

QSO selection in the ALHAMBRA survey

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Abstract

During the past decade photometric redshift (photo- z) determination for the extragalactic population has been drastically improved. This improvement has allowed to close the gap between the several hundred thousand of objects per deg² detected in modern cosmological surveys and their identification through spectroscopic follow-ups. Only recently, a similar level of precision has been achieved for AGN as for normal galaxies. We characterize the efficiency of the ALHAMBRA survey to derive highly accurate photometric redshifts (photo- z) for the brightest of the AGN sample, the QSOs. This characterization is required before any further analysis whether it implies individual objects or statistical properties of the QSO population as a whole (e.g. luminosity functions). We present the results for the QSO photo- z calibration making use of the published spectroscopic information from other major cosmological surveys overlapping with ALHAMBRA (e.g. COSMOS, GOODS, SDSS, DEEP, SWIRE & AEGIS). With the appropriate selection of templates and priors, the analysis of the ALHAMBRA fields shows an excellent agreement between the spectro- z and photo- z , obtaining $\sigma[\Delta z/(1+z)] < 0.02$ with a low fraction ($< 7\%$) of catastrophic failures.