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Study of strongly intense quantities and robust variances in multi-particle production at LHC energies

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The strongly intense quantities and robust variances in processes of multi-particle production in pp and AA interactions at LHC energies was studied. The Monte Carlo and analytic modelling of these quantities in the framework of a quark-gluon string model were implies. The string fusion effects were also taken into account by implementing of a lattice (grid) in the impact parameter plane. Strongly internsive variable $\Sigma(n_F,\ n_B)$ was calculated for different energies for two values of the width of the observation rapidity windows as a function of the distance between the centers of this windows.

Scaled variance ω_n and robust variance R_n for different energies and for different width of the observation rapidity window was calculated by MC simulations. Strongly internsive variable $\Sigma(n_F,\ n_B)$ calculated from MC simulation results was also compared with preliminary ALICE experimental data.

This talk is based on CERN Summer Student Project [1].

[1] Belokurova Svetlana, Study of strongly intense quantities and robust variances in multi-particle production at LHC energies, CERN-STUDENTS-Note-2019-021, (2019); CDS: https://cds.cern.ch/record/2684671

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