

New NA62 measurement of the ultra-rare decay $K^+ \rightarrow \pi^+ \nu \bar{\nu}$

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The decay $K^+ \rightarrow \pi^+ \nu \bar{\nu}$ with a precisely predicted branching ratio of less than 10^{-10} is one of the best candidates to reveal indirect effects of new physics at the highest mass scales. The NA62 experiment at the CERN SPS is designed to measure the $K^+ \rightarrow \pi^+ \nu \bar{\nu}$ branching ratio with a decay-in-flight technique. The experiment took data in 2016-2018 and will continue in 2021 after the CERN accelerator shutdown. The statistics collected in 2016 allowed NA62 to tackle a single event sensitivity of 10^{-10} and showed the proof of principle of the experiment, which is improved by a factor of 10 with the data taken in 2017. The talk reviews the analysis strategy, presents the new result from the 2017 data set, and gives an outlook to future activities of the NA62 experiment.