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A dedicated antenna array for radio detection of Extended Air Showers.

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Radio pulses associated with Extended Air Showers (EAS) produced in terrestrial atmosphere by High Energy Cosmic Rays (UHECR) of energy 10^{17} eV and above, are now routinely observed by dedicated radio instruments on ground. This may offer a new and appealing way for elucidating the nature and origin of involved primary particles, an open question still unsolved.

Unfortunately, the high occupancy of the electromagnetic spectrum by undesired signals from natural and anthropogenic origins has made unambiguous EAS radio detection a challenging problem. Former attempts based on timing coincidences from several independent radio antennas, or using auxiliary triggering by conventional particle detectors, are still not fully satisfying.

We present here a solution based on real time, coherent radio detection by using a small array of 10x2 cross polarized dipoles, distributed over a 150m x 150m surface area and operated in continuous sky surveying mode.

Preliminary results obtained with the new system are briefly reviewed and discussed.

The final detection scheme will be achieved by using on line, fast computing software based on a dedicated unsupervised recognition algorithm.

The new array is a part of the CODALEMA experiment located in Nançay radio astronomy observatory (France).

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