

Muon tomography using Micromegas detectors at CEA Saclay

Thursday 28 May 2020 16:36 (18 minutes)

Muon tomography consists in using cosmic muons to probe structures in a neither invasive nor destructive way. Following the first muography of a water tower using a muon telescope based on Micro-Pattern Gaseous Detectors and developed at CEA Saclay in 2015, the gaseous detectors and electronics have been developed to be more robust to high variations of temperature, allowing to operate in Egypt for the ScanPyramids mission since 2016. More recently, simulations showed that muon telescopes based on Micromegas detectors could also be used to detect cavities for geology studies or dismantling of nuclear facility leading to several partnerships with industrials.

However, telescopes are directional and have a limited compacity. To expand the spectrum of applications, CEA is developing a compact TPC that would allow a full track reconstruction quasi-isotropical.

In this talk the development of muon tomography instruments using Micromegas detectors in CEA Saclay (France) are presented.

Funding information

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Session Classification: Technology Transfer

Track Classification: Technology Transfer