

A flexible tool for Beam Induced Background Simulations at a Muon Collider

Wednesday, 29 July 2020 18:40 (20 minutes)

A Muon Collider represents a very interesting possibility for a future machine to explore the energy frontier in particle physics.

However, to reach the needed luminosity, beam intensities of the order of 10^{9-11} muons per bunch are needed. In this context, the beam Induced Background must be taken into account for its effects on the magnets and on the detector.

Several optimisations can be conceived with the aim to mitigate them. In this view, it is of crucial importance to develop a flexible tool that allows to easily reconstruct the machine geometry in a Monte Carlo code, allowing to simulate in detail the interaction of muon decay products in the machine, while being able to change the machine optics itself to find the best configuration.

In this contribution, a possible approach to such a purpose is presented, based on FLUKA for the Monte Carlo simulation and on LineBuilder for the geometry reconstruction.

First results based on 1.5TeV machine optics developed by the MAP collaboration are discussed, as well as a first approach to possible mitigation strategies.

Secondary track (number)

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Session Classification: Accelerator: Physics, Performance, and R&D for Future Facilities

Track Classification: 11. Accelerator: Physics, Performance, and R&D for Future Facilities