



Contribution ID: 291

Type: **Experimental poster**

## Exploring the lifetime frontier with the proposed MATHUSLA detector

*Thursday, 28 May 2020 18:45 (1 hour)*

MATHUSLA is a proposed detector that will be placed above the CMS experiment to study long-lived particles (LLP) produced by the LHC. It is instrumented with a tracking system to observe LLP decays inside its empty volume, and it is composed of a modular array of detectors covering together  $(100 \times 100) \text{ m}^2 \times 25 \text{ m}$  high. MATHUSLA, with a large detection area and good granularity tracking system, is also an efficient cosmic-ray telescope to study EAS.

To study the main expected sources of background in the MATHUSLA detector, a test stand was built on the surface above the ATLAS detector, taking data during 2018.

In this poster we will describe the main detector concept, layout and current status as well as the test stand results. These provided measurements of the flux of cosmic rays in the surface above ATLAS and the rate of muons from the LHC interactions reaching the surface.

**Primary author:** TORRO PASTOR, Emma (Univ. of Valencia and CSIC (ES))

**Presenter:** TORRO PASTOR, Emma (Univ. of Valencia and CSIC (ES))

**Session Classification:** Poster Session (I)

**Track Classification:** Dark Sector BSM