

Feasibility of tau g-2 measurements in ultra-peripheral collisions of heavy ions

Friday 1 October 2021 09:15 (20 minutes)

Anomalous magnetic moment of the tau lepton, $a_\tau = (g_\tau - 2)/2$, is a sensitive probe of new physics but is extremely difficult to measure precisely in contrast to electron and muon moments. The best experimental limits were set by the DELPHI collaboration more than 15 years ago in the studies of the ditau production in the $e^+e^- \rightarrow e^+e^-\tau^+\tau^-$ process. Ultra-peripheral collisions (UPC) of heavy ions at the LHC may provide a unique opportunity to improve the a_τ constraints in the studies of $Pb + Pb \rightarrow Pb + Pb\tau^+\tau^-$ process. We review recent proposals to study ditau production via semi-leptonic tau decays in Pb-Pb UPC with the available ATLAS and CMS data and discuss feasibility to explore this process down to low transverse momenta of decay leptons with ALICE and LHCb detectors.

What is your topic?

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Session Classification: Session 7: Future directions

Track Classification: Tau2021 Abstracts