Contribution ID: 47

Type: not specified

Updated Measurement of Dijet Production in Ultraperipheral PbPb Collisions with 2018 CMS Data

Thursday 12 June 2025 09:30 (20 minutes)

Abstract: Exclusive dijet production in ultraperipheral lead-lead (PbPb) collisions has been proposed as a probe to constrain the elliptically polarized gluon distributions of heavy ions. Specifically, the second Fourier harmonic (v_2) of the angle $(\Delta \phi)$ between the three-momentum vector sum $(\vec{Q}_T = \vec{p}_{T,1} + \vec{p}_{T,2})$ and vector difference $(\vec{q}_T = \vec{p}_{T,1} - \vec{p}_{T,2})$ of the two highest- p_T jets has been suggested as a sensitive observable for such constraints. This analysis presents an update of the measurement using the larger 2018 PbPb dataset, improving upon the earlier study performed with the 2015 PbPb data. The updated results include a scan of the anti- k_T jet distance parameter R at values of R = 0.2, 0.4, and 0.6, as well as a detailed analysis as a function of the dijet transverse momentum sum (Q_T) and dijet rapidity (y_{dijet}) , which are sensitive to final-state, out-of-cone gluon radiation effects. The measurement is compared to predictions from the PYTHIA8 event generator for photonuclear jets, which does not incorporate elliptically polarized gluon distributions, and the predictions are found to be in good agreement with the data.

Author: LE MAHIEU, Cole Douglas (University of Kansas)

Presenter: LE MAHIEU, Cole Douglas (University of Kansas)

Session Classification: Inclusive and diffractive processes and photon, proton and nuclear structure

Track Classification: Inclusive and diffractive processes and photon, proton and nuclear structure