Contribution ID : **124** Type : **poster**

Inclusive reconstruction of hadron resonances in elementary and heavy-ion collisions with HADES

Saturday, 4 June 2016 16:00 (1:30)

Collaboration

HADES

Abstract content

The unambiguous identification of hadron modifications in hot and dense QCD matter is one of the important goals in nuclear physics. In the regime of 1 - 2 GeV kinetic energy per nucleon, HADES has measured rare and penetrating probes in elementary and heavy-ion collisions. The dominating constituents of the matter formed in the collision zone are primordial nucleons. The main creation mechanism of mesons is the excitation and decay of baryonic resonances throughout the fireball evolution. Furthermore, the excitations of baryons make a significant contribution to the dilepton emission but also play an important role in the production of strange particles. The reconstruction of short-lived (˜1 fm/c) resonance states through their decay products is notoriously difficult. We have developed a new iterative algorithm, which builds the best hypothesis of signal and background by distortion of individual particle properties. This allows us to extract signals with signal-to-background ratios below 1%. The transverse momenta, rapidity, invariant mass spectra and angular distributions for different channels have been reconstructed. In this contribution we will demonstrate the performance of the procedure studying inclusive πp and $\pi\pi$ final state in pion- and proton- induced reactions. We will then discuss the respective for Au+Au reactions 1.23 AGeV and will elaborate on the interplay between phase-space effects, apparent mass-shifts and width of the resonances.

This work has been supported by TU Darmstadt: VH-NG-823, Helmholtz Alliance HA216/EMMI and GSI.

Primary author(s) : KORNAKOV, Georgy (TU Darmstadt)

Presenter(s) : KORNAKOV, Georgy (TU Darmstadt)

Session Classification : Poster Session