

FAKULTÄT für PHYSIK
LUDWIG-MAXIMILIANS-UNIVERSITÄT
MÜNCHEN/GARCHING

PHYSIK-DEPARTMENT
TECHNISCHE UNIVERSITÄT MÜNCHEN
MÜNCHEN/GARCHING

Garching Maier-Leibnitz-Kolloquium

Donnerstag, 14.01.2021, 16¹⁵ Uhr

Online via ZOOM:

<https://lmu-munich.zoom.us/j/98457332925?pwd=TWc3V1JkSHpyOTBPQVIMelhuNnZ1dz09>

Meeting ID: 984 5733 2925

Passcode: 979953

Dr. Stefan Wallner

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Strange-Meson Spectroscopy at COMPASS

COMPASS is a multi-purpose fixed-target experiment at CERN aimed to study the structure and spectrum of hadrons. The two-stage spectrometer has a large acceptance over a wide kinematic range. Thus, it can be used to investigate a wide range of reactions. Diffractive production of light mesons is studied with a negative hadron beam of momentum 190 GeV/c. So far, COMPASS has studied mainly isovector resonances of the a_J and π_J families with high precision, using the dominating π^- -component of the beam. Using the smaller K^- component of the beam, allows us to investigate also the spectrum of strange mesons in various final states. The flagship channel is the $K^- \pi^- \pi^+$ final state, which in principle gives access to study nearly all kaon resonance states, i.e. K_J and K_J^* mesons. In order to disentangle the produced mesons by their spin-parity quantum numbers, we employ the method of partial-wave analysis. COMPASS has acquired a large data set of exclusive $K^- \pi^- \pi^+$ events, which is more than four times larger than any data set collected by previous experiments at BNL, CERN, or SLAC. The size of our data set enables us to perform the analysis in bins of the squared four-momentum t' transferred from the beam to the target. Thus, the production mechanism of the various signals in the data can be studied. The talk will focus on recent results from this analysis of COMPASS data and compare them to other measurements of the strange-meson sector at CERN, KEK or SLAC.

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