



Contribution ID: 31

Type: not specified

Heavy Meson Coherent Photoproduction in (Ultra)-Peripheral AA Collisions

An excess of J/ψ yield at very low transverse momentum ($p_T < 0.3$ GeV/c) has been observed by the ALICE collaboration in peripheral collisions Pb-Pb at forward rapidity. It was also confirmed by the STAR collaboration in peripheral collisions Au-Au and U-U at mid-rapidity. Assuming the coherent photoproduction is the main mechanism behind this effect, the rapidity distribution and nuclear modification factor (R_{AA}) were calculated for J/ψ and other heavy mesons ($\psi(2S)$, $Y(1S)$, $Y(2S)$, $Y(3S)$) for the LHC Run I ($\sqrt{s} = 2.76$ TeV) and Run II ($\sqrt{s} = 5.02$ TeV) energies. The results obtained were compared with the ALICE measurements. Similarly to the theoretical approach used in ultraperipheral collisions (UPCs), the cross section of the coherent photoproduction can be written as the convolution of a virtual photon flux created by the incoming nuclei with the photonuclear cross section that characterizes the photon-target interaction. In our analysis, two hypotheses are considered: (1) all the charges in the source and all the nucleons in the target contribute to the photonuclear cross section and (2) only the spectators in the target are the ones that interact coherently with the photon. In both hypotheses, an effective photon flux is built as function of the usual photon flux using a geometrical approach and results are compared with data.

Authors: Prof. GAY DUCATI, M.Beatriz (UFRGS); MARTINS, Sony (UFRGS)

Track Classification: Diffraction and photon physics in hadron-hadron and heavy-ion collisions