

Updated experimental insight into the strong interaction between antikaons and nucleons.

Friday, 1 July 2022 09:00 (25 minutes)

The hadron physics sector with strangeness content faces a promising era with the arrival of new experimental data on the strong interaction between antikaons and nucleons (nuclei). The most recent and the upcoming measurements performed with traditional and new experimental approaches will be reviewed.

Measurements of correlations between particle pairs with low relative momentum via femtoscopy have been recently demonstrated to be very sensitive to the effects of the final state strong interaction. Its application to (anti)kaon–proton pairs produced in different collision systems by the ALICE Collaboration delivers unique information on the interaction and channel couplings. Such measurements are now extended for the first time to three-body correlations providing information on the genuine three-particle interaction.

Among more traditional approaches, the first measurement of the kaonic deuterium X-rays by SIDDHARTA2 will enable access to the full isospin dependence of the scattering lengths. Studies of antikaon reactions in light nuclei at DAΦNE and J-PARC provide new measurements of cross sections at very low momentum in different inelastic channels, non resonant amplitudes below threshold and the identification and measurement of the properties of nuclear kaonic bound states, such as the very debated ppK^- .

The new data place stringent constraints and provide an updated scenario towards the description of the low-energy antikaon–nucleon interactions and the understanding of the nature and structure of the $\Lambda(1405)$.

Primary author: Dr VAZQUEZ DOCE, Oton (INFN e Laboratori Nazionali di Frascati (IT))

Presenter: Dr VAZQUEZ DOCE, Oton (INFN e Laboratori Nazionali di Frascati (IT))

Session Classification: 5; Fri-I