

Feasibility of $\rho(770)^0 \rightarrow \pi\pi$ measurement with standalone MFT tracks with ALICE

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The short-lived resonances are sensitive probes of the hadronic phase whose lifetime is several fm/c in heavy-ion collisions. The final state yields are expected to be affected by re-scattering and regeneration after chemical freeze-out. The measured yield of resonances tends to be suppressed by the re-scattering of daughter particles with other hadrons. On the other hand, it tends to be increased by regeneration due to pseudo-elastic scattering processes. The cumulative effect depends, among other parameters, on the lifetime of the hadronic phase and the resonance and medium density. The production of $K^*(892)^0$, $\Lambda(1520)$ and $\rho(770)^0$ at midrapidity has been observed consistent with prediction including these effects in the hadronic phase. At ALICE, charged particles can be detected in the forward region with the Muon Forward Tracker (MFT) which is installed in front of the absorber for the Run 3 data taking and covering $-3.6 < \eta < -2.5$. $\rho(770)^0 \rightarrow \pi\pi$ is expected to be measured in the forward region using MFT. The production of $\rho(770)^0$ in the forward region will provide further insight into the processes in the hadronic phase.

In this talk, we will present the feasibility of measuring $\rho(770)^0 \rightarrow \pi\pi$ using MFT in pp, assuming that all particles injected into MFT are pions.

Theory / experiment

Experiment

Group or collaboration name

the ALICE collaboration

Primary author: KIMURA, Kento (Hiroshima University (JP))

Presenter: KIMURA, Kento (Hiroshima University (JP))

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