

Exploring the Strange-Meson Spectrum with COMPASS

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The excitation spectrum of light mesons; which are composed of up, down, and strange quarks; allows us to study QCD at low energies. While the non-strange light-meson spectrum is already mapped out rather well, many predicted strange mesons have not yet been observed experimentally and many potentially observed states still need further confirmation. Hence, the strange-meson spectrum still holds many surprises that need to be discovered.

The COMPASS experiment at CERN has studied so far mainly non-strange mesons of the a_J and π_J families with high precision, using the dominating π^- component of the beam. Using the smaller K^- component allows us to investigate also the spectrum of strange mesons. The flagship channel is the $K^- \pi^- \pi^+$ final state, for which COMPASS has acquired the so-far world's largest data set. Based on this data set, we performed a partial-wave analysis in order to disentangle the produced mesons by their spin-parity quantum numbers. In this talk, we will focus on recent results from this analysis of COMPASS data.

Category

talk

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