Towards the Muon Collider Detectors

A Muon Collider with the centre-of-mass energy of 3 to 10 TeV has gained a lot of interest in the recent years thanks to its unique combination of high energy reach, clean final states and low environmental footprint. However, as muons are unstable particles such a machine will be accompanied with technological challenges for a collider experiment: an unprecedented amount of secondary and tertiary decay products will enter the detector volume. The detector design, choice of technology, and reconstruction algorithms are therefore heavily influenced by the 'beam-induced background'. In this talk we describe the challenge, mention promising technologies, present the current detector concept and performance based on full simulation studies, and demonstrate that high quality physics is possible in the muon collider environment.

Early Career

No

Primary author:  JINDARIANI, Sergo (Fermilab)
Presenter:  JINDARIANI, Sergo (Fermilab)
Session Classification:  RDC10

Track Classification:  RDC Parallel Sessions: RDC10: Detector Mechanics