Contribution ID: **199** Type: **Talk**

Latest results on K+ to pi+ nu nubar decay and precision measurements with Kaons at CERN

Monday 5 September 2022 16:10 (20 minutes)

The NA62 experiment at CERN collected the world's largest dataset of charged kaon decays in 2016-2018, leading to the first measurement of the Branching Fraction of the ultra-rare K+ –> pi+ nu nu decay, based on 20 candidates. This provides evidence for the very rare $K^+ \to \pi^+ \nu\bar{\nu}$ decay, observed with a significance of 3.4σ. This measurement is also used to set limits on BR($K^+ \to \pi^+$X), where X is a scalar or pseudo-scalar particle. The analysis of the 2018 data sample and the future NA62 plans and prospects are reviewed.
Results from studies of the radiative kaon decays K+ ⟶ pi0e+vg (Ke3g) are reported, using a data sample of O(100k) Ke3g candidates with sub-percent background contaminations recorded in 2017-2018. Preliminary results with the most precise measurements of the Ke3g branching ratios and of T-asymmetry in the Ke3g decay are presented.
The flavour-changing neutral current decay K+ -> pi+ mu+ mu- is induced at the one-loop level in the Standard Model. Preliminary results from an analysis of the K+ -> pi+ mu+ mu- decay an the most precise determination of the decay form-factor parameters ⊠+ and ⊠+ made by NA62 using data collected in 2017 and 2018 is reported.
Preliminary results of the K± ⟶ μ ± π0π0ν (Kmu400) decay first observation and analysis based on the NA48/2 data collected in 2003-2004 are also described.

Is this abstract from experiment?

Yes

Name of experiment and experimental site

https://na62.web.cern.ch/

Is the speaker for that presentation defined?

No

Details

N/A

Internet talk

Maybe

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Session Classification: High Energy Particle Physics

Track Classification: Main topics: High Energy Particle Physics