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Influence of AGN on the properties of galaxies during the (U)LIRG phase

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Abstract. Merging, resulting from galaxy interaction and collision, is one essential scenario to interpret the distinct evolutionary stages of galaxy formation. However AGNs are believed to play an essential role towards the final stages of this scenario, in particular to clear the galaxy from a large excess of dust. Selecting galaxies with both 70μm and X-ray detection will help to understand the relation between star formation and AGN. We are taking advantage of the extensive multi-wavelength coverage of the Cosmic Evolution Survey (COSMOS) field to dissect the AGN influence on infrared luminous objects. We demonstrate that enhanced star formation is more probably responsible for additional obscuration of the central AGN than the dust torus, in agreement with current galaxy formation theory. Furthermore, we demonstrate that the presence of an AGN does not increase the galaxy dust temperature significantly.

Keywords. infrared: galaxies — galaxies: active — galaxies: high-redshift

References

Hopkins, P. F., Hernquist, L., Cox, T. J., & Kereš, D. 2008, *ApJS*, 175, 356

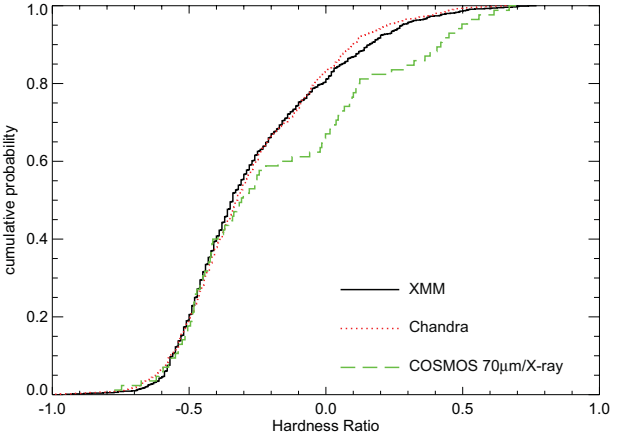

Figure 1. Kolmogorov-Smirnov test: the hardness ratio cumulative probability distribution of XMM, Chandra and 70μm/X-ray selected galaxy samples represented in black solid line, red dot line and green dash line respectively. Distribution of XMM and Chandra displays these samples are drawn from the same population. However 70μm/X-ray galaxies seems not drawn from the same population than purely X-ray selected samples. The distribution indicates an excess of HR at $\geqslant -0.3$, revealing that additional obscuration from cold dust in host galaxy is plausible. This result is consistent with current merger scenario in galaxy evolution from Hopkins *et al.* (2008).