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## Search for LNV by the NA48 Experiment

Tuesday, 29 May 2018 15:00 (20 minutes)

In 2003–2004 the NA48/2 experiment at CERN collected a large sample of charged kaon decays to final states with multiple charged particles. A new upper limit on the rate of the lepton number violating decay  $K^{\pm} \rightarrow \pi^{\mp} \mu^{\pm} \mu^{\pm}$  is reported:  $B(K^{\pm} \rightarrow \pi^{\mp} \mu^{\pm} \mu^{\pm}) < 8.6 \times 10^{-11}$  at 90% CL. Searches for two-body resonances X in  $K^{\pm} \rightarrow \pi \mu \mu$  decays (such as heavy neutral leptons N4 and inflatons  $\chi$ ) are also presented. In the absence of signals, upper limits are set on the products of branching fractions  $B(K^{\pm} \rightarrow \mu^{\pm} N4) \cdot B(N4 \rightarrow \pi \mu)$  and  $B(K^{\pm} \rightarrow \pi^{\pm} X) \cdot B(X \rightarrow \mu^{+} \mu^{-})$  for ranges of assumed resonance masses and lifetimes. The limits are in the  $(10^{-11}, 10^{-9})$  range for resonance lifetimes below 100 ps.

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## **Collaboration name**

NA48 Collaboration

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