

Vulcano Workshop 2018 - Frontier Objects in Astrophysics and Particle Physics



Contribution ID: 33

Type: **not specified**

LATTES: a Southern window to the extreme Universe

LATTES, the Large Array Telescope for Tracking Energetic Sources, is being designed to be a detector sensitive to gamma rays with energies in the range from 100 GeV all the way up to 100 of TeVs, operating day and night, with a large field of view. The detector, to be installed at altitudes of about 5.000 m a.s.l. in the Andes mountains in South America, is based on a novel concept to detect air showers, combining the time resolution and space granularity of Resistive Plane Counters (RPCs), with the calorimetric sensitivity of Water Cherenkov Detectors (WCD). Although it has limited resolution in energy and direction as compared to Imaging Air Cherenkov Telescopes, such as CTA, its UPTIME and wide field of view make it an early-warning system for transients, being able to trigger and observe long-term variable sources, or short such as gamma-ray bursts or gravitational waves. This detector is complementary to the Cherenkov Telescope Array (CTA), to be installed in Chile. In this talk a description of its main components, as well as the strategies to select the site for this detector will be given. The full simulation of the detector show the performance of each of its parts, leading to the expectation that it can detect a source fainter than the Crab Nebula, emitting at 100 GeV, with a 5σ significance, by running for one year. Above 1 TeV it could detect a source as faint as 10% of that.

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