Contribution ID: **99** Type: **not specified**

New insights of soft hadron production in pp and pPb collisions at LHC

Friday, 21 December 2018 15:45 (15 minutes)

We find an important new feature of soft hadron production in pp and pPb collisions at LHC energies, that is, the possible transition of hadronization mechanism from the traditional fragmentation to the quark combination. We observe that the ALICE data for the low p_T (<=6GeV/c) spectra of Omega(sss) and phi(s\bar{s}) in pPb collisions at 5.02 TeV exhibit a constituent quark number scaling property. The preliminary of data in high multiplicity events in pp collisions at 7 TeV and those in minimum bias events in pp collisions at 13 TeV also exhibit such scaling property. This is a direct signal/evidence for the quark combination mechanism at hadronization in these small systems created in pp and pPb collisions at LHC energies. We use a quark combination model with equal velocity combination approximation to successfully describe the yields and p_T spectra of various identified hadrons (such as phi, K*, p, Lambda, Xi, Omega, etc) in pp and pPb collisions at LHC energies. In addition, the combination of charm quark with light flavor quarks can well describe the data of p_T spectra of single-charm hadrons D, Ds, Lambda_c in pp and pPb collisions. These results suggest that the constituent quark degrees of freedom play an important role in soft hadron production at hadronization in small systems created in pp and pPb collisions at LHC energies.

Type

Parallel talk

Sessions (parallel only)

Heavy Ions

Primary authors: Dr SONG, Jun (Jining university); Prof. SHAO, fenglan (qufu normal university)

Presenter: Dr SONG, Jun (Jining university)

Session Classification: QCD

Track Classification: Heavy Ions