

Investigating dependence of inclusive jet properties on \sqrt{s} and multiplicity in pp collisions at LHC energies

Jets are produced from the fragmentation of hard scattered partons (quarks and gluons) in high energy collisions. Jets originating from quarks and gluons, which differ in their color charges, are expected to have different properties (jet fragmentation, jet constituents multiplicity, jet size). In experiments, measurements of inclusive jets contain contributions from both quarks and gluons. The properties of inclusive jets are expected to change with change in the quark or gluon fraction in them. The gluon density inside a hadron is known to increase with increasing \sqrt{s} [1]. In high multiplicity pp events also the production of hard probes are argued to increase due to increase in gluonic contributions [2]. One would therefore naively expect a change in the properties of inclusive jets at higher \sqrt{s} and also for high multiplicity pp events. In this work, we will present a detailed study to estimate the change in the inclusive jet properties as a function of \sqrt{s} and event multiplicity, due to the change in gluonic contributions, for pp collisions using available experimental results and PYTHIA simulations at LHC energies.

References

- [1] Eur. Phys. J. C 49, 155–162 (2007).
- [2] arXiv:1803.11093v1 [hep-ex] (2018).

Summary

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