



Contribution ID: 330

Type: **Poster submission**

Study of Physics Performances at Muon Collider

Thursday, August 8, 2019 10:40 AM (20 minutes)

Summary

The Muon Collider is a possible option for the next generation of high energy collider machines. It would permit to achieve the energy frontier in leptons collisions, without occurring in significative synchrotron radiation losses as in electrons rings.

Among the technological challenges in the realization of such machine, the treatment of the beam-induced background is one of the most critical issues.

Since the muon beams must be very intense to reach high luminosity, the muons decay products and subsequent particles from secondary interactions with the environment can reach the interaction point, limiting the physical performances of the detector. This talk presents a reconstruction strategy for a benchmark process, $H \rightarrow b\bar{b}$, with the beam-induced background superimposed obtained after the optimization of the machine-detector interface.

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Session Classification: Poster Session (Thu/Fri)

Track Classification: Accelerators, Detectors and Computing for HEP