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Multiplicity-dependent properties of multiparticle production at high energy in extended multipomeron exchange model

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A new generalization of the Multipomeron exchange model (MEM) [1-3] for pp collisions is proposed, taking into account the effect of event-by-event string tension fluctuations [4]. It is shown that the new version of the MEM correctly reproduces the characteristic thermal behavior of p_T spectra in a wide energy range. In addition, the new generalization of the MEM improves the description of multiplicity distributions by replacing the Poisson distribution from one string with the discrete Gaussian distribution [5]. Calculations show that the new version of the MEM correctly reproduces the characteristic oscillating behavior of modified combinatorics in pp collisions over a wide energy range [5]. Simultaneously, the p_T -multiplicity correlation functions are shown to be satisfactorily described together with the multiplicity-dependent p_T spectrum [6]. Possible applications of the new model for describing the relativistic heavy-ion collisions and opportunities for experiments at the NICA collider (Dubna) are discussed.

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