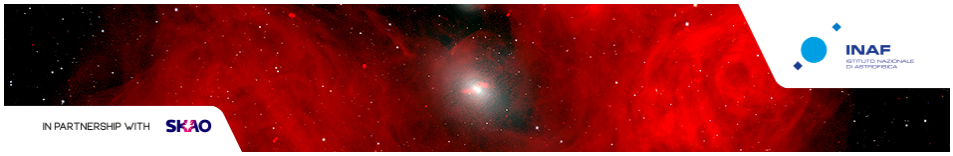

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Unveiling the atomic gas content of quenched galaxies at 0.2<z<0.5

Wednesday, 29 November 2023 17:10 (20 minutes)

We present preliminary results from a HI stacking experiment at 0.2<z<0.5 from the MIGHTEE survey. To complement our studies on main-sequence star-forming galaxies,
we are now interested in statistically comparing the HI gas content in the passive population at similar cosmic epochs, in order to further constrain this un-explored phase of the baryon cycle.
We study in particular the galaxy's high stellar mass-end, M*>10^10Msun at z~0.37, where most of the available quenched objects are detected in COSMOS.*
The wide spectroscopic samples in this field is key to obtaining some meaningful signal.
We will select passive sources mostly from colour-colour selection and from SED fitting physical parameters (M vs SFR).
We have identified a population of passive sources, spectroscopically selected from their D4000 feature, that retain a detectable dust content (from mid- and far-IR counterparts). This sample seems to harbour important HI reservoirs, in quantities even exceeding those of star-forming galaxies at fixed stellar mass. A statistical investigation is required to fully constrain the overall gas content in quenched sources.
We will interpret our results in terms of galaxy morphological and environmental dependences (with many passive sources sitting in groups) and compare them with predictions from the simulations.

Reasearch area

HI galaxy science

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