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Photoproduction of J/ψ 's in AA Collisions

The rapidity distribution and the nuclear modification factor (RAA) were calculated through the exclusive photoproduction mechanism in the peripheral regime. Using the light-cone color dipole formalism commonly used in the UPC regime, the J/ψ production was investigated considering three scenarios: (1) in the simplest scenario it was considered a photon flux with b -dependence without any geometrical constraint (UPC with b -dependence), (2) an effective photon flux is considered, such that, only the spectators in the target are the ones that interact coherently with the photon and (3) the photonuclear cross section is modified using the same geometrical constraints applied in the scenario 2. The results were compared with the ALICE measurements and shown a better agreement for the scenarios 2 and 3, mainly in the more central regions (30%-50% and 50%-70%) where the dependence with b is more pronounced. Although it is not yet possible to confirm that the exclusive photoproduction is fully responsible for the J/ψ excess observed in ALICE, there are indications that it produces a considerable part of the effects.

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