

ALPACA : A new air shower array experiment to explore 100TeV gamma-ray sky in Bolivia

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Andes Large area Particle detector for Cosmic ray and Astronomy (ALPACA) is a new air shower experiment to be constructed near the Chacaltaya mountain in Bolivia at altitude of 4740 m. A conventional surface array with 401 scintillation counters covers 83,000 m² to detect cosmic rays and cosmic gamma rays above 10TeV. Total 5400 m² of water Cherenkov muon detector is constructed 2.2 m underground that enables to discriminate between cosmic-ray and gamma-ray initiated showers to enhance the sensitivity to gamma rays. ALPACA explores the southern gamma-ray sky at 100TeV for the first time and reveals the accelerators of galactic cosmic rays called PeVatrons. A prototype array called ALPAQUITA covering 20% of the full ALPACA area with 1000 m² muon detector is now funded and under construction. Scientific targets and sensitivity of ALPACA together with the current status of ALPAQUITA are presented.

Primary authors: SAKO, Takashi (University of Tokyo (JP)); ALPACA COLLABORATION

Presenter: SAKO, Takashi (University of Tokyo (JP))

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