



Contribution ID: 128

Type: not specified

## Determination of classes of events in multiplicity and its relevance to centrality in high energy Pb-Pb and p-Pb collisions in different MC models

Friday 12 September 2014 14:00 (20 minutes)

We present the critical review of estimates of centrality in AA and pA collisions that are usually done by selection of classes of events with certain charged particles multiplicity. Results of MC simulations in different models are presented. They include the Standard Glauber, the Modified Glauber model [1] and HIJING[2] event generator (with gluon shadowing) MC calculations. We present the estimates of the number of participants ( $N_{part}$ ) and of the nucleon-nucleon collisions ( $N_{coll}$ ) and their distributions and relations to the impact parameter in AA, and pA interactions at the LHC energy. It is obtained that the distributions in  $N_{part}$ , relevant to the narrow (1%) multiplicity class selection in Pb-Pb collisions, are wider than could be expected. Results of models [1-2] are found to be in agreement with and AMPT[3] and the non-Glauber Model MC calculations [4], all these data are pointing at the considerable stopping of nucleons (or high role of gluon shadowing) in Pb-Pb and p-Pb interactions at the LHC energies. It is shown that, contrary to the Standard Glauber model, the account of the energy-momentum conservation in soft particles production, that is intrinsically present in the models [1-4], leads to the noticeable decrease in the mean number of nucleon collisions  $N_{coll}$  in Pb-Pb and p-Pb interactions at the LHC energies. Importance of these effects in search of the critical phenomena at the SPS energies is also discussed.

The authors acknowledge Saint-Petersburg State University for a research grant 11.38.66.2012

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**Session Classification:** Parallel IV: D10 Deconfinement

**Track Classification:** Section D: Deconfinement