Observing the millimeter Universe with the NIKA2 camera



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Candidate Cosmic Filament in the GJ526 Field Mapped with the NIKA2 Camera

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In the nearby universe, distinct large scale structures have been identified in the spatial distribution of optical galaxies. In the distant universe, the dust-obscured population of star forming galaxies should trace similar structures. Using the new NIKA2 dual band millimeter camera installed at the IRAM 30-meter radiotelescope, we have mapped a relatively large field (~70 arcmin^2) in the continuum at wavelengths 1.15~mm and 2.0~mm in the direction of the star GJ526 to investigate the nature of the quasi-alignement of five sources found with the camera MAMBO at 1.2mm ten years earlier. Our new NIKA2 map at 1.15~mm reveals additional sources and, in fact, an overdensity of dust-obscured star forming galaxies (SMGs) spatially distributed along a filament-like structure across the whole observed field. We discuss the hypothesis that these NIKA2 sources are actually located in a filament or in a sky-projected sheet-like structure of the cosmic web as predicted by theory and apparent in cosmological simulations. Our investigation at this stage shows the potential of deep survey in the continuum at millimeter wavelengths to study large scale structures of the distant universe.

Autore principale: Dr. LESTRADE, Jean-François (Observatoire de Paris-LERMA-CNRS) **Relatore:** Dr. LESTRADE, Jean-François (Observatoire de Paris-LERMA-CNRS)