

Search for rare $b \rightarrow s \tau \tau$ processes in baryonic decays at the LHCb experiment

Monday 7 April 2025 16:45 (15 minutes)

This talk will present a search for rare $b \rightarrow s \tau^+ \tau^-$ transitions via the decay $\Lambda_b^0 \rightarrow p K^- \tau^+ \tau^-$, using 5.4 fb^{-1} of data collected by the LHCb experiment. New Physics explanations for anomalies in combined fits to $R(D)$ and $R(D^*)$ predict enhanced branching fractions of several orders of magnitude for $b \rightarrow s \tau^+ \tau^-$ processes. This analysis reconstructs τ leptons through their muonic decays, utilising a selection centred on a multi-class BDT. In this talk I will outline a preliminary selection and expected upper limit for the branching fraction of $\Lambda_b^0 \rightarrow p K^- \tau^+ \tau^-$.

Author: BEX, Josh (University of Cambridge (GB))

Presenter: BEX, Josh (University of Cambridge (GB))

Session Classification: Collider Physics - Flavour

Track Classification: Collider Physics - Flavour