

Role of string fusion mechanism in fluctuation studies

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In the search for the critical point of strongly interacting matter, one of the key tools is to look at event-by-event fluctuations of different event observables expecting their non-monotonic behavior. It is crucial for the experiments to eliminate a possible influence of so-called trivial volume fluctuations on the physics observables of interest. This may be done e.g. by the accurate centrality selection used and/or by means of special measures using different estimators of initial conditions. It is also possible to apply some theoretical approaches in estimation of all the possible sources of unwanted fluctuations. In this report we compare results obtained in two phenomenological models of particle production. The first one is the Monte-Carlo model of interacting quark-gluon strings of finite length in rapidity space [1]. It takes into account, event-by-event, the string fusion phenomenon caused by string overlap in the transverse plane. It is this process of fusion that modifies string fragmentation characteristics and changes the mean values of multiplicities and transverse momenta of produced particles. The second one is the modified multi-pomeron exchange model [2,3] that takes into account, in the effective way, the process of string fusion emerging with the increase of collision energy. Using these models and Monte-Carlo event generators, the calculations were done for the strongly intensive quantities [4] $\Delta[PT,N]$ and $\Sigma[PT,N]$ and the combinants [5] of multiplicity distribution. Results are discussed.

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Yes

Section

1. Intermediate and high energies, heavy ion collisions

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