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The Extreme Energy Events (EEE) Project and its most recent results

Friday, 21 April 2017 17:00 (1 hour)

The main goal of the Extreme Energy Events (EEE) Project is to study the high energy cosmic radiation. This is accomplished through a network of about 50 muon telescopes distributed throughout the Italian territory. Each telescope consists of three Multigap Resistive Plate Chambers (MRPC) -very similar to those built for the Time Of Flight system of the ALICE experiment- used for particle detection and tracing. A distinctive feature of this experiment is that these telescopes are housed in High Schools and managed by groups of students and teachers, who previously took care of their construction at CERN. This peculiarity is a big plus for the experiment, which combines the scientific relevance of its objectives with effective outreach activities. The experiment started to take coordinated data in a pilot run in the fall of 2014. Now, more than 40 EEE telescopes are detecting muons during "Run 3"(from November 2016 to June 2017). Raw data are transmitted from all High Schools to the INFN-CNAF data center, where they are immediately reconstructed and stored. Our current analyses concern about 40 billion candidate muon tracks reconstructed till now. In this presentation, an overall description of the experiment will be given and the most recent results will be shown on various topics including the observation of km-scale coincidences, the variations with time of the muon cosmic flux on astrophysical phenomena like Forbush decreases, upward flux of particles, muon lifetime, search for anisotropies in the muon angular distribution.

Summary

In this presentation, an overall description of the Extreme Energy Events (EEE) Project will be given and the most recent results will be shown on various topics including the observation of km-scale coincidences, the variations with time of the muon cosmic flux on astrophysical phenomena like Forbush decreases, upward flux of particles, muon lifetime, search for anisotropies in the muon angular distribution.

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