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Measurement of the transversal Muon Rate at the proposed CODEXb experiment with the Timepix3 Radiation Monitor

Tuesday 3 June 2025 16:00 (2 hours)

Using a Timepix3 radiation monitor, we measured the muon rate at the proposed CODEXb experiment location within the Large Hadron Collider (LHC) during luminosity production at the LHCb collision point. Filters were applied to the data to differentiate the background radiation from the muon signal by analyzing the particle track morphology—specifically cluster type, length, and angle within the detector. The resulting filtered muon rate was determined to be 8.6±1.5 counts/(cm · pb^{-1}). These results were further compared to simulations performed with the FLUKA Monte Carlo code, showing agreement within the uncertainties.

Footnotes

Paper preparation format

LaTeX

Region represented

Europe

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