Contribution ID: **859** Type: **Theory poster**

Transverse spherocity dependence of global observables in heavy-ion collisions at the LHC using AMPT model

Tuesday 17 May 2022 19:00 (1 hour)

Transverse spherocity is a tool that separates events based on geometrical shapes, i.e., jetty and isotropic events. Transverse spherocity based studies are widely understood in small systems like proton-proton (pp) collisions in simulations and experiments, but it is yet to be explored in heavy-ion collisions. In this work, we attempt to study different global observables in heavy-ion collisions such as squared speed of sound, Bjorken energy density and kinetic freeze-out properties for different centrality classes as a function of transverse spherocity. This study has been carried out using a multi-phase transport model (AMPT) in Pb-Pb collisions at $\sqrt{s_{NN}}$ = 5.02 TeV. Contrary to pp collisions where jetty events are dominated, heavy-ion collisions are found to be dominated by isotropic events. Squared speed of sound and Bjorken energy density are found to be insensitive to transverse spherocity. In contrast, kinetic freeze-out properties such as transverse radial flow velocity and kinetic-freezeout temperature are found to be susceptive to transverse spherocity.

Reference: S. Prasad, N. Mallick, D. Behera, R. Sahoo and S. Tripathy, Sci. Rep. 12, 3917 (2022).

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

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

Session Classification: Poster Session I

Track Classification: Heavy Ions