

Vector meson photoproduction in ALICE at the LHC

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Ultra-peripheral collisions (UPC) of heavy ions provide unique opportunity to study vector meson (VM) photoproduction in ALICE. Analyses of different species of VMs address the gluon saturation and nuclear shadowing. Light vector mesons offer the opportunity to study the approach to the black-disc limit of QCD. Measurement of the heavy vector meson photoproduction cross section as a function of $|t|$ ($t \sim -p_T^2$) gives information about the impact parameter dependence of spatial gluon distributions and so constrains the transverse gluonic structure in nuclei at very low Bjorken- x . ALICE has published the ρ^0 coherent photoproduction cross sections in Pb-Pb and Xe-Xe UPC at $\sqrt{s_{NN}} = 5.02$ and 5.44 TeV, respectively, for different nuclear-breakup classes. Moreover, ALICE has measured rapidity and $|t|$ dependence of coherent J/ψ and rapidity dependence of ψ' photoproduction cross section in Pb-Pb UPC at $\sqrt{s_{NN}} = 5.02$ TeV. Recently, J/ψ photoproduction and exclusive dimuon cross section has been studied in p-Pb collisions at $\sqrt{s_{NN}} = 8.16$ TeV. All the measurements are compared to QCD based models and allow for constraints on these models. An overview of the recent results from ALICE on the VM photoproduction as well as perspectives for future measurements in Run 3 and beyond will be presented.

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