

# Measurement of the attenuation length of muon in the air shower with muon detectors of LHAASO

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The muons number observed at the ground from air showers is sensitive to the mass composition of cosmic rays and hadronic interaction model, the attenuation length of these muons will affect the measurement of the muon number. The muon detectors of LHAASO KM2A can directly measure the muons number in the air shower. Using the data recorded by the first-quarter array of KM2A in August 2020, the muons number is measured for the air shower events with zenith angle less than 45 degree. Based on the constant intensity cut method, the muon attenuation length is derived by fitting the muon number with same flux in different zenith angle. The relation between attenuation length and muon number in the shower is studied also. The simulation also does for QGSII-Gheisha, EPOS-Fluka models. The muon decay attenuation length from simulation data is compared with the experimental data.

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Cosmic rays

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