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Ultra high energy cosmic rays observed by the CODALEMA radio detection experiment

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Abstract content

The principle of the CODALEMA experiment is based on an original approach for the detection of radio transients associated with extensive air showers induced by ultra high energy cosmic rays. Since September 2006, CODALEMA is under operation with a new setup (technically described in another contribution to this conference) at the Nançay Radio Observatory in France. It uses 16 broadband dipole antennas associated with 13 particle detectors generating the trigger and allowing the primary cosmic ray energy estimation. We will present the evidences for the radio detection of cosmic ray above 10^{17} eV, based on an event by event analysis showing time and arrival direction coincidences between the two detectors arrays. The characteristics of the showers detected, like the core position and the lateral electric field dependence, will be shown. Finally, correlation between the cosmic ray energy determined by the particle detectors and the electric field amplitude measured by the dipoles will be discussed.

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

CODALEMA collaboration

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 199-202

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