

J/ ψ yield enhancement at very low transverse momentum in Pb-Pb collisions at $\sqrt{s_{NN}}=5.02$ TeV with ALICE

A large excess in the yield of J/ ψ at very low transverse momentum compared to the expectations from the nuclear overlap region was recently reported by ALICE in peripheral Pb-Pb collisions at $\sqrt{s_{NN}}=2.76$ TeV. The observation, made at forward rapidity ($2.5 < y < 4.0$) for $p_T < 300$ MeV/c using the muon spectrometer, is suggestive of coherent J/ ψ photo-production, similar to the measurements done in ultra-peripheral collisions, where the nuclei interact only electromagnetically.

During the LHC Run-2, ALICE recorded a large sample of Pb-Pb collisions which allows the measurement of the very low p_T J/ ψ production also at mid-rapidity, in the di-electron decay channel. An important aspect of this analysis is that the reconstruction is done using the central barrel detectors, with a much better momentum resolution, making our new measurement sensitive to key characteristics of the J/ ψ coherent photo-production component, like the shape of the transverse momentum spectrum.

Together with the existing results at forward rapidity, in this talk we will present the J/ ψ production cross-section in the very low- p_T range at mid-rapidity in peripheral Pb-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV. The p_T distribution shape in the typical region for coherent production will be shown and compared to model expectations. The prospects for a polarization measurement will also be discussed.

Preferred Track

Quarkonia

Collaboration

ALICE

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