

S38a Searching for obscured AGNs in deep and wide multi-wavelength imaging datasets

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It is generally accepted that supermassive black holes are ubiquitous in galaxies however it is unclear how they are born and grown over cosmic time. Tracing the statistical growth of massive black holes can be done using a complete sample of Active Galactic Nuclei (AGNs) including both unobscured and obscured AGNs. Previous results show hints of an increased fraction of obscured accretion growth hidden behind large amounts of gas and dust at high redshift which will otherwise be missed by typical deep optical imaging surveys. We search for obscured AGNs at high redshift ($z > 2$) using the XMM-SERVS point source catalog (Chen et al. 2018) which is a large X-ray dataset between 0.5-10 keV. X-ray emission is a ubiquitous signature of AGN activity and is strong against obscuration. In this work, Photometric measurements of the optical/IR counterpart was obtained from deep optical/IR imaging datasets including Hyper-Suprime Cam(HSC) Deep-layer which is unrivaled in depth, survey area, and image quality. Prior-based convolved photometry was performed in order to mitigate the effects of blending due to the large PSF-size in the mid-infrared datasets. Redshift information was obtained from public spectroscopic surveys and photometric redshift was derived for AGNs without spectroscopic redshift measurements. Here, we present the preliminary results comparing the fraction of obscured AGNs at high redshift with previous population synthesis models.