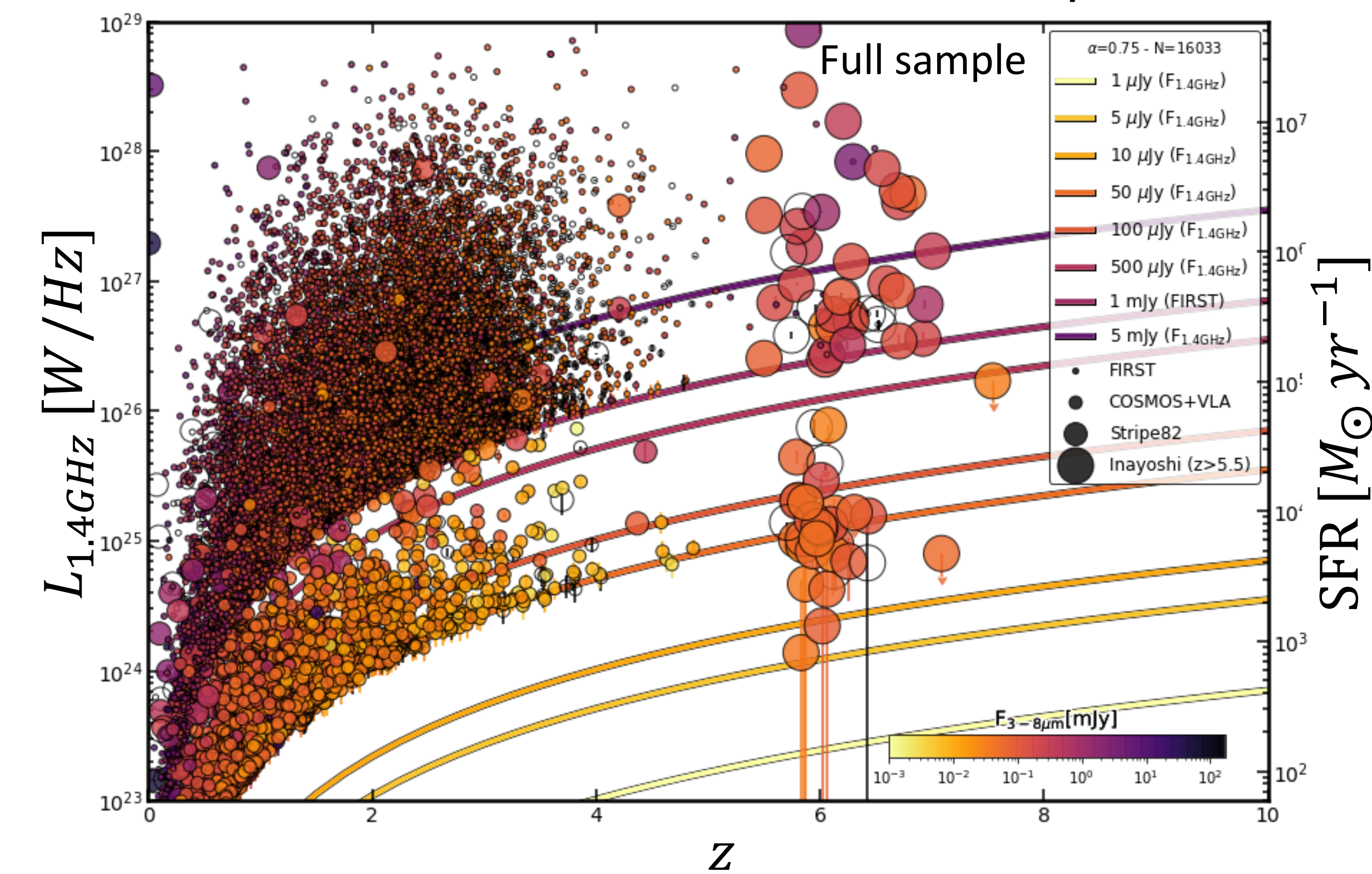


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Motivation

- More than 200 AGN have been observed at $z > 6$ [1]. Detected using data from different wavelengths and varied techniques. A small fraction of them have been identified from radio observations.
- It is anticipated that radio emission can be detected from such early AGN, although its characteristics are still quite indeterminate [2].
- The participation of **IA** in two projects that use SKA Precursors (**EMU**, with ASKAP, and **MIGHTEE** with MeerKAT) creates a remarkable opportunity to apply our research in both projects and, eventually, in **SKA**.
- We want to understand the properties that make an AGN to be detected as Radio Galaxy and use these properties to discover new objects with future projects/surveys.

