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Detector performance and physics reach of at Muon Collider

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A muon collider is very promising for the future of high energy physics and is becoming a realistic option. It combines the high precision of electron-positron machines, with a low level of beamstrahlung and synchrotron radiation, and the high centre-of-mass energy and luminosity of hadron colliders. Beams with an intensity of the order of 10^{12} muons per bunch are necessary to obtain the desired luminosity, which entails a very high rate of muons decay. Among the technological challenges, the treatment of the Beam-induced Background is one of the most critical issues for the detector design.

This contribution will present the detector performance for collider machines working at centre-of-mass energies up to 3 TeV, discussing, in particular, the strategies studied to mitigate the effect of the Beam-induced Background. Moreover, the reach of the most representative physics processes will also be discussed.

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