

MEASURED FLUX AND ANGULAR DISTRIBUTION OF COSMIC-RAY MUONS IN CANFRANC UNDERGROUND LABORATORY

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In experiments probing rare phenomena, such as neutrino interactions, double beta decays or dark matter, understanding the background conditions is necessary. One background component originates from cosmic-ray muons. Even though such experiments are located in deep underground locations, there is always a residual flux of such muons. The absolute muon flux and its angular distribution characterise muon background conditions in underground locations. Typically, the required information on rock overburden is not available for precise calculation of the muon flux and it has to be measured.

We present the results of muon flux and angular distribution measurement in Laboratorio Subterráneo de Canfranc (LSC) in Spain, see 1. Our detector setup, Muon Monitor, consists of 22 modules of SC16 plastic scintillator detectors [1] stacked in 3 layers: 3×3 modules on the top, 2×2 in the middle, and 3×3 on the bottom, allowing tracking of high energy muons. The results are based on 600 days of data taking in Hall A of LSC.

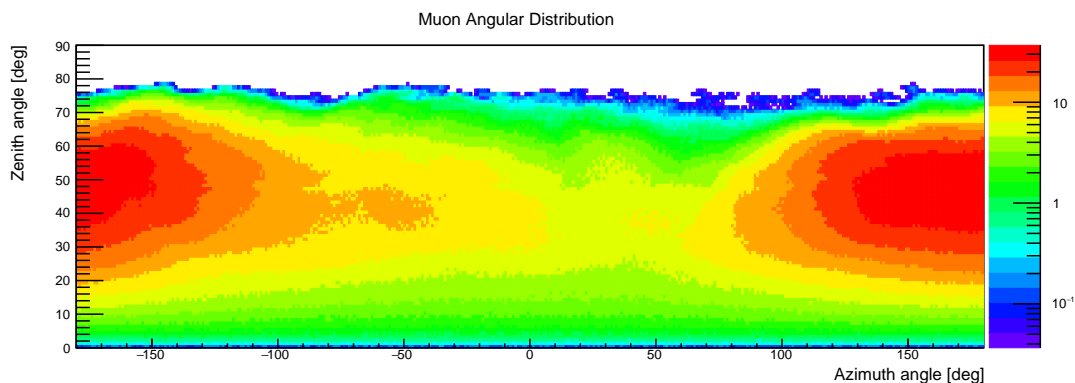


Figure 1: Measured angular distribution of muons in Hall A of LSC

[1] Akhrameev E V et al. 2009 Nucl. Inst. Meth. in Phys. Res. A 610 419