

Recent ALICE results on vector meson photoproduction

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Ultra-peripheral collisions (UPC) are events characterised by large impact parameters between the two projectiles, larger than the sum of their radii. As a consequence, the protons and ions accelerated by the LHC are beyond the reach of the strong interaction and they can be considered as photon sources.

Vector mesons produced in UPC i.e. ρ^0 , J/ψ , and ψ' , are of particular interest: vector meson photoproduction in UPC is sensitive to the low- x gluon parton density.

As the photons involved in the interactions are *quasireal*, the vector mesons should retain the polarisation of the photon, as postulated by the s-channel helicity conservation hypothesis.

ALICE has provided measurements of the production cross section at forward rapidity for J/ψ and at mid-rapidity for coherent J/ψ , ψ' and ρ^0 . The collaboration has also measured the t -dependence of coherent J/ψ production and compared it with models incorporating nuclear shadowing effects, thus providing a new tool to investigate the gluon structure at low Bjorken- x . The measurement of photoproduction accompanied by neutron emission allows us to use a new technique to resolve the ambiguity in Bjorken- x which arises in symmetric A-A UPC collisions.

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