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J/psi coherent photo-production at very low transverse momentum in Pb-Pb collisions at sqrt{s_{NN}} = 5.02 TeV with ALICE

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A large excess in the yield of J/ψ at very low transverse momentum ($p_{\mathrm{T}} < 300$ MeV/c) and forward rapidity (2.5< y <4.0) was recently reported by ALICE using the LHC Run-1 data, in Pb-Pb collisions at $\sqrt{s_{\mathrm{NN}}}$ = 2.76 TeV. This is suggestive of coherent J/ψ photo-production, similar to measurements in ultra-peripheral collisions (UPC), where the nuclei only interact electromagnetically.

During the LHC Run-2, the measurement of the very low p_{T} J/ψ at mid-rapidity (-0.9< y <0.9) in the di-electron decay channel was possible thanks to the large sample of recorded Pb-Pb collisions. The central barrel detectors provide a good momentum resolution, and make the measurement sensitive to the key characteristics of J/ψ coherent photo-production, like the corresponding transverse momentum spectrum.

In this poster, we will present the p_{T}-integrated and p_{T}-dependent coherent J/ψ photo-production cross-section at mid rapidity in Pb-Pb collisions at $\sqrt{s_{\mathrm{NN}}}$ = 5.02 TeV. Our data will be discussed in comparison to the UPC measurements and model calculations. The expectations for this measurements with LHC Run-3 and Run-4 data will be discussed.

Content type

Experiment

Collaboration

ALICE

Centralised submission by Collaboration

Presenter name already specified

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