

Environment and properties of obscured and unobscured active galactic nuclei

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Abstract. We analyze the properties of obscured and unobscured active galactic nuclei selected using mid-infrared colors in the redshift range $1 < z < 3$. We find that obscured objects are located in a denser local galaxy environment compared to the unobscured sample.

1. Procedure and conclusions

Observational data were obtained from the MUSYC survey (Cardamone et al., 2010), in the ECDF-S field. We selected a sample of active galactic nuclei (AGNs) in the redshift range $1 < z < 3$ using a color-color diagram in the mid-infrared (Stern et al., 2005), as shown in Fig. 1 (left panel, dashed line). We use a color-luminosity criterion (see Hickox et al., 2007) in order to separate the obscured and unobscured AGN samples. Fig. 1 (right panel) shows the distributions of the $N_{0.5}$ density parameter, defined as the number of galaxies with $\Delta z < 0.5$ and within 0.5 Mpc, for the two samples. We find a tendency for obscured AGNs to be located in rich galaxy environments, compared to the environment of unobscured AGNs.

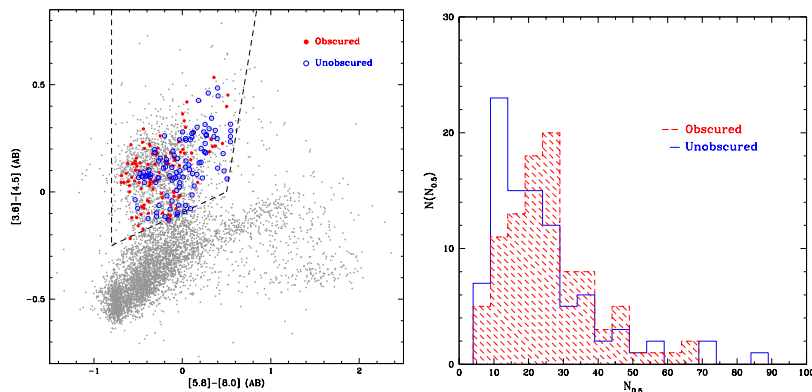


Figure 1. Left: Color-color diagram showing the selection of the obscured (filled circles) and unobscured (open circles) AGN samples (within dashed lines). Right: Distribution of the $N_{0.5}$ density parameter for the two samples.

References

- Cardamone, C. N., et al., 2010, ApJS, 189, 270
 Hickox, R. C., et al., 2007, ApJ, 671, 1365
 Stern, D., et al., 2005, ApJ, 631, 163