

Study of pion-pion correlations at LHC and RHIC energies in pp collisions within the quark-gluon string model

The microscopic string model is employed for the description of femtoscopic characteristics of identical pions produced in pp collisions at energies of $\sqrt{s} = 200\text{GeV}$ (RHIC) and $\sqrt{s} = 900\text{GeV}$ (LHC). The strong decrease of the correlation radius with increasing transverse momentum of the pion pair is found in accord to STAR and ALICE experimental observations with flat baselines. In contrast to standard fit of the pion correlation function to single Gaussian, the double Gaussian fit reveals the contributions coming from resonances and from directly produced particles. The comparison of model results with the experimental data favors decrease of particle formation time with rising collision energy. The model is also employed to calculate the three-dimensional correlation functions, which gives good agreement with ALICE experimental data.

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