

Strangeness in Quark Matter 2019



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Production of charged pions in heavy-ion collisions at high μ_B

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In this contribution the results of a study of charged pion production at SIS18 energies using the HADES spectrometer at GSI will be presented. The main focus will be on 40% most central Au+Au collisions at $\sqrt{s_{NN}} = 2.4$ GeV. At this energy matter gets compressed to densities of about two to three times the normal nuclear matter density (ρ_0) and the maximum temperature attained in this central zone is reaching values of few tens to about 100 MeV. The production of pions at this energy proceeds primarily through the excitation and decay of baryonic resonances and is the only dominant meson production channel by which the hot, compressed baryonic matter de-excites. In addition, a precise knowledge of the pion production yields and kinematic distributions are important to estimate the amount of pion-induced production of penetrating, but rare probes like strange hadrons and vector mesons.

Our results contribute with an unprecedented statistics to systematic studies of pion produced in heavy ion collisions. We have performed a measurement of the transvers momentum distributions of π^+/π^- mesons covering a fairly large rapidity interval. The yields, transverse mass and azimuthal emission pattern are compared with transport model calculations as well as with existing data from other experiments.

Collaboration name

HADES

Track

Strangeness and Light Flavour

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Session Classification: Poster session with "aperitivo"