



Contribution ID: 65

Type: **Parallel talk**

## The Mu3e experiment: physics and status

*Friday, 7 July 2023 14:50 (25 minutes)*

Mu3e is an experiment under construction at the Paul Serrer Institute dedicated to the search of the charged lepton flavor violating  $\mu \rightarrow eee$  decay at branching fractions of  $10^{-16}$ , which will be an improvement over the preceding SINDRUM experiment by four orders of magnitude. Furthermore, as the decay is heavily suppressed in the Standard Model, its observation would unambiguously indicate the existence of new physics.

However, achieving such sensitivity requires a high rate of muons and a large kinematic acceptance; hence, excellent momentum, time and vertex resolution is essential to suppress the background and to facilitate the global event reconstruction.

To minimize multiply scattering of low-momentum particle produced from the muons stopped at a target, an innovative tracking detector built from novel thin HV-MAPS technology is used for momentum and vertex reconstruction, complemented with two very precise timing detectors.

Besides, its associated DAQ sub-system is aimed to readout more than 80 Gbps of detector data from sub-detectors with the 1.25 Gbps LVDS links. Meanwhile, online selection algorithms are implemented in hardware to truncate the data rate.

In this talk, the Mu3e detector construction, commissioning status and performance characterization are presented

**Primary author:** WANG, Yifeng (ETH Zürich)

**Presenter:** WANG, Yifeng (ETH Zürich)

**Session Classification:** Parallel talks 5: Flavour & Precision Physics