

Strangeness in Quark Matter 2019



Contribution ID: 84

Type: **Contributed talk**

News on in-medium modifications of properties of kaons measured around threshold

Thursday 13 June 2019 17:10 (20 minutes)

A partial restoration of the chiral symmetry is the fundamental quantum process of interaction of the hadronic matter with the quark-antiquark condensate [1]. According to QCD a particle embedded in a hot and dense hadronic matter should change its basic properties like mass and decay constant with respect to their values in vacuum. Kaons produced in heavy ion collisions around threshold for their production appear to be a good probe of these effects.

Initially comparisons of experimentally found phase space distributions to the transport model calculations suggested a clear and strong sensitivity to this effect [2]. However, recent published and upcoming data on kaon emission from high-statistics experiments by FOPI and HADES groups reveal a much broader and complex landscape. In this talk the preliminary findings of comparison of the transport model predictions to the distributions of K_S^0 emitted from Au+Au at 1.2A GeV [3] will be presented. Also new data on the emission of K^+ and K^- from the collisions of Ni+Ni at 1.9A GeV [4] will be shown. I will also point out the importance of the $\phi(1020)$ meson decays in the interpretation of the K^- spectra, consistently found in a recent decade [5,6].

[1] V. Koch, Intl. Jour. of Mod. Phys. E 06, 203 (1997).

[2] F. Laue *et al.* (KaoS Collaboration), Eur. Phys. J. A 9, 397 (2000).

[3] J. Adamczewski-Musch *et al.* (HADES Collaboration), arXiv:1812.07304.

[4] K. Piasecki *et al.* (FOPI Collaboration), Phys. Rev. C 99, 014904 (2019).

[5] J. Adamczewski-Musch *et al.* (HADES Collaboration), Phys. Lett. B 778, 403 (2018).

[6] K. Piasecki *et al.* (FOPI Collaboration), Phys. Rev. C 94, 014901 (2016).

Collaboration name

FOPI, HADES

Track

Strangeness and Light Flavour

Primary author: PIASECKI, Krzysztof (University of Warsaw)

Presenter: PIASECKI, Krzysztof (University of Warsaw)

Session Classification: Strangeness and Light Flavour