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Study of potential the observables for Gamma/Hadron separation in the SWGO observatory

A significant challenge encountered by ground-based gamma-ray observatories is the substantial quantity of cosmic-ray particles that trigger detections. Therefore, it is crucial to implement techniques that can distinguish and separate gamma-ray showers from cosmic-ray showers. The Southern Wide-field Gamma-ray Observatory (SWGO) will be an array of water Cherenkov detectors, currently planned for construction in Chile in the Southern Hemisphere. The current simulation of the observatory includes a set of parameters as potential observables, some of which have demonstrated strong potential for effective gamma/hadron separation. In this work, we present an analysis of the performance of the most promising of these observables under different ranges of reconstructed energy, core position, and arrival direction.

Collaboration(s)

SWGO

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