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Performance of the Muon Forward Tracker of ALICE at the LHC for the low mass dimuon physics

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The ALICE experiment at LHC is designed to study the quark-gluon plasma (QGP) created in ultra-relativistic heavy ion collisions. The Muon Forward Tracker (MFT) project is a part of the ALICE program of detector upgrade for Runs 3 and 4, starting from 2020. The MFT is designed as a silicon pixel detector covering the $-3.6 < \eta < -2.5$ region in the Muon Spectrometer acceptance to be installed between collision point and the hadron absorber. Owing to this new detector, the resolution for the measurement of the muon production vertex will be improved dramatically and a broader physics program could be developed improving the performance of the current muon spectrometer.

One of the main goals of the MFT project is to perform measurements providing information on the restoration of chiral symmetry in the QGP, as predicted by lattice QCD calculations. Properties of low-mass vector mesons (ρ, ω, ϕ) composed of light u, d and s quarks are expected to change under the chiral symmetry restoration. This phenomenon can't be easily observed in hadronic decay channels because of final-state re-interactions of the decay particles in the later stages of the collisions. For this reason, dilepton measurements are preferred, allowing the information from the hot and dense QGP phase to be extracted without significant degradation. In this contribution, the performance for low-mass dimuon measurements physics will be presented.

On behalf of collaboration:

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