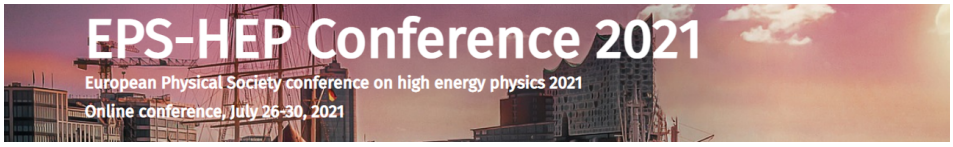

Contribution ID: **838** Type: **Parallel session talk**

Muon reconstruction performance and detector-design considerations for a Muon Collider

Wednesday 28 July 2021 17:30 (12 minutes)

A muon collider has a great potential for particle physics giving the possibility to reach the high center-of-mass energy and luminosity of hadron colliders, with a greatly reduced pile up effect. However, a series of challenges arise mainly from the short muon lifetime and the Beam-induced Background. A complete simulation,based on CLIC's ILCSoft software, is ongoing to understand the performance of the full detector. Concerning the muon system, the iron yoke plates are meant to be instrumented with layers of track sensitive chamber to enhance the muon identification. At the moment, according to CLIC geometry, glass Resistive Plate Chambers with readout cells of 30x30 mm^2 have been adopted both for the barrel and the endcap region. Other possible solutions,based on MicroPattern Gaseous Detectors, will be discussed considering their characteristics and performance.
The results of a preliminary study investigating the muon reconstruction efficiency, Beam-induced Background sensitivity and background mitigation are presented for muon beams collisions at a center-of-mass energy of 1.5 TeV.

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Collaboration / Activity

Muon Collider

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