

## Latest results on rare decays at the NA62 experiment at CERN

*Tuesday 3 May 2022 15:20 (20 minutes)*

The NA62 experiment at CERN took data in 2016-2018 with the main goal of measuring the  $K^+ \rightarrow \pi^+ \nu \bar{\nu}$  decay.

A large sample of charged kaon decays into final states with multiple charged particles has been collected in 2016-2018 by the NA62 experiment at CERN. This sample provides sensitivities to lepton flavour/number violating decays of the charged kaon and of the neutral pion with branching ratios as low as  $10^{-11}$ . Searches for lepton flavour/number violating decays of the charged kaon and the neutral pion to final states containing a lepton pair are presented, improving over the best limits measured so far. The first limit on the  $K^+ \rightarrow \pi^0 e^+ e^+$  decay rate will also be presented.

Searches for  $K^+ \rightarrow e^+ N$ ,  $K^+ \rightarrow \mu^+ N$  and  $K^+ \rightarrow \mu^+ \nu X$  decays, where  $N$  and  $X$  are massive invisible particles, are also performed by NA62 using the whole data set.

An improved upper limit of  $1.0 \times 10^{-6}$  is established at 90% CL on the  $K^+ \rightarrow \mu^+ \nu \nu$  branching fraction.

### Submitted on behalf of a Collaboration?

Yes

**Authors:** OTHER AUTHOR; CENCI, Patrizia (INFN Perugia (IT)); SHAIKHIEV, Artur (University of Birmingham)

**Presenter:** SHAIKHIEV, Artur (University of Birmingham)

**Session Classification:** WG3: Electroweak Physics and Beyond the Standard Model

**Track Classification:** WG3: Electroweak Physics and Beyond the Standard Model