30TH INTERNATIONAL COSMIC RAY CONFERENCE

Measurement of Cosmic Ray Electrons with H.E.S.S.

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Abstract: Due to energy losses in the interstellar medium, cosmic ray electrons at TeV energies carry information on local (within a few hundred parsecs) accelerators. However, measurements of the spectrum of the cosmic ray electrons beyond 1 TeV are extremely difficult due to the rapidly declining flux and the much more numerous background of nucleonic cosmic rays. The very large collection area of Cherenkov telescope arrays makes them promising instruments with which to measure these high energy electrons. While Cherenkov telescopes solve the problem of low fluxes of cosmic ray electrons in the TeV range, they still have to deal with the problem of distinguishing electrons from the nucleonic background. Here we report on first results towards a measurement of the cosmic ray electron spectrum with the High Energy Stereoscopic System (H.E.S.S.). The improved background supression that is needed for such a measurement is achieved by an event classification with the "Random Forest" algorithm based on decision trees.

Results will be given in the post-conference version of the proceedings.