

Abstract:

The growth of supermassive black holes can be traced via the observed luminosities of active galactic nuclei, but for most sources the line of sight is blocked by gas and dust. Commonly used luminosity indicators (e.g., X-ray continuum, optical line emission) are often attenuated by several orders of magnitude, and it is difficult to accurately estimate extinction corrections. The [O IV] 26 micron line is more robust because it probes high-ionization gas and suffers little dust attenuation. Using Spitzer measurements of [O IV] for a complete sample of 90 local Seyfert galaxies, we find that the luminosity distributions of obscured and unobscured AGNs are indistinguishable, even though the obscured sources are systematically fainter in terms of [O III] optical and 2-10 keV X-ray emission. In addition, as part of our work to calibrate the relationship between [O IV] and AGN intrinsic luminosity, we find that even hard (10-200 keV) X-rays are biased tracers, particularly for Compton-thick sources. This has important implications for the census of black hole growth from future X-ray surveys.