



Contribution ID: 540

Type: **Parallel**

Longitudinal polarization of hyperons in Run 3 Pb-Pb collisions with ALICE

Monday 7 July 2025 14:00 (20 minutes)

Particle production in heavy-ion collisions exhibits collective behavior known as collective flow, arising from the pressure-driven expansion of the quark-gluon plasma (QGP) formed in these collisions. Anisotropies in the azimuthal distribution of final-state particles can generate local vorticities in the QGP along the beam axis. Through spin-orbit coupling, these vorticities are expected to induce a longitudinal polarization of hadrons along beam axis. The longitudinal polarization of produced hadrons offers valuable insights into the shear and bulk viscosities of the QGP medium.

This contribution presents the first measurement of Ξ longitudinal polarization at LHC energies, utilizing the high-statistics dataset from Run 3 Pb-Pb collisions at $\sqrt{s_{NN}} = 5.36$ TeV. The results are compared with the longitudinal polarization of Λ baryons to investigate the spin hierarchy of longitudinal polarization in heavy-ion collisions.

Secondary track

Authors: COLLABORATION, ALICE; DE MARTIN, Chiara (University and INFN Trieste)

Presenter: DE MARTIN, Chiara (University and INFN Trieste)

Session Classification: T04 (Recent developments heavy ion physics, both experimental and theoretical aspects)

Track Classification: T04 - Ultra-relativistic Nuclear Collisions