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High-resolution SZ cartography of clusters of galaxies with the NIKA camera at the IRAM 30-m telescope

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I will present recent Sunyaev-Zeldovich observations of clusters of galaxies with the NIKA prototype at the IRAM 30-m telescope together with the forthcoming tSZ observation program with the NIKA2 camera.

Summary

Arcmin resolution thermal Sunyaev-Zeldovich (tSZ) observations (e.g. SPT, ACT and Planck) only allowed detailed studies of the intra cluster medium morphology for low redshift clusters ($z < 0.2$).

The development of precision cosmology with clusters requires high-angular resolution observations to extend the understanding of galaxy cluster towards high redshift. NIKA2 is a wide-field (6.5 arcmin field of view) dual-band camera, operated at 100 mK and containing ~ 3500 KID (Kinetic Inductance Detectors), designed to observe the millimeter sky at 150 and 260 GHz,

with an angular resolution of 18 and 12 arcsec respectively.

The NIKA2 camera has been installed on the IRAM 30-m telescope (Pico Veleta, Spain) in September 2015.

The NIKA2 tSZ observation program will allow us to observe a large sample of clusters (50) at redshifts above 0.5. As a pathfinder for NIKA2, several clusters of galaxies have been observed at the IRAM 30-m telescope with the NIKA prototype to cover the various configurations and observation conditions expected for NIKA2.

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