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UPC: a powerful tool for J/Ψ photoproduction analysis in ALICE

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Ultraperipheral Collisions (UPC) occur when the interacting nuclei or protons have an impact parameter larger than the sum of their radii. They are mediated by virtual photon exchange. The photoproduction of heavy vector mesons is especially interesting because they couple to the photon.

The ALICE Collaboration has analysed both p-Pb and Pb–Pb UPC at the centre-of-mass energy of $\sqrt{s_{\rm NN}} = 5.02$ TeV, which correspond to γp and γ-Pb interactions, respectively. This poster discusses the exclusive photoproduction of J/Ψ off proton and Pb targets, respectively, which shed light on the occurrence of saturation and nuclear shadowing.

In more detail, the p-Pb results describe the growth of the cross section for exclusive production over a wide range in Bjorken-x, from $\sim 10^{-2}$ to $\sim 10^{-5}$, while the Pb–Pb results demonstrate the presence of nuclear shadowing at high energies and low scales, i.e. of the order of the mass of the J/Ψ.

Author: RAGONI, Simone (University of Birmingham (GB))

Co-author: ALICE COLLABORATION

Presenter: RAGONI, Simone (University of Birmingham (GB))

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