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Quarkonium polarization in pp and Pb-Pb collisions from ALICE

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Polarization measurements represent an important tool for the understanding of particle production mechanisms occurring in proton–proton collisions. When considering heavy-ion collisions, quarkonium polarization could also be used to investigate the characteristics of the hot and dense medium, the quark-gluon plasma (QGP) created at LHC energies. It has been hypothesized that quarkonium states could be polarized by the strong magnetic field, generated in the early phase of the evolution of the system, and by the large angular momentum of the medium in non-central heavy-ion collisions. This kind of information can be assessed by defining an ad hoc reference frame where the quantization axis is orthogonal to the event plane of the collision. In this contribution, the new published result of J/ψ polarization with respect to a quantization axis orthogonal to the event-plane in Pb-Pb collisions at $\sqrt{s_{NN}}$ = 5.02 TeV will be presented. The p_T-differential measurement was performed at forward rapidity ($2.5 < y < 4$) and the results will be shown for different centrality classes. The preliminary Υ(1S) polarization analysis, as well as the status of the new J/ψ and ψ(2S) polarization analyses in pp collisions at $\sqrt{s}$ = 13 TeV as a function of the transverse momentum will also be discussed.

Experiment/Theory

ALICE

Affiliation

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Sitzung Einordnung: Parallel: Heavy Flavours & Quarkonia

Track Klassifizierung: Heavy flavor and quarkonia