NEUTRAL PION NUMBER FLUCTUATIONS AT HIGH MULTIPLICITY IN pp-INTERACTIONS AT 50 GeV

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The results of pion fluctuation measurements in SERP-E-190 experiment (project Thermalization) with 50 GeV proton beam irradiation of the liquid hydrogen target at SVD-2 setup are presented. The photons are detected in the electromagnetic calorimeter. MC modeling of photon detection has shown the linear dependence between number of photons in the calorimeter and the average number of neutral pions. Neutral pion number N_0 distributions for each total number of particles in an event $N_{tot} = N_{ch} + N_0$ are obtained after making corrections on the setup acceptance, triggering and efficiency of the event reconstruction. The scaled variance of neutral pion fluctuations, $\omega = D/ < N_0 >$, is measured. The fluctuations increase at N_{tot} >22. According to quantum statistics models it may indicate for the approaching to pion condensate conditions for high pion multiplicity in the system. This effect have been observed for the first time.

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