



Contribution ID : 585

Type : Oral talk

HE Stratosphere Event of 1975 Revisited: New Physycs in Astroparticle Collision vs. LHC Nucleus-Nucleus Data

Friday, 9 October 2020 17:40 (15)

The event of astroparticle collision at high energy was detected in 1975 during the balloon flight in stratosphere. The hundred particle tracks in x-ray films have been re-analyzed in the style of LHC experiments: rapidity distributions of charged particles and transverse mass spectra of multiparticle production have been built. The comparison of multiple rapidity-and-Mt histograms with the knowledge accumulated in the Quark-Gluon String Model gives us the conclusion that it was the carbon nucleus collision with a matter of atmosphere at the c.m.s. equivalent energy 5 TeV. After QGSM analysis of these scarce data, we know the following: 1) the value of maximal rapidity of one projectile proton and 2) the density of particle multiplicity in the central rapidity region. Such a way, we can practically distinguish how the astroparticle interaction is similar to or differs from the average A-A collision event at LHC. The data include some features of new physics, as an example, it may be baryonic DM particle collision. Previously, the suggestion was done that baryonic Dark Matter cannot be reproduced in accelerators. It appears in the space at a huge mass densities near the giant objects like Black Holes. The new experiment is to be designed with modern electronics on the high altitudes in the atmosphere in order to confirm our conclusions. The results will be, on one hand, good supplements to the LHC measurements. On the other hand, they are able to reveal more events of new astroparticle collisions in the full kinematical region.

Primary author(s) : Dr. PISKOUNOVA, Olga (LPI Moscow); Dr. KOTELNIKOV, Konstantin (LPI Moscow)

Presenter(s) : Dr. PISKOUNOVA, Olga (LPI Moscow); Dr. PISKOUNOVA, Olga (Lebedev Physics Institute)

Session Classification : Astroparticle Physics

Track Classification : Astroparticle physics