Contribution ID: **147** Type: **Oral presentation**

Measurement of dijet production in ultraperipheral Pb+Pb collisions with ATLAS

Wednesday 25 September 2024 12:10 (20 minutes)

In relativistic heavy ion collisions, the charged ions produce an intense flux of equivalent photons. Thus, photon-induced processes are the dominant inter- action mechanism when the colliding nuclei have a transverse separation larger than the nuclear diameter. In these ultra-peripheral collisions (UPCs), the pho- ton provides a clean, energetic probe of the partonic structure of the nucleus, analogous to deep inelastic scattering. This talk presents a measurement of jet production in UPCs performed with the ATLAS detector using high-statistics 2018 Pb+Pb data. Events are selected using requirements on jet production, rapidity gaps, and forward neutron emission to identify photo-nuclear hard- scattering processes. The precision of these measurements is augmented by studies of nuclear break-up effects, allowing for detailed comparisons with theoretical models in phase-space regions where significant nuclear PDF modifica- tions are expected but not strongly constrained by existing data.

Category

Experiment

Collaboration

ATLAS

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Session Classification: Parallel 31: UPC

Track Classification: 5. Nuclear PDFs, saturation, and early time dynamics