

## Hosts and environments of radio-active AGN

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We investigate the environmental properties of radio-active AGN in a two-folded way. On the one hand we analyse the clustering properties of radio-selected AGN from the VLA-COSMOS survey, finding that they inhabit group-to-cluster like structures with halo masses  $M > \sim 10^{13.6} M_{\text{sun}}$ , independent of both redshift and radio luminosity, at least up to  $z \sim 2.5-3$ . Moreover, comparisons between the observed space density of radio-selected AGN and that of dark matter halos indicates that the radio-active phase should be a recurrent phenomenon. As a second step, we investigate the occurrence of radio-selected AGN within cosmological environments such as filaments, clusters or the field up to  $z \sim 1.2$ . In agreement with previous results obtained in the local universe, we find that  $\sim 20\%$  of radio-selected AGN reside in clusters. We also observe a marked preference for more radio-luminous AGN to be found in over-dense structures with respect to fainter sources ( $\sim 38\%$  vs  $\sim 15\%$ ), as we find a strong dependence of the environmental properties of radio-active AGN on the stellar mass of their hosts.

Our results suggests a scenario whereby physical processes at sub-pc and Kpc scales are strongly interconnected with the large-scale structure properties of the AGN itself.

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