

Exploring a new g/h separation models on HAWC Observatory

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Content

The High-Altitude Water Cherenkov (HAWC) is an ground-based TeV gamma ray observatory located on Puebla, Mexico. It collects the secondary particles of the shower that were produced by primary particles (gamma-ray or hadron) via indirect detection and it is optimized to detect the particles with energy from 300 GeV to above 100 TeV. Several researches have been made in the gamma-ray observatories and they concluded the main problem on this kind of observatories is the huge number of hadron events that are detected, therefore, they have to suppress these kind of particles on the analysis of gamma-ray sources. In this work will be described three kind of models for this task: one is the official one that is described as rectangle cut model involving two variables, and the last two use a machine learning techniques (boosted decision tree and neural network) in order to build a sophisticated model using various input variable.

Summary

Primary author(s) : Mr. CAPISTRÁN ROJAS, Tomás (INAOE)

Presenter(s) : Mr. CAPISTRÁN ROJAS, Tomás (INAOE)