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ABSTRACT ONLY

INVESTIGATING THE PHYSICAL AND GEOMETRICAL PROPERTIES OF THE DUSTY TORUS IN QSO

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The nuclear near- and mid-IR emision of a representative sample of 20 nearby QSO have been analyzed using high spatial resolution data from NICMOS/HST and the IRS/Spitzer spectrum from the literature, plus our imaging and spectroscopy observations from CanariCam on the 10.4m Gran Telescopio CANARIAS. We have built the unresolved SED and decomposed the IRS/Spitzer spectrum of each QSO in the sample. We used the unresolved SED and the substracted starburst Spitzer spectrum to constraint the CLUMPY models of Nenkova et al., which describe the tourus of the AGN in terms of a clumpy distribution of the clouds. The physical properties of the torus in QSOs (clouds distribution, optical depth, covering factor, etc) was compared with those obtained by Ichikawa et al. from Seyfert 1s and 2s. In addition, since ULIRGs are linked to QSOs in an evolutionary esqueme, we have compared the torus properties of QSOs with those obtained from studying some ULIRGs with a similar technique. In general, we observed that the clouds in the torus of QSOs are more optically thick and distribute closer to the central region than in Seyfert 1s and Seyfert 2s, which can be interpreted as a receding torus, and that in ULIRGs the covering factor and radial distribution of the clouds seem to follow an evolutionary sequence between these two classes of AGN, although these results could be also explained in terms of the torus geometry.

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