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Investigating the extensive air shower properties using the polarization and frequency features of the radio signals measured by the CODALEMA autonomous station array.

Tuesday, 10 June 2014 09:10 (30 minutes)

CODALEMA is the last experiment currently running in Europe dedicated to the extensive air shower detection using the observation of its induced radio electric field and with the ambition to promote this radio detection technique to a mature technology suited to a next generation giant cosmic ray observatory. The latest experimental upgrade of CODALEMA consisting in a large array of autonomous stations will be presented with a special emphasis put on the key technical features of this instrument. While the relative timings and the amplitudes of the electric field measured by antennas are now widely used to characterize the extensive air showers, the polarization patterns and the frequency contents are considered now as very useful information to strongly improve these measurement capabilities. The latest results obtained by the dual-polarization wide-band antennas of CODALEMA will be reviewed and their impact in terms of instrumental design and optimization will be investigated.

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