

Title: Partonic showers and jets

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Abstract: In the present thesis we compare experimentally measured differential and integrated jets shapes with predictions of quantum chromodynamics (QCD) at the second order (NLO) of perturbative expansion. The measured jet shapes were taken from ATLAS experiment at LHC in proton-proton collisions at a center-of-mass energy  $\sqrt{s} = 7$  TeV and were compared with these predictions. The jets were reconstructed by means of anti- $k_T$  jet algorithm with  $R = 0.6$ . The predictions at NLO QCD agree with data in wider kinematics region than predictions at leading order (LO). The agreement, however, is still in some kinematical regions not satisfactory.

Keywords: QCD, jets, jet shapes, LHC