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Extraction of the multiplicity dependence of Multiparton Interactions from LHC pp data using Machine Learning techniques

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Over the last years, Machine Learning (ML) tools have been successfully applied to a wealth of problems in high-energy physics. In this talk, we will discuss the extraction of the average number of Multiparton Interactions (N_{mpi}) from minimum-bias pp data at LHC energies using ML methods. Using the available ALICE data on transverse momentum spectra as a function of multiplicity we report the N_{mpi} for pp collisions at $\sqrt{s} = 7$ TeV, which complements our previous results for pp collisions at $\sqrt{s} = 5.02$ and 13 TeV. The comparisons indicated a modest energy dependence of N_{mpi} . We also report the multiplicity dependence of N_{mpi} for the three center-of-mass energies. These results are fully consistent with the existing ALICE measurements sensitives to MPI, therefore they provide experimental evidence of the presence of MPI in pp collisions.

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