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Photoproduction of J/ψ and electron-positron pairs in ultra-peripheral p-Pb and Pb-Pb collisions with the ALICE detector

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Ultra-relativistic heavy ions generate strong electromagnetic fields, which offer the possibility to study photon-photon, photon-nucleus and photon-proton processes at the LHC in ultra-peripheral p-Pb and Pb-Pb collisions (UPC). Exclusive photoproduction of vector mesons is sensitive to the gluon distribution of the interacting target (proton or nucleus) whereas exclusive production of lepton pairs in the photon-photon interactions in Pb-Pb probes quantum electrodynamics with a large coupling constant.

Here we present ALICE measurements of J/ψ vector meson photoproduction in p-Pb UPC at $\sqrt{s_{NN}} = 5.02$ TeV. We report the results in several intervals of the photon-proton center-of-mass energy which is constrained by the the rapidity of the vector meson. Furthermore, we present results on exclusive electron-positron pair production in photon-photon collisions in Pb-Pb UPC at $\sqrt{s_{NN}} = 2.76$ TeV.

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