



Contribution ID: 46

Type: **not specified**

Presentation 17: Planning for muon tomography campaigns in urban settings

Thursday 25 January 2024 15:06 (12 minutes)

Muon tomography takes advantage of the natural flux of muons created by the interaction of cosmic rays with the Earth's atmosphere to image large structures, being sensitive to their shape and density. Being a non-invasive method, muography comes forth as a prime candidate to use in urban settings, giving us an unprecedented upwards look into the hidden spaces beneath our cities. This work will focus on studying the possibility of using muography along the Monsanto –Santa Apolónia drainage tunnel below Lisbon, which provides a valuable case study of the cross profile of the city, since it intersects different geological formations and provides access to the installation of the detector, enabling the study of the soil properties and both over and underground constructions.

As a result, the main objectives of this study include determining what kind of natural and man-made structures exist in the path of the drainage tunnel and which ones are possible to detect, estimating the time scale needed for the data acquisition in order to provide enough statistical significance to point out the existence of those objects and preparing for a potential campaign of carrying out this experiment on the test site.

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