT diagram. We also present the UV-optical colour magnitude relation of early-type galaxies using GALEX GR4 data. While galaxies with positive gradients are NUV-r blue, galaxies with negative gradients are relatively NUV-r red. The galaxies are located in different fundamental plane according to their gradients. These results indicate that the positive gradient are due to star-formation in the galaxy center. Based on the stellar population modeling, positive gradients in early-type galaxies are a transient feature that is visible only for a half billion years after star formation episode which is generally centrally concentrated.

**[GC-22] Properties of Type Ia Supernova Host Galaxies in the SDSS**

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We investigate the properties and environments of Type Ia Supernovae host galaxies from the Sloan Digital Sky Survey-II Supernova Survey for the Stripe 82 centered on the celestial equator. 87 SNe Ia host galaxy samples are

selected from the SDSS Main galaxy catalog at the apparent r-band magnitude range  $m_r < 17.77$ . We found that the color properties of SNe Ia host galaxies are slightly bluer than the main galaxies and the absolute magnitude of SNe Ia host galaxies has a higher fraction than the main galaxies when the characteristic absolute magnitude  $M_{\star} < -20.5$ . The distribution of the distance to nearest neighbor galaxy and the local density of SNe Ia host galaxies show that SNe Ia host galaxies prefer intermediate region compared to the main galaxies. In early type SNe Ia host galaxies, the distribution shows SNe Ia host galaxies have a more distant neighbor galaxy compared to the main galaxies.

**[GC-23] Improved line measurements for SDSS DR6**

Kyuseok Oh<sup>1</sup>, Marc Sarzi<sup>2</sup>, and Suyoung K. Yi<sup>1</sup>

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We have established a database of galaxy spectral line strengths for SDSS DR6 using an improved line measuring method. Our work includes the entire SDSS DR6 galaxies within redshift of 0.2 excluding saturated objects. The absorption line strengths measured by the SDSS pipeline are seriously contaminated by emission filling. Our code, GANDALF (gas and absorption line fitting code) performs more accurate measurements by effectively separating emission lines from absorption lines. A significant improvement has also been made on the velocity dispersion measurement, more notably in late-type galaxies. The database will be provided with new parameters that are indicative of line strength measurement quality. The database will be useful for various fields of galaxy studies including star formation and AGN activities.

**[GC-24] Study of Galaxies and Star Formation with the AzTEC mm-wavelength Camera**

Sungeun Kim<sup>1,2</sup> and AzTEC Team<sup>2,3,4,5</sup>

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Ultraluminous galaxies at high-redshift emit a large fraction of the energy at submillimeter and millimeter wavelengths. These so-called Submillimeter Galaxies (SMGs) seem to be progenitors of present-day elliptical galaxies due to the expected high star formation rate (SFR). We use a new bolometer array camera, AzTEC, utilizing 144 silicon nitride

micromesh detectors. This instrument was developed as a facility instrument on the Large Millimeter Telescope (LMT) and operates with a single bandpass centered at either 1.1, 1.4, or 2.1mm (Wilson et al. 2008). We observed blank and biased fields in the sky with AzTEC installed on the James Clerk Maxwell Telescope (JCMT) and searched for candidates of the SMGs. Multi-wavelength follow-up studies of these galaxies suggest that these are massive young galaxies seen during their formation epoch with an inferred star formation rate (SFR) exceeding 1000 Msun per year.

### ■ Session : 초청강연 (IS)

4월 30일(목) 11:30 - 12:30 제1발표장

#### [IS-02] The Sun's Magnetic Field and Activity Sami K. Solanki<sup>1,2</sup>

<sup>1</sup>*School of Space Research, Kyung Hee University*

<sup>2</sup>*Max Planck Institute for Solar System Research, Germany*

The Sun is a restless star. It shows a wide variety of transient or active phenomena, such as dark sunspots, the continuously changing hot corona, energetic flares and immense coronal mass ejections, together with the associated output of energetic radiation and particles. The single quantity that is responsible for the continuing unrest of the Sun is its tangled and dynamic magnetic field. It produces these and many more fascinating phenomena, including changes in the Sun's radiative output, which has been invoked as a source of solar influence on the Earth's climate.

#### [IS-03] Recent Developments of Space Astronomy and Planetary Missions in Japan Munetaka Ueno

*Institute of Space and Astronautical Science, Japan  
Aerospace Exploration Agency*

I will present a current status of ISAS/JAXA missions on space astronomy and planetary science, covering the live missions as well as ongoing projects. ISAS scientific mission has now three categories as L, M, S classes. The former regular missions like AKARI, HINODE, SUZAKU are attributed to the M (middle) size class in the current system. The S (small) class mission is rather new category in Japan. The size of the mission is previous standard one as GINGA, YOHKOH, AKEBONO, all launched by M3-Sil rocket. This Japanese SMEX mission uses a "universal standard satellite bus" to reduce the individual mission cost, and which enables a higher frequency of the mission opportunity. A new solid fuel rocket is developed in JAXA to launch the S

class mission. My talk will focus on the following topics: a brief summary of AKARI observations, and a current status of mission development and scientific goal of PLANET-C/Venus Climate Orbiter scheduled to be launched in 2010, and PRINT-A/EXCEED (the first mission of S-class category) in 2012.

### ■ Session : 태양 및 우주환경 III (SE)

4월 30일(목) 09:00 - 10:45 제2발표장

#### [박SE-13] Observational Studies of Magnetic Reconnection in Solar Preflare Activities

Kim, Sujin<sup>1,2</sup>, Moon, Yong-Jae<sup>2</sup>

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<sup>2</sup>*Department of Astronomy and Space science, Kyunghee  
University*

We have studied preflare activities associated with three X-ray flares using multi-wavelength observations, such as soft X-ray, EUV, UV, H $\alpha$ , longitudinal magnetogram, and EUV spectral data with raster scan images. To find the events which show the detail structure and the time sequential evolution of the preflare activity, we examined 242 events associated with flares. First two events showed morphological evolutions during the preflare phase and final one showed spectroscopic properties at the preflare site before the preflare time. In morphological studies, we have found several interesting common features as follows: 1) preflare is cospatial with the main flaring region, 2) there was a sigmoidal structure along the sheared polarity inversion line before the preflare activity, 3) the preflare activity causes a change of field connectivity, 4) the entire flaring process is made of two reconnection steps, and 5) both reconnection steps show the tether-cutting picture. In the spectroscopic study, we examined the physical properties at the preflare site using Hinode/EIS, which was appeared to be a soft X-ray brightening. We found that there was strong nonthermal motion and hot component at the lower temperature atmosphere at the preflare site just before the preflare time. Regarding hot component, we suggest two possibilities: the activity of multi-thermal loops or lower atmospheric heating caused by a small-scale magnetic reconnection process.

#### [SE-14] Are EUV bright points flare loops?

Ryun Young Kwon, Jongchul Chae

*Astronomy Program, Department of Physics and  
Astronomy, Seoul National University*

The heights of EUV bright points (hereafter BPs) are measured by a stereoscopic method using SECCHI EUVI