

Status and performance of the underground muon detector of the Pierre Auger Observatory

Executive Summary



Ana Martina Botti^{a,b} for the Pierre Auger Collaboration^c

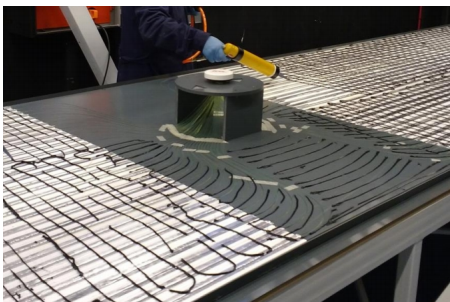
^a Instituto de Tecnologías en Detección y Astropartículas (CNEA, CONICET, UNSAM), Buenos Aires, Argentina

^b Department of Physics, FCEyN, University of Buenos Aires and IFIBA, CONICET, Buenos Aires, Argentina

^c Observatorio Pierre Auger, Av. San Martín Norte 304, 5613 Malargüe, Argentina

What is this contribution about?

We describe the underground muon detector (UMD) of the Pierre Auger Observatory, an array of 219 buried plastic scintillators with an area of 10 m² each.



Why is it relevant/interesting?

With the UMD, we can obtain direct measurements of muons in air showers initiated by primaries with energy between $\sim 10^{16.5}$ and $\sim 10^{19}$ eV to improve the mass composition analyses and shed light on the muon puzzle.

What has been done?

The end-to-end calibration was developed and is running smoothly. 35% of the array has been deployed.

What is the result?

The UMD will soon be ready to start physics analyses. The detector will be fully commissioned by 2022.