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We investigate the narrow emission-line ratios of 64 radio-loud ( $\log L_{1.4\text{GHz}} > 40$ ) AGNs available in the SDSS archive, in order to examine whether there is a systematic difference in the accretion disk condition of radio-loud AGNs compared to radio-quiet AGNs and compact young radio-loud AGNs. The fluxes of narrow-emission lines, [O II], [Ne III], [O III], [O I], [Ar III], are measured for diagnostics. Based on the [O I]/[O III] and [Ar III]/[O III] ratios with photoionization models, we constrain the states of the accretion disk. We will present the results of the emission-line diagnostics.

**[ㄹ GC-11] X-ray AGNs in Abell 133**

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Environments (field, galaxy groups, and galaxy clusters) can affect galaxy evolution due to galaxy interaction which is controlled by different galaxy number densities and velocity dispersions. Since the galaxy interaction or merger triggers both star formation and AGN, AGN fraction can be used to understand the effect of environment. We detected X-ray AGN fraction in a nearby galaxy cluster, Abell 133, using Chandra X-ray image and optical spectra. We found  $\sim 600$  X-ray point sources in the field of Abell 133 using the 2.8 Msec exposure Chandra images. We determined 3 cluster members based on the redshifts derived from optical spectra obtained from Magellan IMACS observation. The AGN fraction in Abell 133 is similar to that of other environments, i.e., COSMOS and CDFS. We will discuss the results by comparing Abell 133 with other environments.

**[ㄹ GC-12] Extremely Red Objects in Subaru GTO2deg<sup>2</sup> Field**

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Extremely Red Objects (EROs) are characterized by their red optical-infrared colors (e.g.,  $R-K_s > 5.0$ ), which would be caused by either dusty star formation or old stellar population at moderate to high redshifts. We combine deep optical (Subaru R) and near-infrared (CFHT Ks) observations obtained as part of the Subaru GTO2deg<sup>2</sup> survey to select EROs over this field and to explore their properties. We present number densities of EROs as a function of magnitudes. We are planning to quantify the environments for EROs and to see if EROs reside in overdense regions.

**[ㄹ GC-13] Identification of MgII Absorbers in the Quasar Lines of Sight**

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Large area infrared surveys are often accompanied with follow-up optical spectroscopic surveys that has a significant legacy value even for other areas of research. Using these spectral database, we have performed a search for MgII absorption lines in the optical spectrum of background quasar. Over the  $\sim 4\text{deg}^2$  of AKARI North Ecliptic Pole survey field and Spitzer First Look Survey field, 18 and 16 MgII absorber systems are identified respectively. The redshift range for the background quasars was  $1.0 < z_{\text{qso}} < 3.4$ , while the redshift range for the absorber was  $0.6 < z_{\text{abs}} < 1.6$ . Galaxies responsible for MgII absorptions are identified in the deep optical images (CFHT r-band), yet the identification still remains ambiguous for 60% of the systems due to the limited image depth and the source crowdedness. The impact parameter ranges 20–60kpc, and the rest-frame equivalent width of MgII absorption ranges 0.7–4 Å. The most critical part in the identification of MgII absorber galaxies is the existence of deep optical images in addition to the high S/N quasar spectrum with  $R > 3000$ .

**[ㄹ GC-14] East Asia VLBI Network: Current Observation Status and Future Prospects**

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