

Charge-to-Neutral fluctuation in AuAu collisions at Forward rapidity at RHIC.

Event-by-event fluctuation of the ratio of multiplicities of charged and neutral particles at forward rapidity in AuAu collisions at $\sqrt{s_{NN}}=200$ GeV has been studied. As the detected charged and neutral particles are mostly from the charged pions and the decay of neutral pions respectively, this analysis addresses isospin fluctuation of pions predicted to occur for a system going through the QCD chiral phase transition [1][2]. Our study in the STAR experiment at top RHIC energy includes multiplicity measurements of charged particles and photons using the Forward Time Projection chamber (FTPC) and the Photon Multiplicity Detector (PMD) respectively. We have used $\nu_{dyn;ch,\gamma}$ and $r_{m,1}$ as measures of dynamical fluctuation & studied their centrality dependence for data & mixed events and compared with the results from HIJNG & UrQMD. A comparison with results for AuAu collisions at $\sqrt{s_{NN}}=39$ GeV will also be discussed to address the energy dependence of charged-to-neutral fluctuation.

Ref:-

[1] J.D. Bjorken, What lies ahead?, SLAC-PUB-5673, 1991.

[2] J.P. Blaizot, A. Krzywicki, Phys. Rev. D 46 (1992) 246.

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Track Classification: Correlations and fluctuations