

## Exclusive photon and lepton production in ultraperipheral PbPb collisions at CMS

*Wednesday 16 October 2024 15:00 (15 minutes)*

Ultraperipheral (UPC) lead-lead collisions produce very large photon fluxes, allowing for the study of fundamental quantum-mechanical processes and serving as a very good probe for physics beyond the standard model (BSM). In this talk, measurements of the light-by-light scattering (LbL,  $\gamma\gamma \rightarrow \gamma\gamma$ ) and the Breit-Wheeler (B-W,  $\gamma\gamma \rightarrow e^+e^-$ ) processes are reported in UPC at 5.02 TeV using the 2018 CMS lead-lead data sample of  $1.65 \text{ nb}^{-1}$ . Limits on the production of axion-like particles coupling to photons are set over the mass range  $m_a = 5\text{--}100 \text{ GeV}$ , including the most stringent limits in  $5\text{--}10 \text{ GeV}$ . We will also report the latest measurements of the anomalous magnetic moment of the  $\tau$  lepton using UPC PbPb collisions recorded by the CMS experiment.

### Track type

Collider and BSM Physics

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