

**The decay of  $B \rightarrow K \nu \bar{\nu}$  is mediated by flavor-changing neutral current. In the Standard Model, the rate for this elusive process is predicted to be  $6 \times 10^{-6}$ , while enhancements are foreseen in many New Physics scenarios.**

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Searching for  $B^+ \rightarrow K^+ \nu \bar{\nu}$  decays is, however, experimentally challenging as this decay is not only rare but also contains two neutrinos, leaving no signature in the detector. In this colloquium, I will show you details of the newest measurement of the rate of  $B^+ \rightarrow K^+ \nu \bar{\nu}$  decays, which is based on  $362 \text{ fb}^{-1}$  of SuperKEKB electron-positron collision data collected at the Upsilon(4S) resonance by the Belle II experiment in Tsukuba, Japan. Using two different but complementary reconstruction techniques, we found, for the first time, evidence for the  $B^+ \rightarrow K^+ \nu \bar{\nu}$  process. At the end of my colloquium, I will also highlight future opportunities in B-decays with invisible signatures.