

# ATLAS measurements of photo-nuclear processes in Pb+Pb collisions

*Tuesday 3 May 2022 15:40 (20 minutes)*

Ultra-peripheral collisions (UPC) of relativistic heavy-ion beams lead to a diverse set of photon-nucleus interactions. This talk presents two recent ATLAS measurements of photo-nuclear processes in Pb+Pb collisions at 5.02 TeV. The first measurement is that of photon-induced dijet production in UPC events. The clean environment of these events allows for precision measurements in a phase-space region where significant nuclear PDF modifications are expected to be present and which are not strongly constrained by previous measurements. The second measurement is that of two-particle azimuthal correlations in photo-nuclear collisions, which are found to show features that are similar to those observed in pp, p+Pb, and Pb+Pb collisions. Fourier coefficients of the correlations are measured as a function of charged-particle multiplicity and transverse momentum and compared to corresponding measurements in pp and p+Pb collisions and to quantitative theoretical calculations. The correlation measurements can shed light on the QCD dynamics of the novel, extremely asymmetric colliding systems. Understanding the hadronic fluctuation spectrum of the photon in this fashion is also critical for maximizing the precision of measurements at the future Electron-Ion Collider.

## Submitted on behalf of a Collaboration?

Yes

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**Session Classification:** WG2: Small-x, Diffraction and Vector Mesons

**Track Classification:** WG2: Small-x, Diffraction and Vector Mesons