

Transverse sphericity in minimum bias proton-proton collisions at $\sqrt{s} = 0.9$ and 7 TeV with ALICE at the LHC

A study of the linearized sphericity in minimum bias proton-proton collisions at $\sqrt{s} = 0.9$ and 7 TeV with the ALICE detector at the LHC is presented. The observable was measured in the plane perpendicular to the beam direction and using primary charged tracks in $|\eta| \leq 0.8$. The average sphericity as a function of multiplicity is reported for events with different hardness (soft and hard) defined by a cut on the transverse momentum of the leading particle. In addition to those studies the average transverse momentum versus multiplicity was measured for different event classes. Data are compared with PYTHIA6 (tunes: ATLAS-CSC and PERUGIA-0), PYTHIA8 and PHOJET. The behavior of the linearized sphericity and of the mean p_T with multiplicity indicates that the current event generators tend to “build up” multiplicity by generating more jets while on the contrary the data indicate that at high multiplicity the events tend to be more isotropic and the mean p_T smaller.

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Track Classification: Correlations and fluctuations