

Kaonic atoms – experiments on the strong interaction with strangeness

Monday, 2 June 2014 09:00 (0:30)

Collaboration

SIDDHARTA and SIDDHARTA-2

Abstract content

The strong interaction of antikaons (\bar{K}) with nucleons and nuclei in the low-energy regime is a fascinating topic because of the strong attraction, which is related to the question about kaonic nuclear bound states. A rather direct experimental access to the antikaon-nucleon interaction is provided by precision x-ray spectroscopy of transitions to low-lying states in light kaonic atoms like kaonic hydrogen and helium isotopes. After the successful completion of precision measurements on kaonic hydrogen and helium isotopes by SIDDHARTA at DAFNE/LNF, new X-ray studies with the focus on kaonic deuterium are in preparation (SIDDHARTA-2). With the kaonic deuterium data the antikaon-nucleon isospin-dependent scattering lengths can be extracted for the first time. The talk will give an overview of the experimental results of SIDDHARTA, the implications for the theory of low-energy strong interaction with strangeness and will provide an outlook to future perspectives in this frontier research field.

Primary author(s) : MARTON, Johann (Stefan Meyer Institute)

Presenter(s) : MARTON, Johann (Stefan Meyer Institute)

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