



The NIKA 2015 observation campaign: first polarised light with Lumped Element Kinetic Inductance Detectors

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The New IRAM KID Array (NIKA) is a dual-band camera operating with 315 frequency multiplexed Lumped Element Kinetic Inductance Detectors (LEKID) cooled at 100 mK. NIKA is designed to observe the intensity and polarisation of the sky at 150 GHz and 260 GHz from the IRAM 30 m telescope and it is a test-bench for the final NIKA2 camera.

In the NIKA instrument, the incoming linear polarisation is modulated by a warm rotating achromatic half-wave-plate (AHWP) at four times the mechanical rotation frequency. Then the signal is analysed by a Wire Grid and finally absorbed by LEKID which has been designed to absorb both perpendicular polarisations. The signal is extracted by a lock-in procedure around the fourth harmonic of the HWP rotation frequency.

The small time constant of the LEKID detectors combined to the modulation of the HWP permits the simultaneous measurement of the three Stokes parameters I,Q,U, components of the linear polarisation.

During the last observational campaign in February 2015 at the 30m telescope of IRAM (Pico-Veleta, Granada, Spain) we focused on the calibration of the instrument observing point, compact and extended sources. The preliminary results of these observations show a good agreement between both NIKA bands on the polarisation orientation and with the XPol experiment (Thum et al. 2008). This contribution aims at presenting the performance of this system focusing on the LEKID capability for polarisation measurements as well as the astrophysical results obtained on polarisation maps.