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A 22μm selected sample from WISE and SDSS spectra catalogs

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Abstract. We cross-matched Wide-field Infrared Survey Explorer sources with the Sloan Digital Sky Survey galaxy spectroscopic catalog within 6 arcsec to produce 182798 galaxies with 22 μm signal to noise > 3. The different redshift bins of the sample show that the rest-frame 22μm luminosities increase with redshift, for rest-frame 22μm luminosities in the range of 10^6-10^{12} $L_\odot$. The infrared sample is located in the blue sequence. The Seyfert fraction increases with redshift more obviously in the IR sample than in an optical control sample. The Seyfert fraction increases significantly with increasing rest-frame 22 μm luminosity below 10^{11} $L_\odot$.

Keywords. infrared: galaxies — galaxies: fundamental parameters — galaxies: Seyfert

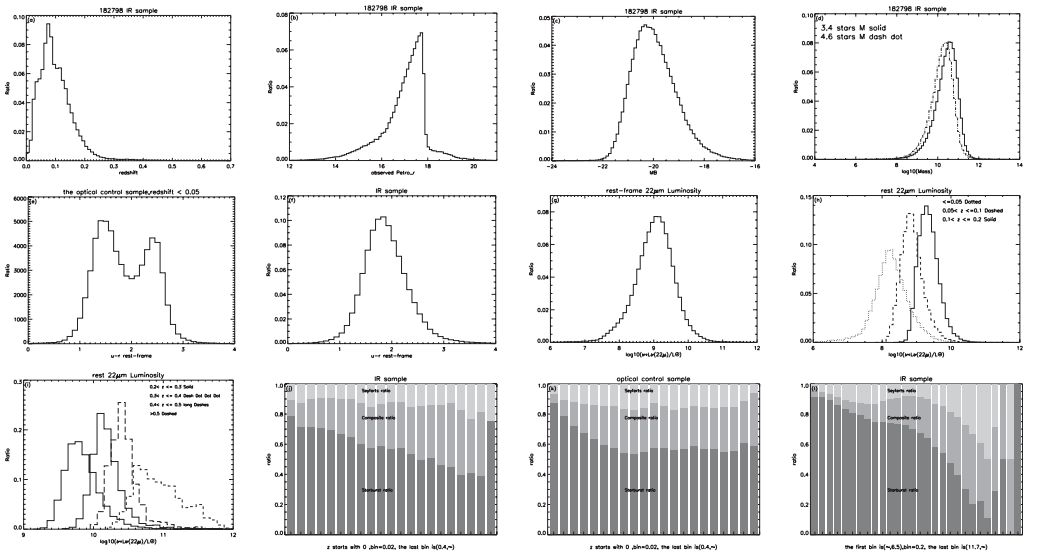

Figure 1. (a), (b), (c), (d) are the distributions for the IR sample of redshift, Petro r, M_B, and stellar mass derived from 3.4μm and 4.6μm. Figure (e) is *u-r* for the optical control sample at redshift < 0.05, showing the red and blue sequences. Figure (f) shows that the infrared sample is located in the blue sequence. Figures (g), (h), (i) are the rest-frame 22μm luminosity distributions for the total IR Sample or different redshift bins. Figures (j), (k) show the fractions of Seyferts and starbursts in different redshift bins of the IR sample as well as in the optical control sample. Figure (l) shows the fractions as a function of the rest-frame 22μm luminosity.

Reference

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