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The Latin American Giant Observatory (LAGO) capabilities for detecting Gamma Ray Bursts

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The Latin American Giant Observatory (LAGO) consists of a network of small water Cherenkov detectors (WCD) located at different sites in Latin America. It is a large aperture observatory sensitive to high energy gamma rays and due to its high duty cycle, LAGO constitutes a facility to detect transient events from the ground. Gamma Ray Bursts (GRBs) are of the brightest transients detected, with typical energies in their prompt phase ranging from keV to MeV, but theoretical models predict emissions at higher energies in the early times of the afterglow emission, and recently GRB190114C was the first GRB detected at TeV energies by the MAGIC experiment. In this work, we present the results of the expected sensitivity of LAGO for possible events like GRB190114C. We performed simulations in three of the LAGO sites to assess the sensitivity of the Observatory for this kind of events, using the ARTI toolkit developed by LAGO. We simulate photon showers with different spectral slopes and energies from 200 GeV to 1TeV using the parameters presented by MAGIC for the recorded event.

Keywords

High energy gamma rays; GRBs; Detection methods

Collaboration

other (fill field below)

other Collaboration

LAGO

Subcategory

Theoretical Results

Primary authors: Dr OTINIANO, Luis (CONIDA); Dr SACAHUÍ REYES, José Rodrigo (Universidad de San Carlos); Dr SARMIENTO CANO, Christian (Instituto de Tecnologías en Detección y Astropartículas (ITeDA), Centro Atómico Constituyentes, CNEA, CONICET, UNSAM); Dr SIDELNIK, Iván (Centro Atómico Bariloche, CNEA and CONICET); Dr ASOREY, Hernán (Instituto de Tecnologías en Detección y Astropartículas (ITeDA) and Centro Atómico Bariloche); FOR THE LAGO COLLABORATION

Presenter: Dr SARMIENTO CANO, Christian (Instituto de Tecnologías en Detección y Astropartículas (ITeDA), Centro Atómico Constituyentes, CNEA, CONICET, UNSAM)

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