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New results on rare and radiative kaon decays from the NA62 experiment

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The NA62 experiment at CERN collected a large sample of in-flight K^+ decays during Run 1 (2016-2018) and resumed data taking in 2021, with operations foreseen through 2026. This talk presents new preliminary results from NA62 based on data collected up to 2024. These include the first observation of the decay $K^+ \to \mu^+\nu\mu^+\mu^-$, precision studies of rare and radiative kaon decays such as $K^+ \to e^+\nu\gamma$ and $K^+ \to \pi^+\pi^+\pi^-\gamma$, and improved measurements of their branching ratios. The excellent kinematic reconstruction, timing resolution, and trigger performance of the NA62 detector enable effective background suppression and high-precision measurements. Preliminary results improving the precision of the experimental state-of-the-art are presented.

Academic position of the presenting author

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