

# Measurement of the UPC process $\gamma\gamma \rightarrow \tau\tau$ cross-section in proton-proton collisions with the LHCb detector

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The production of lepton pairs in two-photon UltraPeripheral Collision (UPC) draws significant interest for its characteristics of low extra hadronic activities. In particular, the  $\gamma\gamma \rightarrow \tau\tau$  process provides a clean channel of tau lepton production. Such a property enables a precise measurement of tau anomalous magnetic moment  $a_\tau$ , providing a valuable probe of Beyond Standard Model Physics.

By carrying out a preliminary analysis of  $\tau\tau$  decaying into the  $e\nu_e\nu_\tau$ ,  $\mu\nu_\mu\nu_\tau$  state, the potential to cleanly isolate the signal signature from background in LHCb's Run 2 dataset is investigated. Further research should establish the precision with which a measurement of the ultraperipheral di-tau production cross-section can be made, and therefore determine the feasibility of an  $a_\tau$  measurement at the LHCb experiment.

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