

Strangeness in Quark Matter 2019



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Studies of low-energy K^- hadronic interactions with light nuclei by AMADEUS

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The experimental investigation of the low-energy negatively charged kaons interaction with the nuclear matter is very important to understand the strength of the K^- -nuclei interaction and to provide essential input for understanding of the non-perturbative QCD in the strangeness sector. It has strong consequences in various sectors of physics, like nuclear and particle physics as well as astrophysics.

The AMADEUS collaboration aims to provide new experimental constraints to the K^-N strong interaction in the regime of non-perturbative QCD, exploiting low-energy K^- hadronic interactions with light nuclei (e.g. H, ^4He , ^9Be and ^{12}C). The investigations are mainly focused on $\Lambda(1405)$ properties studies and clarification of an existence of deeply bound kaonic states. The studies are performed with low-momentum kaons ($p_K \sim 127 \text{ MeV}/c$) produced at the DAΦNE collider ideal to explore both stopped and in-flight K^- nuclear captures. The KLOE detector is used as active target, allowing to achieve excellent acceptance and resolutions for the data.

In the talk the results obtained from the recent AMADEUS studies will be presented, together with future plans.

Collaboration name

AMADEUS

Track

Strangeness and Light Flavour

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