Investigation of correlation of generated nuclearactive particles in the proton-antiproton annihilation at momenta 22.4 and 32 GeV / c

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Separation of the individual events corresponding to antiproton-proton annihilation gives the possibility to carry out the analysis of multiparticle correlations for generated particles and to compare them with corresponding data for inelastic *pp* and non-annihilation *p̃p* interactions.

The correlation function [1]

$$R_k(G) = \frac{F_k(G)}{F_k^\emptyset(G)} - 1 \,,$$

where $G = \eta_{i+k} - \eta_i$ - the gap of quasirapidities; $\eta_i \ and \ \eta_{i+k}$ - quasirapidities of boundary particles of the interval with (k - 1) charged particles inside it; $F_k(G)$ - measured differential distribution; $F_k^\emptyset(G)$ - expected differential distribution in the absence of correlations (background distribution).

The graphs of R_k on G dependence have been received for the reaction of antiproton – proton annihilation and for non-annihilation *p̃p* - interactions at momenta of primary antiprotons 22.4 and 32 GeV/c, and also for inelastic pp-interactions at momentum 69 GeV/c.

In interactions of antiproton – proton annihilation the observed correlation of charged particles is more weak, than in non-annihilation interactions.

In proton – proton and non-annihilation antiproton – proton collisions similarity of correlation functions is observed.

References

[1] E.G. Boos *et al*. 1995 *Zeitschrift Für Physik A* **351,** 209 – 215.