Strangeness in Quark Matter 2019



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A (1520) as a new potential source of K⁻ meson emission in heavy-ion collisions around kaon threshold.

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The modifications of basic properties of hadrons inside a hot and dense nuclear matter are a consequence of the partial restoration of the chiral symmetry and are an intensively studied topic for the last 30 years [1]. Whereas the effects for K⁺ and K⁰_S appear to be theoretically more straightforward and experimentally established [2,3], it seems not to be the case for K⁻. A series of analyses of heavy-ion collisions performed by the HADES and FOPI Collaborations at beam energy of 1–2A GeV have shown that a relevant source of negative kaons is the $\phi \rightarrow K^+K^-$ decay channel [4,5]. However, the kinematics of K⁻ mesons produced in this channel is different than that of kaons emitted directly from the collision zone.

This talk will be devoted to the recent finding that the Λ (1520) \rightarrow pK⁻ channel, not analysed yet at energies around the kaon threshold, is another potentially relevant source of K⁻ meson emission. Two sets of experimentally obtained yields from Au+Au at 1.2A GeV (HADES) and Ni+Ni at 1.9A GeV (FOPI) were fitted with the THERMUS statistical model code [6]. Based on the obtained parameters, the yields of Λ (1520) were estimated in each case, and hence the contributions to the K⁻ yield. As the HADES Collaboration prepares to perform the Ag+Ag collisions at beam energy of 1.65A GeV, a prospect for an extraction of the Λ (1520) yield from these collisions will also be covered in this talk.

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Collaboration name

Track

Strangeness and Light Flavour

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