

Measurement of directed flow at forward and backward pseudorapidity at STAR

Monday, 24 April 2023 14:15 (25 minutes)

Directed flow (v_1) describes the collective sideward motion of produced particles and nuclear fragments in heavy-ion collisions. The pseudorapidity (η) dependence of v_1 can provide unique constraints on the initial conditions and dynamical evolution of the Quark Gluon Plasma (QGP). Directed flow in both spectator and participant regions is sensitive to early non-equilibrium dynamics and may provide insights into the baryon stopping mechanism. In 2018, the Event Plane Detector (EPD, $2.1 < |\eta| < 5.1$) was installed in STAR and used for the Beam Energy Scan phase-II (BES-II) data taking. The combination of EPD and high statistics BES-II data enables us to extend the v_1 measurement to a wide η range. In this talk, I will discuss the techniques for measuring v_1 with a scintillator detector like EPD, present v_1 over ten units of η in Au+Au collisions at $\sqrt{s_{NN}} = 27$ GeV and compare the results with the UrQMD model.

Theory / experiment

Experiment

Group or collaboration name

STAR Collaboration

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Session Classification: Parallel Session A

Track Classification: Collective dynamics