

Second Lisbon mini-school on Particle and Astroparticle Physics



Contribution ID: 36

Type: **not specified**

Unveiling cosmic particles with muons: the cosmic connection

Tuesday, 7 February 2017 09:00 (4h 30m)

Our cosmos is full of radiation.

Its composition is made of massless particles (photons) and different mass particles such as protons, electrons, positrons and heavier nuclei.

Their observation is a consequence of being accelerated with striking energies on the cosmos accelerator, at singular supernova regions.

Muons are smoking guns of these primary cosmic particles.

They are relatively short lived particles that are generated on interactions of primaries on the top of the atmosphere, ten kilometers above earth surface.

Its detection upon earth is due to its high energy that allows its survival for kilometers as was explained by the Einstein relativity.

On this hands-on project we are going to use a bi-scintillator telescope to detect muons and to measure its rate (number of muons per second).

From that measurement and its normalization that requires a small Monte-Carlo program to calculate the telescope geometrical acceptance, we shall

be able to estimate the muon vertical intensity and compare its value with literature.

Primary authors: Mr BARÃO, Fernando (LIP); CONCEIÇÃO, Rúben (LIP)

Presenters: Mr BARÃO, Fernando (LIP); CONCEIÇÃO, Rúben (LIP)

Session Classification: Hands-on in Cosmic Rays