

Strangeness in Quark Matter 2019



Contribution ID: 122

Type: **Poster**

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

Tuesday 11 June 2019 18:45 (2 hours)

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 K_S^0 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.

- [1] V. Koch, Intl. Jour. of Mod. Phys. E 06, 203 (1997).
- [2] M. Benabderrahmane et al. (FOPI Collaboration), Phys. Rev. Lett. 102, 182501 (2009).
- [3] C. Hartnack et al., Phys. Rep. 510, 119 (2012).
- [4] G. Agakishiev et al. (HADES Collaboration), Phys. Rev. C 80, 025209 (2009).
- [5] K. Piasecki et al. (FOPI Collaboration), Phys. Rev. C 94, 014901 (2016).
- [6] S. Wheaton and J. Cleymans, Comput. Phys. Commun. 180, 84 (2009).

Collaboration name

Track

Strangeness and Light Flavour

Primary author: WÓJCIK, Dominika (University of Warsaw)

Presenter: WÓJCIK, Dominika (University of Warsaw)

Session Classification: Poster session with "aperitivo"