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Tuning of PYTHIA6 to Minimum Bias and Underlying Event data

In this work, new tunings of the PYTHIA6 Monte Carlo event generator using Minimum Bias(MB) and Underlying Event (UE) data published by the ATLAS Collaboration are presented.
Altogether six parameters are varied: four parameters of the Multiple Parton Interaction model and two Lambda_QCD parameters. The fragmentation parameters are taken from tunes to ALEPH e+e- Z peak data.
It is shown that reasonably good descriptions of both MB and UE data distributions at two proton-proton collision energies, 0.9 TeV and 7TeV, are obtained provided that charge particles with pt>500 MeV are used.
In addition it is found that equally good fits are obtained for all three types of parton density functions (PDF's) of the proton:leading order(LO), next-to-leading order (NLO) and modified LO.

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