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We have conducted a 22 GHz very long baseline interferometry (VLBI) survey of 281 local ($z < 0.05$) active galactic nuclei (AGNs) selected from the *Swift* Burst Alert Telescope (BAT) 70-month ultra hard X-ray (14–195 keV) catalog. The main goal is to investigate the relation between the strengths of black hole accretion and the parsec-scale nuclear jet, which is expected to tightly correlate but has not been observationally confirmed yet. The BAT AGN Spectroscopic Survey (BASS) provides the least biased AGN sample against obscuration including both Seyfert types, hence it makes an ideal parent sample for studying the nuclear jet properties of an overall AGN population. Using the Korean VLBI Network (KVN), the KVN and VERA Array (KaVA), and the Very Long Baseline Array (VLBA), we observed 281 objects with a 22 GHz flux > 30 mJy, detecting 11 targets (~4% of VLBI detection rate). This implies that the fraction of X-ray AGNs which are currently ejecting a strong nuclear jet is very small. Although our 11 sources span a wide range of pc-scale morphological types, from compact to complex, they lie on a tight linear relation between accretion luminosity and nuclear jet luminosity. Our finding may indicate that the power of nuclear jet is directly responsible for the amount of black hole accretion. We also have probed the fundamental plane of black hole activity in VLBI scale (e.g., few milli-arcsecond). The results from our high-frequency VLBI radio study support that the change of jet luminosity and size follows what is predicted by the AGN evolution scenario based on the Eddington ratio (λ_{Edd}) - column density (N_{H}) plane, proposed by a previous study.

[ㄱ GC-09] An observed link between AGN Eddington ratio and [NII] $\lambda 6583/\text{H}\alpha$ at $0.6 < z < 1.7$

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We present the observed relationship between Eddington ratio (λ_{Edd}) and optical narrow-emission-line ratio ([NII] $\lambda 6583/\text{H}\alpha$) of X-ray-selected unobscured active galactic nuclei (AGN) at $0.6 < z < 1.7$ using 27 near-infrared spectra from the Fiber Multi-Object Spectrograph mounted on the Subaru telescope along with 26 additional sources from the literature. We show that the λ_{Edd} and [NII] $\lambda 6583/\text{H}\alpha$ ratio at $0.6 < z < 1.7$ exhibits a similar distribution of λ_{Edd} –[NII] $\lambda 6583/\text{H}\alpha$ anti-correlation that has been found for local ($\langle z \rangle = 0.036$), hard X-ray selected AGN. The observed anti-correlation suggests that [N II] $\lambda 6583/\text{H}\alpha$ optical narrow-line ratio in the AGN host galaxy may carry important information about the accretion state of the central supermassive black hole, suggesting the observational hint of consistent relationship from local to $z \sim 1.7$. Further study is necessary to determine whether the λ_{Edd} –[N II] $\lambda 6583/\text{H}\alpha$ correlation in high-redshift still holds at $\log \lambda_{\text{Edd}} < -2$ compared to local AGN.

[ㄱ GC-10] Instantaneous AGN feedback at the central part of NGC 5728

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Using VLT/MUSE and ALMA data, we present a spatially-resolved analysis of the central part of NGC 5728. We find enhanced star formation ($\sim 1.8 M_{\odot}/\text{yr}/\text{kpc}^2$) at a region where AGN gas outflows intersect the star formation ring. In contrast, significantly weaker CO emission (~ 3.5 times) is found at the same region compared to other regions in ring, suggesting positive AGN feedback on star formation. On the other hand, we detect gas outflows outside of the spiral arms, implying that the inflowing gas in the arms is removed (i.e., negative feedback). Even though the positive and negative feedback are expected at the central part of NGC 5728, the impact of the AGN feedback in galaxy scale may be insignificant.

[ㄱ GC-11] Probing the Feedback Process in Local Type-2 AGNs with Integral-Field Spectroscopy

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