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Towards studies of 2-particles Pt correlations in hadronic interactions at NICA

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Spin Physics Detector (SPD) will be created at NICA accelerator facility in Dubna, Russia. One of the aims of the experiment is a study of spin effects in polarized proton-proton and deuteron-deuteron collisions at high energies. The other very important aim is an extraction of gluon distribution function of nucleons. Minimal bias interactions will be studied also. We will consider problems of soft hadronic collisions what can be investigated, namely, average Pt correlations with Feynman-x variable (x_F) of produced particles, and 2-particle Pt correlations. The LEBC-EHS collaboration presented in 1991 Pt- x_F correlations in pp-interactions for $\text{P}_{i^{\pm}}$, K^{\pm} mesons, anti-protons and protons at $P_{\text{lab}}=400$ GeV/c. The correlations grow up very fast at $x_F \rightarrow 1$. Monte Carlo model – FRITIOF existing at that time, could not be able to quantitatively describe the data. A modern FRITIOF model implemented in the Geant4 package (FTF model) also has some problems. We will present FTF results in a comparison with PYTHIA model ones. In order to understand a nature of the correlations, we propose to study 2-particle Pt correlations at future SPD experiment. Essence of the last correlations will be also considered.

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