Methods

- AGN data from three major catalogues and individually-studied $z > 6$ sources. **SDSS Quasar Catalogue** [3], **Stripe82 VLA** [4] observations and **COSMOS Field 3 GHz & 1.4 GHz** observations [5, 6].
- More data (several λ s) obtained using on-line databases (**Ned**, **SIMBAD**) and cross-matched with our catalogue.
- Initially, we run some statistical studies to extract possible correlations between observations in different wavelengths.
- Analysed individually measurements and derived quantities (spectral slopes, quotients) in order to understand any behaviour which could help us to extract detection (classification) criteria for Radio Galaxies.

Results

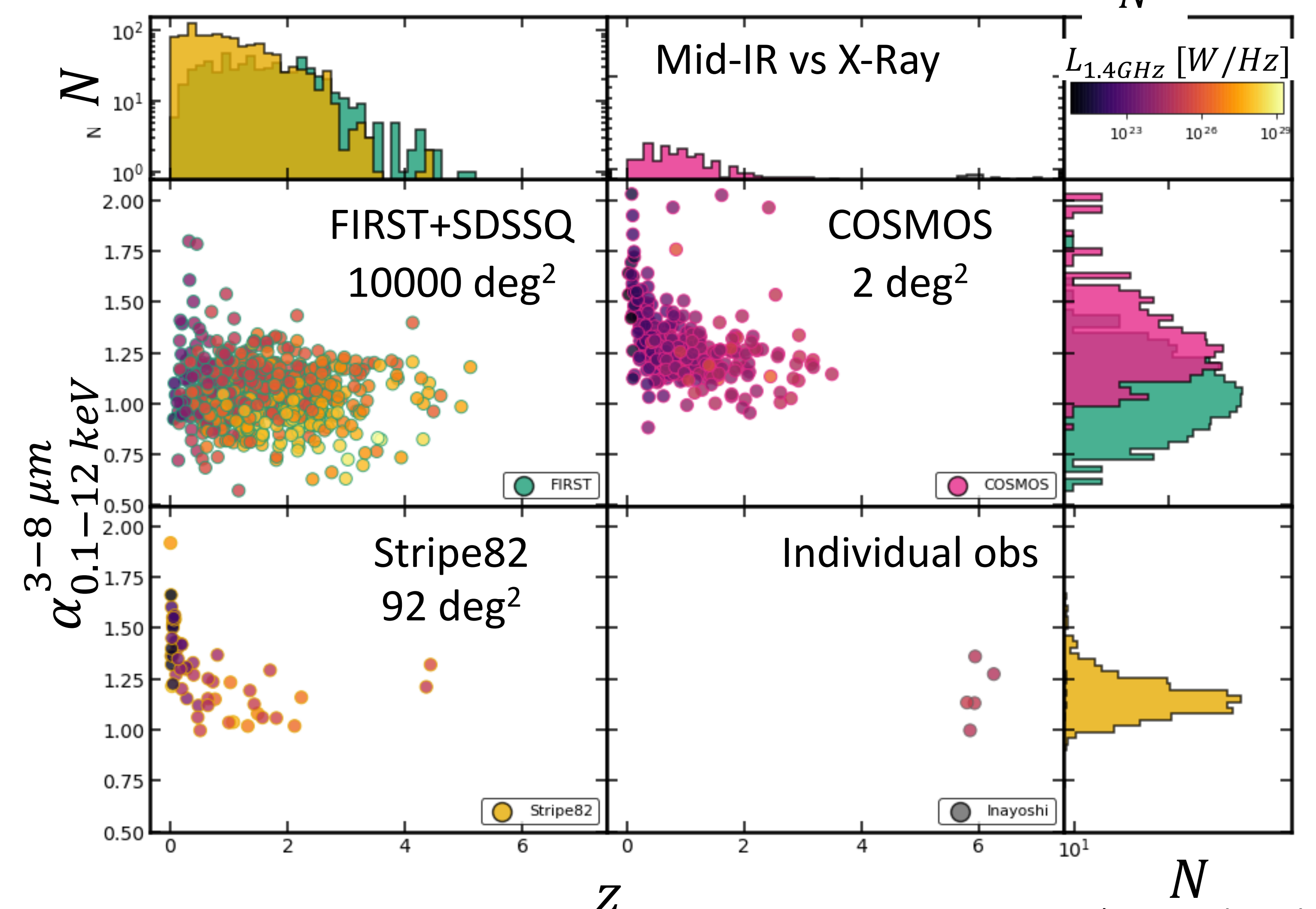
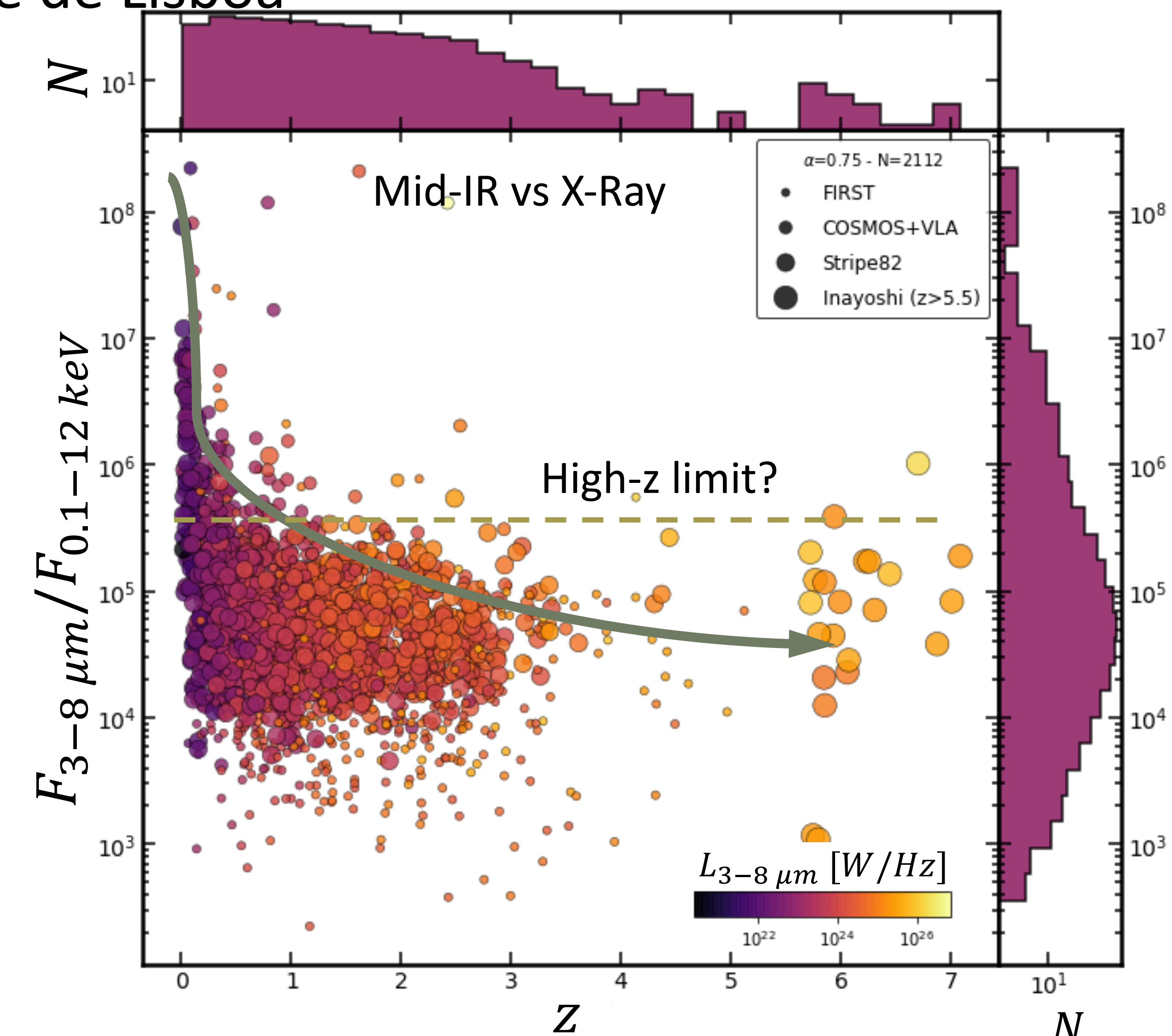
- Full sample shows almost **20000 sources** ($0 < z < 7.5$) obtained from different catalogues (shown with different point sizes). Observations of optically-selected high- z sources can go below large surveys' limits.
- Maximum-volume-weighted luminosity distribution. Sample binned by redshift.
- Mid-IR to X-ray fluxes quotient vs redshift show **upper limit for high- z sources**.
- Sources from different catalogues show similar behaviour.

Discussion

- Most sources **follow main correlations**. There are some elements that deviate from the main trends. They might show new properties which can lead to **new classification categories**.
- There is room to observe and detect sources at intermediate z ($4 < z < 6$) in radio bands.

Conclusion

- New correlations can be derived** from the use of data from large catalogues and surveys of AGNs.
- Spectral indices **can help determining** presence of Radio Galaxies.



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