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Status of the Cherenkov Telescope Array Observatory

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Very-high-energy (VHE) gamma-ray astroparticle physics is a relatively young field. Observations over the past decades have revealed about 250 VHE emitters that appear to act as cosmic particle accelerators, boosting the field significantly. These findings prove that the detection technique based on imaging atmospheric Cherenkov telescopes (IACT) has reached a level of maturity that allows the IACT scientific community to consider switching from experiments to proposal-driven astronomical observatories. The Cherenkov Telescope Array Observatory (CTAO) is the realization of this idea. CTAO consists of two arrays of IACTs. One array is located in the Northern Hemisphere, at the Observatorio Roque de los Muchachos (ORM) in the Canary island of La Palma. The other array is located in the Southern Hemisphere, in Paranal, Chile. The CTAO will utilize IACTs of three different sizes to reach a broad energy range (from 20 GeV to 300 TeV). The construction of the CTAO is about to officially start, with CTAO Large-sized telescopes (LSTs) already being commissioned in the ORM. In parallel, the infrastructure works and telescope deployment are soon beginning at the CTAO south site. In this contribution, we will present the upcoming CTAO facility, the construction plans, the planned science operations, and CTAO's potential scientific exploitation, emphasizing Spanish contributions to the project.

Abstract

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