

SciNeGHE 2016 High-energy gamma-ray experiments at the dawn of gravitational wave astronomy



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MAGIC highlights: An instrument for cosmic-ray and gamma-ray astroparticle physics at the TeV scale

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MAGIC is an instrument composed of a pair of telescopes for gamma-ray and cosmic-ray astrophysics in the TeV range. It is operating for more than a decade now, and is one of the current best performing instruments in this field, specifically at low energies, where it achieves the largest sensitivity among current installations of this kind. MAGIC pursues a strong program in galactic and extragalactic gamma-ray science. Its catalog of blazar, radiogalaxy and galaxy clusters observations as well as supernovae, novae, pulsar wind nebulae, pulsars and binary systems has now increased to several tens of detected targets, and will be critically reviewed and discussed in this contribution. In addition, MAGIC has a strong fundamental physics program, with searches for particle dark matter, Lorentz Invariance violations, axion-like particles and primordial black hole evaporation, providing important recent constraints in some relevant cases. Finally, MAGIC is suited for cosmic ray searches, being sensitive to the signatures of earth-skimming tau-neutrinos, cosmic antiprotons, and others. The basic instrumental features and challenges will also be presented. A discussion about the future of the instrument will be made in the closing remarks.

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