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Analysing $\Lambda_b \to \Lambda\nu\nu$ decay in light of $B \to K\nu\nu$ data

The Belle-II experiment has recently reported the first measurement of $B^+ \to K^+\nu\nu$ decay which exceeds the Standard Model prediction by approximately 2.7σ. The deviation may indicate the presence of new physics beyond the Standard Model in the $b \to s\nu\nu$sector. Under this assumption, we study the hadronic $\Lambda_b \to \Lambda\nu\nu$ and $\Lambda_b \to \Lambda^*(\to NK)\nu\nu$ within both the Standard Model and beyond. We work in a low energy effective field theory framework with additional light right-handed neutrinos. We calculate the differential branching ratios of these decay modes and explore the implications of the Belle-II results through various observables.

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