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Strongly intensive observable for multiplicities in forward and backward windows in string model

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The strongly intensive observable involving multiplicities in two separated rapidity intervals (forward and backward) is analyzed in the model with particle production from the fragmentation of strings. In the case with independent identical strings the model calculation confirms that this observable does not depend on nor the number of string, nor its event-by-event fluctuation. The expression of the observable through the two-particle correlation function of a string, characterizing the strength of the correlation between particles produced from the fragmentation of a same string, is found.

Using this connection and the explicit form of the two-particle correlation function of a string, obtained earlier by the parametrization of the pp ALICE data on correlations between multiplicities in windows separated in azimuth and rapidity, the dependence of the strongly intensive observable on the width of observation windows and the distance between them is calculated.

The influence of the string fusion processes on this observable is discussed.The results of the MC simulation of the variable by means of PYTHIA event generator for a wide scope of psevdo rapidity separation between observation windows are also presented. The work was funded by the grant of the Russian Science Foundation (project 16-12-10176).

List of tracks

Fluctuation in initial conditions, collective flow and correlations

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