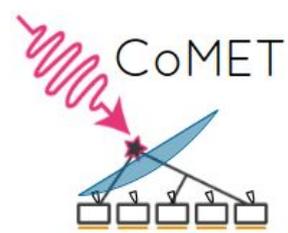


Expected performance of the ALTO particle detector array designed for 200 GeV - 50 TeV gamma-ray astronomy

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What is this contribution about? We report the simulation study results of the proposed ALTO particle detector array for the purpose of extra-galactic very-high-energy gamma-ray astronomy.

Why is it relevant / interesting? For ground-based particle detector arrays, extragalactic sources are difficult to detect because they have a soft spectrum due to EBL absorption. For instance, HAWC has detected two nearby sources: Mkn 421 and Mkn 501. We aim for a lower energy threshold by optimising the particle detector design and the observation altitude, to detect more Active Galactic Nuclei and Gamma-Ray Bursts.

What have we done? We have performed a full Monte Carlo analysis which includes CORSIKA, GEANT4, shower reconstruction, the SEMLA analysis, sensitivity calculation and expected spectral response.

What is the result? From this study, we learnt that ALTO would be able to detect the extra-galactic sources such as the GRBs recently seen by IACTs in timescale of seconds-minutes and thus it is promising for the purpose of extra-galactic VHE gamma-ray astronomy.

