

Search for $B^0 \rightarrow \tau^\pm \ell^\mp$ ($\ell = e, \mu$) with a hadronic tagging method at Belle

Wednesday, 14 July 2021 17:15 (15 minutes)

We present a search for the lepton-flavor-violating decays $B^0 \rightarrow \tau^\pm \ell^\mp$, where $\ell = (e, \mu)$, using the full data sample of 772×10^6 $B\bar{B}$ pairs recorded by the Belle detector at the KEKB asymmetric-energy e^+e^- collider. We use events in which one B meson is fully reconstructed in a hadronic decay mode. The τ^\pm lepton is reconstructed indirectly using the momentum of the reconstructed B and that of the ℓ^\mp from the signal decay. We find no evidence for $B^0 \rightarrow \tau^\pm \ell^\mp$ decays and set upper limits on their branching fractions at 90% confidence level of

$$\text{cal}B(B^0 \rightarrow \tau^\pm \mu^\mp) < 1.5 \times 10^{-5} \text{ and}$$

$$\text{cal}B(B^0 \rightarrow \tau^\pm e^\mp) < 1.6 \times 10^{-5}.$$

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Session Classification: Lepton Flavor and Precision Measurements

Track Classification: Lepton Flavor and Precision Measurements