

# The NIKA2 LPSZ Scaling Relation and cosmological implications

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In Sunyaev-Zeldovich (SZ) cluster cosmology, accurately determining cluster masses is crucial for constraining cosmological parameters through cluster number counts.

As the mass is not an observable, a scaling relation is needed to link cluster masses to the integrated Compton parameter  $Y$ , i.e., the SZ observable, to exploit data from large millimeter surveys. Current cosmological results use a scaling relation obtained with clusters at low redshift ( $z < 0.5$ ) observed in X-ray and in SZ at an angular resolution above 1 arcminute.

The SZ large program (LPSZ) of the NIKA2 collaboration is a sample of 25 clusters at intermediate to high redshift (from  $z = 0.5$  to  $z = 0.9$ ) observed at similarly high-angular resolution both in SZ and in X-ray. From these data, it will be possible to study various systematic effects that can affect the scaling relation.

Currently, all LPSZ clusters have been observed, and the analyses toward final results are underway. In this talk, I will present the LPSZ and the method to obtain a reliable estimation of the SZ-Mass scaling relation along with the expected effect on cosmological constraints.

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