

Huge energies

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CTA, the Cherenkov Telescope Array - artist's view / credit: ASPERA/G.Toma/A.Saftoiu

Beyond the cosmic magnetic storms, gamma photons travel in the cosmic vacuum with almost no perturbation. The most energetic ones trigger Cherenkov light flashes when they enter the atmosphere, due to the secondary particle showers they produce. The hunt for this elusive signature led to the invention of new revolutionary telescopes, high-speed detectors.

Representation of a pulsar / credit : NASA /Fermi LAT Collaboration

Some stars such as pulsars are true cosmic catapults, ejecting very high-energy particles and photons. From the ground or space, new gamma telescopes enable us to dissect the function of the processes of acceleration which take place in the heart of these ultra dense stars. Powerful magnetic fields combined with the uncontrolled pulsar rotation are responsible for the generation of high energy particles and gamma-rays. The Cherenkov Telescope Array CTA, with very sensitive detectors, will allow new advancements in understanding the physics of black holes, the environment of compact objects, the evolution of supernovae!