A maximum-likelihood-based technique for detecting extended gamma-ray sources with VERITAS

EXECUTIVE SUMMARY

Overview

This science poster details the progress towards developing a 3D-Maximum Likelihood Method to be utilized in VERITAS analysis on extended gamma-ray sources.

The Scientific Interest

Multiple galactic cosmic-ray accelerator candidates have extended emission above 100 GeV, but a robust analysis from IACTs has yet to be performed on many of the moderate to largely extended sources. Spectral results would contribute to our understanding of the origins of galactic cosmic-rays.

Recent Developments

We have performed various validation and function modeling in order to develop instrument response functions and background models for the 3D-MLM.

Latest Results

We have settled on a model for the VERITAS PSF, a method for matching camera noise between different data fields, and criteria for selecting background fields.