

Dimuon measurement in low and intermediate mass region in $\sqrt{s} = 13.6$ TeV pp collisions at ALICE

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In high-energy proton-proton (pp) collisions, the study of dimuon production provides crucial insights into particle production mechanisms and can serve as a baseline for the study of the properties of the quark-gluon plasma (QGP). In particular, the low (below the phi mass) and intermediate (between the phi and the J/psi) invariant mass regions are of interest for measurements of vector mesons (rho, omega, phi) and open heavy flavors. Signals of chiral symmetry restoration and thermal dimuons may be detected on top of the previous sources, in nuclear collisions.

The ALICE experiment has been collecting pp collisions data at $\sqrt{s} = 13.6$ TeV in the ongoing LHC Run 3. In this study, we analyze data from the muon spectrometer, which has been upgraded by the installation of the Muon Forward Tracker.

Data have been analyzed to extract the dimuon invariant mass spectra. The combinatorial background was then evaluated with a data-driven procedure while correlated background sources were estimated by a MonteCarlo-based procedure. The specific goal of this study is to measure the production cross-section of heavy quarks, and first results of the analysis will be presented.

Category

Experiment

Collaboration

ALICE

Author: OYA, Motomi (Hiroshima University (JP))

Presenter: OYA, Motomi (Hiroshima University (JP))

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