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Proton Cumulants and Correlation Functions in Au + Au Collisions at RHIC BES Energies from UrQMD Model

Summary

In this work, we will discuss the proton cumulants and correlation functions in UrQMD model. Our calculation is performed at energies of RHIC BES which $\sqrt{s_{\mathrm{NN}}}$ are 7.7, 11.5, 19.6, 27, 39, 62.4 and 200 GeV. We analysis the dependence of rapidity and acceptance of cumulants, as well as the correlation functions, which extract the information of 2, 3 or 4-particle correlation. At last we study the energy dependence and compare our calculation to the STAR preliminary results. The comparison suggests that there is other dynamics which leads to the enhancement of 2 or 4 particles correlation and the fourth order cumulants beyond our numerical calculation.

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