

Development of an expofeso acquisition card for a Cherenkov detector.

Content

Cosmic rays is ionizing radiation that, as it passes through the Earth, collides with atmospheric atoms in an elastic form, forming cascades of subparticles that can be detected on the Earth's surface. Among the particles that can be registered are, protons, electrons, pions, muons, among others.

Water Cherenkov detectors (WCD) record the passage of secondary particles originated in an atmospheric showers, which generate Cherenkov light when traveling at a speed bigger than that of light in that medium. Generally, they are conformed in detector arrays and, each one usually has ultra pure water inside that serves as a radiator to generate Cherenkov light and as a light sensor they use photomultiplier tubes in the blue-ultraviolet range. The use of WCDs is a of the most used techniques for the detection of cosmic rays and gamma photons in the atmosphere.

It was developed an electronic card based on Red Pitaya for the study of cosmic rays in a Cherenkov water detector and a simulation of the range of energies of the showers we plan to detect.

Summary

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