Contribution ID : **337** Type : **Poster**

Transverse momentum distributions and pt-Nch correlations in Extended Multipomeron Exchange Model

Thursday, 1 December 2022 13:00 (15)

The multipomeron exchange model was considered earlier in papers [1 – 5]. Within the framework of this model, it was possible to successfully describe the charged multiplicity (Nch), mean transverse momentum (pt) and pt-Nch correlations in pp and $p\bar{p}$ collisions over a wide energy range (from ISR to LHC). It allowed also to reproduce the growth of the yields of strange, multi-strange and charm particles as a function of multiplicity for pp, p-Pb and Pb-Pb collisions at the LHC energy. For this, in particular, the general idea of the Schwinger mechanism of particle production from a string [6] was used, where the transverse momentum distribution of charged particles from a string has a Gaussian form, and in case of string overlap the effective string tension was related to the number of strings. However, experimental data show that the pt-spectra of particles produced in pp collisions are better described by the thermal model. To solve this problem, we introduced the thermal-like pt distribution function which can be considered as averaging out over string tension fluctuations [7]. We calculated pt-spectra and pt-Nch correlations functions for pp-collisions at the LHC energy in extended multipomeron exchange model and compared the results with the experimental data.

The research was supported by the SPbSU project, No 93025435.

1. Armesto N., Derkach D.A., Feofilov G.A. p(t)-multiplicity correlations in a multi-Pomeron-exchange model with string collective effects. Phys. Atom. Nucl. 2008, 71, 2087–2095.
2. Bodnia E., Derkach D., Feofilov G., Kovalenko V., Puchkov A. Multi-pomeron exchange model for pp and $p\bar{p}$ collisions at ultra-high energy. PoS QFTHEP2013 2013, 60.
3. Kovalenko V.N., Puchkov A.M., Feofilov G.A. Production of strange particles in a multi-pomeron exchange model. Bull. Russ. Acad. Sci. Phys. 2016, 80, 966–969.
4. Feofilov G., Kovalenko V., Puchkov A. Correlation between heavy flavour production and multiplicity in pp and p-Pb collisions at high energy in the multi-pomeron exchange model. EPJ Web Conf. 2018, 171, 18003.
5. Kovalenko V., Feofilov G., Puchkov A., Valiev F. Multipomeron Model with Collective Effects for High-Energy Hadron Collisions. Universe 2022, 8, 246. https://doi.org/10.3390/universe8040246
6. Schwinger J.S. On gauge invariance and vacuum polarization. Phys. Rev. 1951, 82, 664–679.
7. Bialas A. Fluctuations of the string tension and transverse mass distribution. Phys. Lett. B 1999, 466, 301–304.

Primary author(s) : MAROVA, Aleksandra (Saint Petersburg State University); KOVALENKO, Vladimir (Saint Petersburg State University); PUCHKOV, Andrei (Saint Petersburg State University)

Presenter(s) : MAROVA, Aleksandra (Saint Petersburg State University)

Session Classification : Poster Session

Track Classification : High energy physics: theory