



## **Study of Discrimination between Cosmic Gamma Rays and Protons at Multi-TeV Energies with the Tibet Air Shower Array**

THE TIBET AS $\gamma$  COLLABORATION

**Abstract:** The Tibet air shower array, consisting of 533 scintillation counters which are placed in a lattice with 7.5 m spacing, has been in operation since 1999 at Yangbajing in Tibet, China at an altitude of 4,300 m above sea level. We found a modest discrimination between gamma- and proton-initiated air showers based on air shower profiles observed by the Tibet air shower array. This method is applied to the Crab Nebula as the standard gamma-ray source in the northern sky and excesses of anisotropy components, such as Tail-In region and the Cygnus arm direction, in multi-TeV energies. Further, we will try to judge whether these excesses are of gamma or proton origin, comparing our data between before discrimination and after discrimination.