



- RAY ASTRONOMY 2019

Current Challenges and New Frontiers in the Next Decade

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Uncovering luminous and highly obscured AGN with mid-infrared surveys

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Extensive efforts have been devoted during the past decade to uncover the AGN hidden under the most extreme X-ray column densities, the so called Compton-thick AGN. Still, although Compton-thick AGN could represent a significant fraction of the entire AGN population, they have escaped detection. Mid-IR surveys with the all-sky Wide-field Infrared Survey Explorer could uncover, at least in part, the elusive highly obscured SMBH growth in the most extreme luminous AGN. Although a few studies have already presented results from followup campaigns of WISE-based AGN samples, they typically lack the X-ray depth necessary to reveal the true nature of many of the objects.

In this talk I will present the results of a detailed analysis of the X-ray properties of a complete, mid-IR 12 microns flux-limited sample, of 97 luminous AGN candidates selected with WISE. The full 6 deg² survey area has very deep X-ray coverage from XMM-Newton observations, reaching X-ray fluxes of just 10^{-15} erg/cm²/s. To date 92 objects have spectroscopic redshifts and optical classifications. Thus, we can evaluate the reliability and effectiveness of WISE to uncover luminous, highly obscured systems. Moreover, we can provide independent estimates of the space density of obscured accretion up to redshift one, which can be compared with the results derived from wide-area, and shallower, X-ray surveys. We also discuss the prospects of detecting With Athena the 24% of the sample yet undetected with XMM-Newton.

Topic

Active Galactic Nuclei: accretion physics and evolution across cosmic time

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