



Contribution ID: 154

Type: Poster

A study on transverse sphericity dependent initial and final state anisotropies in heavy-ion collisions at the LHC

Thursday 15 December 2022 14:00 (1 hour)

Transverse sphericity is an event shape observable which is capable of separating pQCD-dominated jetty events from soft QCD-dominated isotropic events. Recent studies show that transverse sphericity can be applied not only in pp collisions but in heavy-ion collisions, which are relatively dominated by soft-QCD processes. We take this scope of transverse sphericity to exploit its use to probe the correlation between the initial spatial anisotropy and final azimuthal anisotropic coefficients, namely, eccentricity, triangularity, elliptic flow and triangular flow in Pb-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV using a multi-phase transport model (AMPT). We have found that both eccentricity and elliptic flow are anti-correlated with transverse sphericity, and triangular flow is positively correlated while triangularity has no dependence on transverse sphericity. This work also shows the nonlinear correlation between initial and final anisotropies for different transverse sphericity selections. Finally, we report a transverse momentum crossing point between the elliptic flow and triangular flow coefficients, which is found to vary with centrality and transverse sphericity selections.

Session

Heavy Ions and QCD

Authors: PRASAD, Suraj (Indian Institute of Technology Indore (IN)); Mr MALLICK, Neelkamal (Indian Institute of Technology Indore); TRIPATHY, Sushanta (INFN, Bologna (IT)); SAHOO, Raghunath (Indian Institute of Technology Indore (IN))

Presenter: PRASAD, Suraj (Indian Institute of Technology Indore (IN))

Session Classification: Poster - 3