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Measurement of exclusive vector meson photoproduction in heavy ion collisions with the CMS experiment

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The exclusive photoproduction of Υ and ρ meson is studied in ultraperipheral pPb collisions at $\sqrt{s_{NN}} = 5.02$ TeV. The differential cross-section of Υ and ρ meson has been measured as a function of transverse momentum squared p_T^2 , and rapidity y . The slope of the squared transverse momentum (p_T^2) dependent differential cross section is extracted to determine the size of the production region. Also, we measured the Υ and ρ photoproduction cross-section as a function of the photon-proton centre-of-mass energies $W_{\gamma p}$, which provides valuable information of the gluon distribution at small values of parton fractional momenta x . The results are compared to various theoretical predictions and to previous measurements.

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