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Simulation study on the detection of high energy electrons and gamma rays with the newly upgraded Tibet ASgamma experiment

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The rapidly declining electron flux with the power index of ~ 3.3 makes it difficult to measure directly with instruments on board balloons and satellites at high energies higher than about 1 TeV. However, the large-area and wide-field EAS arrays could be used to extend cosmic-ray electron spectrum ($e^+ + e^-$) measurements up to about 10 TeV or more. The newly upgraded Tibet hybrid AS experiment (Tibet-III+MD) may become one of the world's most sensitive observatories of gamma rays or maybe electrons above 10 TeV due to its high gamma/hadron separation ability. In this paper, using a Monte Carlo simulation, we examine its ability for measuring CR electron spectrum in the high Galactic latitude area.

Collaboration

– not specified –

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