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Physics Beyond SM With Kaons at NA62

The NA62 experiment reports the branching ratio measurement BR(K+⟶π+νν) at 68% CL, based on the observation of 20 signal candidates with an expected background of 7.0 events from the total data sample collected at the CERN SPS during 2016-2018. This provides evidence for the very rare K+⟶π+νν decay, observed with a significance of 3.4σ. The experiment achieves a single event sensitivity of (0.839±0.054)×10−11, corresponding to 10.0 events assuming the Standard Model branching ratio of (8.4±1.0)×10−11.

Additionally, the NA62 experiment at CERN collected a large sample of charged kaon decays into final states with multiple charged particles in 2016-2018. This sample provides sensitivities to rare decays with branching ratios as low as 10-11.
Searches for lepton flavour and lepton number violating decays of the charged kaon into final states containing a lepton pair based on this data set are presented.

Future prospects and plans for data taking from 2021 will also be presented.

Presenter: PINZINO, jacopo (University of Toronto)

Session Classification: Flavor and Precision Physics Session 2

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