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## Energy Determination and Gamma/Hadron Separation using the Lateral Distribution of EAS for the 100 TeV Gamma-Ray Astronomy

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More than 100 gamma-ray sources have been detected by the Cherenkov telescopes in the energies from sub-TeV to multi-TeV. On the other hand, the extensive air shower (EAS) arrays, such as the Tibet air shower array, the ARGO-YBJ and the Milagro, have observed several gamma-ray sources with the wide field of view and higher energy threshold than the Cherenkov telescopes.

Aiming at 100 TeV gamma-ray astronomy, the Tibet water-Cherenkov-type muon detector (MD) array ( $\sim 4000\text{m}^2$ ) was constructed under the Tibet air shower (AS) array ( $\sim 37000\text{m}^2$ ), and the data taking was started in 2014. This AS+MD array will significantly improve gamma-ray sensitivity in 10-1000 TeV region by means of gamma/hadron separation based on counting the number of muons accompanying an air shower.

In this work, performance of the Tibet AS+MD array will be investigated by the detailed MC simulations. We will mainly study the energy determination of gamma-ray-induced air showers in the 10-1000 TeV energy region using the lateral distribution of EAS assuming the Tibet AS+MD array. We will also show possibility of selecting gamma-ray showers from the hadron backgrounds by the age parameter of the lateral distribution.

### Collaboration

- not specified -

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