brightness profiles of most of these galaxies are fit well by a Sersic law with n ~ 1.0. Structural parameters of these galaxies follow well the scaling relations of dwarf galaxies in the fundamental plane. The color-magnitude diagram of these galaxies shows that they are mostly located at the faint end of the red sequence, indicating that they are the probable member of the Fornax cluster. We also derive a luminosity function of the Fornax cluster by combining the new galaxies with the known galaxies in the previous catalogs. We will discuss the future of the KINGS-Fornax.

[구 KMT-05] Current Status of the KMTNet Active Nuclei Variability Survey (KANVaS)

Joonho Kim, Marios Karouzos, Myungshin Im
Astronomy Program, Department of Physics and Astronomy, Seoul National University

Multi-wavelength variability is a staple of active galactic nuclei (AGN). Optical variability probes the nature of the central engine of AGN at smaller linear scales than conventional imaging and spectroscopic techniques. Previous studies have shown that optical variability is more prevalent at longer timescales and at shorter wavelengths. Intra-night variability can be explained through the damped random walk model but small samples and inhomogeneous data have made constraining this model hard. To understand the properties and physical mechanism of intra-night optical variability, we are performing the KMTNet Active Nuclei Variability Survey (KANVaS). Using KMTNet, we aim to study the intra-night variability of ~1000 AGN at a magnitude depth of ~19mag in R band over a total area of ~24 deg^2 on the sky. Test data in the COSMOS, XMM-LSS, and S82-2 fields was obtained over 4, 6, and 8 nights respectively during 2015, in B, V, R, and I bands. Each night was composed of 5-13 epoch with ~30 min cadence and 80-120 sec exposure times. As a pilot study, we analyzed data in the COSMOS field where we reach a magnitude depth of ~19.5 in R band (at S/N~100) with seeing varying between 1.5-2.0 arcsec. We used the Chandra-COSMOS catalog to identify 166 AGNs among 549 AGNs at B<23. We performed differential photometry between the selected AGN and nearby stars, achieving photometric uncertainty ~0.01mag. We employ various standard time-series analysis tools to identify variable AGN, including the chi-square test. Preliminarily results indicate that intra-night variability is found for ~17%, 17%, 8% and 7% of all X-ray selected AGN in the B, V, R, and I band, respectively. The majority of the identified variable AGN are classified as Type 1 AGN, with only a handful of Type 2 AGN showing evidence for variability. The work done so far confirms there are more variable AGN at shorter wavelengths and that intra-night variability most likely originates in the accretion disk of these objects. We will briefly discuss the quality of the data, challenges we encountered, solutions we employed for this work, and our updated future plans.

[구 KMT-06] DEEP-South: Round-the-Clock Physical Characterization and Survey of Small Solar System Bodies in the Southern Sky

Hong-Kyu Moon[1], Myung-Jin Kim[1], Dong-Goo Roh[1], Jintae Park[1], Hong-Suh Yim[1], Young-Jun Choi[1], Young-Ho Bae[1], Hee-Jae Lee[2], Young-Seok Oh[3] and DEEP-South Team[1]
[1]*Korea Astronomy and Space Science Institute,*
[2]*Chungbuk National University,*
[3]*School of Space Research, Kyung Hee University*

Korea Microlensing Telescope Network (KMTNet) is the first optical survey system of its kind in a way that three KMTNet observatories are longitudinally well-separated, and thus have the benefit of 24-hour continuous monitoring of the southern sky. The wide-field and round-the-clock operation capabilities of this network facility are ideal for survey and the physical characterization of small Solar System bodies. We obtain their orbits, absolute magnitudes (H), three dimensional shape models, spin periods and spin states, activity levels based on the time-series broadband photometry. Their approximate surface mineralogy is also identified using colors and band slopes. The automated observation scheduler, the data pipeline, the dedicated computing facility, related research activity and the team members are collectively called 'DEEP-South' (DEep Ecliptic Patrol of Southern sky). DEEP-South observation is being made during the off-season for exoplanet search, yet part of the telescope time is shared in the period between when the Galactic bulge rises early in the morning and sets early in the evening. We present here the observation mode, strategy, software, test runs, early results, and the future plan of DEEP-South.

[구 KMT-07] DEEP-South: Automated Scheduler and Data Pipeline

Hong-Suh Yim[1], Myung-Jin Kim[1], Dong-Goo Roh[1], Jintae Park[1], Hong-Kyu Moon[1], Young-Jun Choi[1],