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Feasibility study of chiral symmetry restoration with ALICE

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The origin of hadron masses cannot be attributed to the Higgs mechanism alone. On top of that, the spontaneous breaking of chiral symmetry potentially restored at extremely high temperatures, plays an important role. Low-mass vector mesons (ρ , ω , ϕ) are highly sensitive to chiral symmetry restoration effects, and their electromagnetic spectral function is expected to be modified in Pb-Pb collisions as compared to the “vacuum” spectral function measured in pp collisions. Chiral symmetry restoration can manifest itself in two different ways: a pole-mass shift or a broadening of the spectral function.

In this poster, the feasibility study for measuring ω meson in the dimuon channel using the ALICE forward muon tracker is presented. Results obtained using Run 2 data are used as a reference for studying the expected performance in Run 3 using the upgraded forward tracker. The measurement will be performed using the data that will be collected this year during the heavy-ion run.

Category

Experiment

Collaboration (if applicable)

ALICE experiment

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