Contribution ID: **16**   Type: **Oral**

Extracting the baryon diffusion coefficient of the hot and dense strongly interacting matter with Bayesian method

Thursday 4 September 2025 15:15 (15 minutes)

In a recent study, it was proposed that the rapidity odd directed flow splitting of proton and anti-proton observed in relativistic heavy ion collisions can be explained by incorporating the baryon diffusion effect into the hydrodynamic evolution of the strongly interacting matter created in heavy-ion collisions. However, extracting this coefficient from hydrodynamic simulations is a computationally intensive and numerically challenging task. To address this, we employ a statistically robust and sophisticated Bayesian analysis framework to estimate the baryon diffusion coefficient from hydro-simulated data by calibrating the model parameters against STAR experimental data at $\sqrt{s_{NN}}$ = 19.6 GeV.

Authors: PANDAY, Aradhana (IISER Berhampur); SARKAR, Nachiketa; CHATTERJEE, Sandeep (IISER, Berhampur); Mr PARIDA, Tribhuban (IISER Berhampur)

Presenter: PANDAY, Aradhana (IISER Berhampur)

Session Classification: Parallel Session