



Münchner Physik- Kolloquium

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Sommer
2021

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Search for $B^+ \rightarrow K^+ \nu \bar{\nu}$ decays using an inclusive tagging method at Belle II

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Monday, 31 May 2021, 17:15 h

<https://tum-conf.zoom.us/j/93234766313> Meeting-ID: 932 3476 6313 Password: Kolloquium
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Recent measurements of B-meson properties by the LHCb collaboration yield puzzling results, indicating possible deviations from the Standard Model of particle physics. If tensions remain, there are likely to be some anomalies in other similar processes, such as a rare B-meson decay into a kaon and a pair of neutrinos. This process is both rare and difficult to detect experimentally and has not been measured so far. The talk presents Belle II analysis of the process, based on the data collected in 2019 and 2020. The key feature of the analysis is an introduction of a novel analysis technique which improves sensitivity compared to more traditional approaches. The analysis uses complex machine learning methods which are validated using experimental data. At the end, no significant signal is observed and a new limit on the rate of the process is set. The rate of the process remains consistent with the Standard Model expectations, but there is some room left for new physics contributions. Future perspectives of the analysis are discussed as well.