



Contribution ID : 161

Type : Oral

## Codalema: A cosmic ray radio detection array

*Saturday, 7 July 2007 08:42 (0:12)*

### Abstract content

Extensive air showers are associated with transient radio emission, which could provide a new mode of detection of UHECR with an important target volume and a high duty cycle. The Codalema experiment has been set up and is running in the Radio Observatory in Nançay, France, to investigate this possibility. The apparatus is composed of an antenna array overlapped by a ground particle array. A set of 16 wide band active dipoles are aligned on two 600 meter long baselines in the North-South and East-West directions. This radio array is triggered by a ground detector of 240 meters square containing 13 plastic scintillator stations. The antennas and scintillators are wired to a central data acquisition system where all the signals are processed. Radio signals are recorded in a large 1-200 MHz bandwidth, while favorable signal to background ratio is looked for in a narrower band around 50 MHz. In this band, the natural sky background on site – almost free from anthropogenic radio frequency interferences – allows a sensitivity to showers with energy around  $10^{17}$  eV. In this paper we shall present the set-up, simulation, calibration, sensitivity and performance of both arrays, and some illustrative coincidence events will be discussed.

**If this papers is presented for a collaboration, please specify the collaboration**

CODALEMA

### Summary

### Reference

Proceedings of the 30th International Cosmic Ray Conference; Rogelio Caballero, Juan Carlos D'Olivo, Gustavo Medina-Tanco, Lukas Nellen, Federico A. Sánchez, José F. Valdés-Galicia (eds.); Universidad Nacional Autónoma de México, Mexico City, Mexico, 2008; Vol. 4 (HE part 1), pages 187-190

**Primary author(s) :** Dr. LEBRUN, Didier (LPSC-Grenoble)

**Presenter(s) :** Dr. LEBRUN, Didier (LPSC-Grenoble)

**Session Classification :** HE 1.3.A

**Track Classification :** HE.1.3.A