

Measurement of the improved angular resolution of GRAPES-3 EAS array by the observation of the Moon shadow

For the GRAPES-3 collaboration

Diptiranjana Pattanaik

What is this contribution about?

The contribution is about the absolute calibration of the angular resolution of GRAPES-3 array by observing the cosmic ray shadow of the Moon.

Why is it relevant / interesting?

Point cosmic ray sources can be detected by identifying the γ -rays coming from them. Since the cosmic rays contribute to a large background, an excellent angular resolution can help to reject a large fraction of the background cosmic rays.

What have we done?

We studied the background for the Moon by considering 6 different off-source regions. Then the observed cosmic ray deficit along the direction of the Moon was fitted with a Gaussian function to determine the angular resolution.

What is the result?

From the Moon shadow method, the angular resolution of the GRAPES-3 array has been obtained to be $\sim 0.54^\circ \pm 0.09^\circ$ at energy above 50 TeV. This result is crucial for detecting the γ -rays above 50 TeV from the cosmic ray sources.