

New methods to reconstruct X_{\max} and the energy of gamma-ray air showers with high accuracy in large wide-field observatories



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What is this contribution about?

We present a **novel method to reconstruct the shower energy** with an improved resolution which is achieved through the right assessment of the shower development stage.

Why is it relevant/interesting?

The application of this method allows **ground-based gamma observatories** to improve their sensitivity.

What has been done?

Through simulation studies it was shown that the **shower energy** can **better parametrized as a function of the energy at the ground (S_{em}), X_{\max}** , which can be measured through the shower curvature, and the **fraction of energy near the shower core (f_{20})**.

What is the result?

Improved energy reconstruction resolution and it is shown that the **uncertainty on the shower stage can be tamed** to the level where it is no longer the main contribution for this resolution.

