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Investigation of the low-energy kaons hadronic interactions in light nuclei by AMADEUS

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The AMADEUS experiment deals with the investigation of the low-energy kaon-nuclei hadronic interaction at the DAΦNE collider at LNF-INFN, which is fundamental to solve longstanding questions in the non-perturbative strangeness QCD sector. AMADEUS step 0 consisted in the reanalysis of 2004/2005 KLOE data, exploiting K^- absorptions in H, ^4He , ^9Be and ^{12}C , leading to the first invariant mass spectroscopy study with very low momentum (100MeV) in-flight K^- captures. With AMADEUS step 1 a dedicated pure Carbon target was implemented in the central region of the KLOE detector, providing a high statistic sample of pure at-rest K^- nuclear interaction.

The results obtained in the analyses of the hyperon-pion correlated events, searching for the resonant shapes of Y^* states, and the analyses of hyperon-proton, deuteron, and triton correlations, searching for possible K^- -multi nucleon bound states, will be presented.

Summary

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