

Observing soft-spectrum gamma-ray sources with the future ALTO observatory

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Astrophysical jets in active galaxies and gamma-ray bursts (GRBs) accelerate charged particles, giving rise to fluxes of very-high-energy (VHE) gamma-rays. While observing high redshift GRBs on Earth, the photon spectrum gets softer at VHEs due to the extra-galactic background light (EBL) absorption. Additionally, detecting such VHE gamma-rays is a probe to search for axion-like particles and to test Lorentz invariance violation. ALTO is a R&D project for the design and prototyping of a very-high-energy (200 GeV - 100 TeV) gamma-ray observatory using particle detectors optimized to regularly monitor such distant soft-spectrum sources. In the R&D phase of ALTO, the expected detection performance on such targets is obtained using a dedicated simulation, reconstruction and analysis. I will present the status of the prototyping effort and the simulated performance of the large-scale ALTO array.

Abstract Track

Astroparticle physics

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