The links between super-massive black hole masses and their host galaxy properties are observed, indicating that black hole growth and host galaxy evolution are closely related. Reverberation mapping, which uses the time delay from the central black hole to broad line regions, is one of the best methods to estimate masses of black holes of active galactic nuclei (AGNs). However, only masses of about 50 black holes have been determined in reverberation mapping studies so far, and most of them are limited to optical luminosities below 10^45 erg/s due to the challenges of long-term time domain observations in both photometry and spectroscopy. In this project, we expand reverberation mapping samples to higher luminosities of > 10^44.5 erg/s at 0.1 < z < 0.35, that have expected time lags of 40 - 250 light days. Photometric (using LOAO 1-m and MDM 1.3-m) and spectroscopic (using MDM 2.4-m and Lick 3-m) monitoring campaigns are being conducted for a 3 year duration and 20 day cadence. Precedent photometric observations in 2015B show some targets with variability and follow-up spectroscopic observations are on-going. In this presentation, we introduce our project, present reverberation mapping simulation results, and preliminary results on photometry. These reverberation mapping masses of relatively high luminous AGNs will provide a strong constraint on black hole mass calibration, e.g., the single-epoch mass estimation.

[포 GC-23] Photometric Reverberation Mapping with SQUEAN: A Test Study using Medium Bands

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Photometric reverberation mapping is an effective alternative to time consuming spectroscopy. It usually employs narrow bands to track the luminosity variations of broad emission lines, such as Balmer lines, and broadbands for the continuum variability. Here, we investigate the feasibility of substituting these for medium bands, with 50nm widths, that are currently being used on the SED Camera for QUasars in EArly uNiverse (SQUEAN) installed on the 2.1m Otto Struve Telescope at McDonald Observatory. Three targets with recent variability and/or short expected time lags were selected, and observed for 15 minutes each in the medium band containing Hα, and the two adjacent bands for continuum subtraction afterwards. Analysis shows that for one of the objects, SDSS J0350+0037, the pure Hα emission line flux has a S/N ~ 12, so that variabilities up to ~ 8% are detectable. Thus, future observations using these medium bands on SQUEAN seem to be practical.

[포 GC-24] Weak-Lensing Study of Galaxy Cluster PLCKG287.0+32.9

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Merging galaxy clusters, such as PLCKG287.0+32.9, provide a window into the formation process of the large scale structure of the universe. PLCKG287.0+32.9 is an enormous merging galaxy cluster with mass estimated to be ~10^15 Msun. It hosts a pair of mega-parsec sized radio relics with projected offsets from the X-ray center of approximately 350kpc and 2.7Mpc, suggesting a NW-SE merging scenario with relics originating from two separate passes (Bonafede et al. 2014). A detected radio halo coincides with the center of x-ray emission. We present the motivation for our weak lensing study of the merging galaxy cluster PLCKG287.0+32.9 using recent Subaru optical imaging. We discuss the basics of weak-lensing and the criteria for source selection. In addition, we describe our method of PSF modeling and mass reconstruction.

[포 GC-25] Parametric modelling of the velocity dispersion profiles of 11 elliptical galaxies : dark matter versus MOND

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운동학적으로 측정된 질량과 측광으로 측정된 질량이 불일치하는 질량 불일치 문제는 현대천문학의 중요한 문제이다. 현재 이러한 질량 불일치에 대한 두 가지 해결책이 제시 되었다. 하나는 현대 표준우주론인 ΛCDM패러다임의 핵심 요소인 암흑물질, 다른 하나는 Milgrom에 의해 제시된 수정된 뉴턴역학(Modified Newtonian dynamics: MOND)이다. 두 방법에 대한 많은 연구가 진행되었는데, 최근 연구 결과에 의하면 나선형 은하의 회전속도 윤곽은 MOND와 잘 부합하나 타원은하에 대해서는 불명확하다. 여기서 우리는 ATLAS3D project 에서 얻어진 260개의 조기형 은하 중 거의 원형인 11개의 타원은하