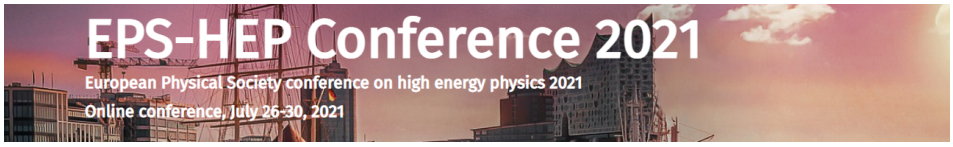

Contribution ID: **550** Type: **Parallel session talk**

Quarkonia measurements in nucleus-nucleus collisions with ALICE

Monday 26 July 2021 14:45 (15 minutes)

The production of quarkonia is one of the first proposed probes of the QGP properties in heavy-ion collisions. Since heavy quarks are produced during the early hard partonic collisions, they experience the entire evolution of the fireball. The suppression of quarkonium bound states by the free color charges of the dense deconfined medium, as well as the charmonium regeneration by (re)combination of charm quarks at the QGP phase boundary or through the fireball evolution, are sensitive to the medium properties. Furthermore, a modification of the quarkonium vector states polarization in Pb—Pb collisions with respect to pp collisions may give further insights on quarkonium suppression and regeneration mechanisms in the QGP. In addition, to the study of quarkonia in inelastic heavy-ion collisions, coherent photonuclear production of vector mesons can be studied by the virtue of the strong electromagnetic fields generated by ultrarelativistic heavy ions to infer information on the wave function of the nuclei that are crucial for the understanding of the initial state of heavy-ion collisions.

In this contribution, we will report on the recent ALICE measurements of the nuclear modification factor $R_{\rm AA}$ of J/ψ as a function of centrality/$p_{\rm T}$, and on final J/ψ v_2 results, at both mid- and forward rapidity, using the full Run 2 Pb—Pb data sample ($\sqrt{s_{\rm NN}}$=5.02 TeV). The final results on Υ(1S) $R_{\rm AA}$ and v_2, Υ(2S) $R_{\rm AA}$, and J/ψ v_3 measured at forward rapidity will also be shown. We will also report on the first measurement of the J/ψ polarization in Pb—Pb collisions as a function of $p_{\rm T}$ and of the collision centrality, providing prospects for measurements as a function of the event plane. The aforementioned results will be compared and confronted to theoretical model predictions. Furthermore, we will discuss recent ALICE results on photonuclear production of ρ and J/ψ mesons in ultra-peripheral collisions.

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Collaboration / Activity

ALICE

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