Contribution ID: **783** Type: **Parallel session talk**

Machine-Detector interface for multi-TeV Muon Collider

Wednesday 23 August 2023 09:55 (15 minutes)

Multi-TeV muon collisions are one of the most promising means to perform Standard Model high precision physics measurements and to search for new physics. The design of the interaction region and therefore of the Machine-Detector Interface, depends on the center of mass energy, therefore dedicated studies and optimizations are needed. In order to achieve the desired luminosity, high beam intensities, of the order of 10^12 muons per bunch, are needed. This generates a high flux of secondary and tertiary particles that reach both the machine elements and the detector region. The current strategy adopted by the International Muon Collider Collaboration to manage the flux of these particle is based on dedicated absorbers along the beamline and in the interaction region, as in past it was done by the Muon Accelerator Program in US.
This contribution will describe the interaction region configuration at two center of mass energies, 3 and 10 TeV, focusing on the absorbers design. The characteristics of the beam-induced background after the absorber' s introduction and its main effects on the detector performance will be also presented.

Collaboration / Activity

IMCC

Primary authors: LECHNER, Anton (CERN); LUCCHESI, Donatella (University and INFN of Padova)

Presenter: LUCCHESI, Donatella (University and INFN of Padova)

Session Classification: T13 Accelerators for HEP

Track Classification: Accelerators for HEP