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 $\sqrt{sNN}=2.76$ TeV. The observation, made at forward rapidity (2.5<y<4.0) for pT<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 pT 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 crosssection in the very low-pT range at mid-rapidity in peripheral Pb-Pb collisions at $\sqrt{sNN} = 5.02$ TeV. The pT 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

Author: ZHOU, Zhuo (University of Bergen (NO))Presenter: ZHOU, Zhuo (University of Bergen (NO))Session Classification: Poster Session