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Search for $B \to K\tau\tau$ decay using hadronic B-tagging at Belle and Belle II experiments

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For over a decade, deviations ("B anomalies") from the standard model have been observed in b-hadron decays, for example, the departure from the lepton flavor universality in $b \to s\ell\ell$ and $b \to c\tau\nu$ transitions. Many new physics models trying to explain these results have larger couplings with the τ-lepton, being 3rd generation, which predict an enhanced branching fraction of $B \to K\tau\tau$ decay.

The talk describes how the Belle and Belle II experiments are searching for signatures of $B \to K\tau\tau$ decay using a hadronic B-tagging technique. The current B-tagging algorithm relies on machine learning and hence depends on the Monte Carlo modeling of hadronic B-decays. The improvement of the B-tagging performance through correcting the Monte Carlo description is also described.

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