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New measurement of $K \rightarrow \pi \nu \bar{\nu}$ branching ratio

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The $K \rightarrow \pi \nu \bar{\nu}$ decay is a “golden mode” for flavour physics. Its branching ratio is predicted with high precision by the Standard Model to be less than 10^{-10} , and this decay mode is highly sensitive to indirect effects of new physics up to the highest mass scales. The NA62 experiment at the CERN SPS is designed to study the $K^+ \rightarrow \pi^+ \nu \bar{\nu}$ decay, and provided the world’s most precise investigation of this decay using 2016–18 data. Building on this success, the first results from a significantly improved analysis of new data, taken in 2021–22 after beam-line and detector upgrades, are presented, along with the combination with the 2016–18 results.

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