

10th International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions



Contribution ID: 122

Type: Oral Presentation

Measurement of quarkonium polarization in Pb-Pb collisions at the LHC with ALICE

Thursday, June 4, 2020 12:50 PM (20 minutes)

Polarization measurements represent an important tool for understanding the particle production mechanisms occurring in proton–proton collisions. In particular, for quarkonium states, the very small polarization measured at the LHC represents a serious and a long-lasting challenge for theoretical models. When considering heavy-ion collisions, particle polarization could also be used to investigate the characteristics of the hot and dense medium (Quark-Gluon Plasma) created at LHC energies. Recently, 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.

In ALICE, the quarkonium polarization is extracted by measuring the anisotropies in the angular distribution of the muons coming from the quarkonium state decay. In this contribution, final results on the J/ψ and new results on the $\Upsilon(1S)$ polarization in Pb-Pb collisions at a center of mass energy per nucleon pair of $\sqrt{s_{NN}} = 5.02$ TeV will be presented. The p_T -differential measurement was done at forward rapidity ($2.5 < y < 4$) and the results will be shown in two different reference planes. The results will be also compared with previous measurements from pp collisions. Finally, the status of the analysis dedicated to measure the J/ψ polarization as a function of the collision centrality as well as relative to the event plane will be discussed.

Collaboration (if applicable)

ALICE

Track

Heavy Flavor and Quarkonia

Contribution type

Contributed Talk

Primary author: CC CHAIRS, ALICE

Presenter: MICHELETTI, Luca (Universita e INFN Torino (IT))

Session Classification: Parallel

Track Classification: Heavy Flavor and Quarkonia